



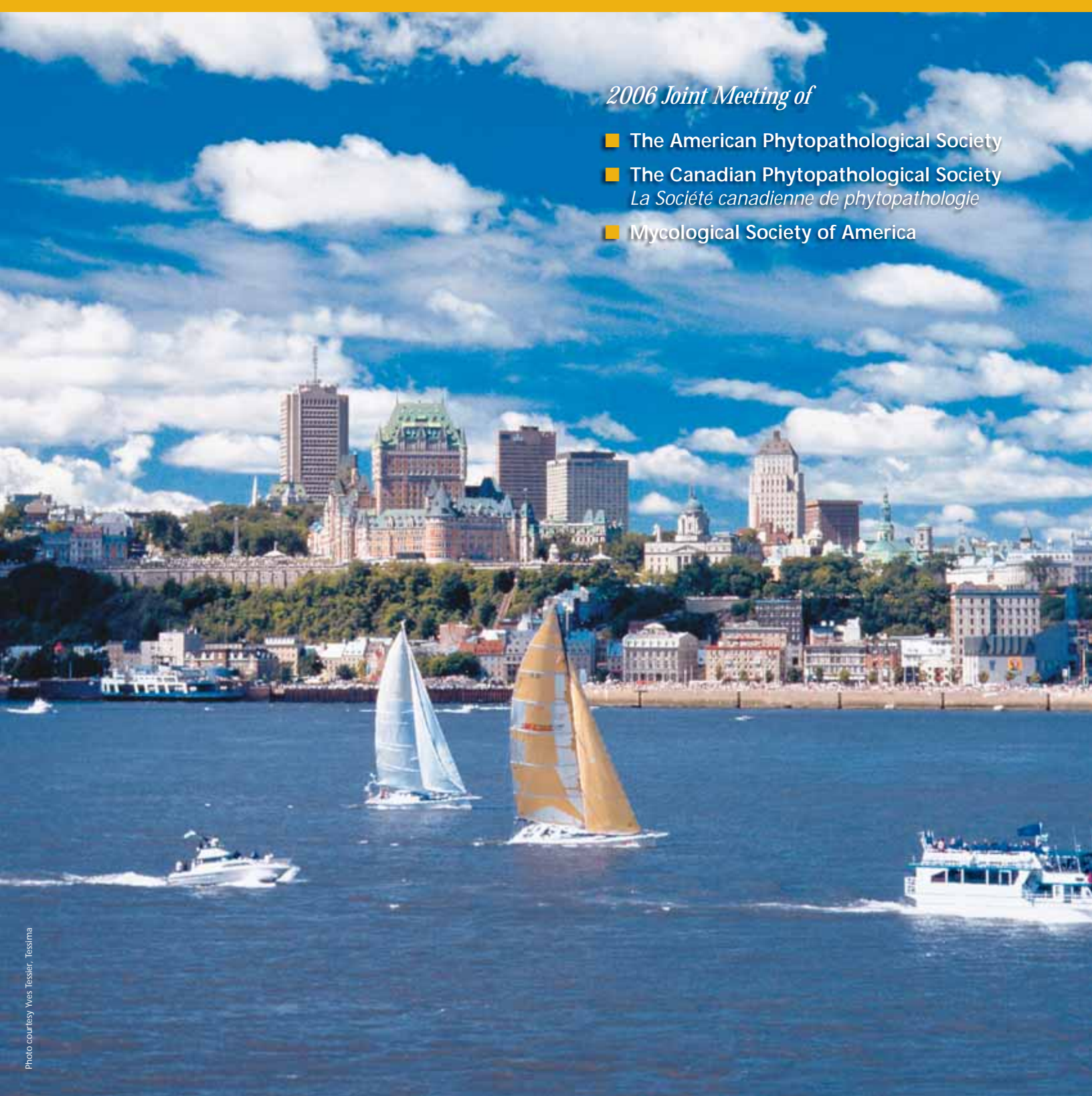
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July 29 - August 2
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SESSIONS AT A GLANCE

	Biology of Plant Pathogens	Diseases of Plants	Epidemiology/ Ecology/ Environmental Biology	Molecular/ Cellular Plant-Microbe Interactions	Plant Disease Management	Professionalism/ Service/Outreach	Mycological Society of America
Sunday	<p>Culture Collections in the Genomics Age 1:15 – 5:00 p.m.; Room 304AB</p> <p>Functional Genomics Meets Bacterial Diseases, Part III: Xanthomonas and Xylella Genomics 1:30 – 4:45 p.m.; Room 205C</p> <p>Fungal Endophytes: Diversity and Function in Forest Ecosystems 1:30 – 5:00 p.m.; Room 206A</p>	<p>Cacao Diseases: Important Threats to Chocolate Production Worldwide 1:30 – 4:45 p.m.; Room 206B</p> <p>The Role of Fungi in Science and Human Affairs 1:30 – 5:00 p.m.; Room 303AB</p>	<p>Epidemiology/Ecology/ Environmental Biology I 1:30 – 5:15 p.m.; Room 202</p>	<p>Fungi – Genetics/ Molecular Biology/Cell Biology I 1:30 p.m. – 5:15 p.m. Room 205AB</p>	<p>Integrated Pest Management 1:30 – 5:15 p.m.; Room 301AB</p>	<p>Navigating Funding Agencies and Updates from the Public Policy Board 1:30 – 4:30 p.m.; Room 204B</p>	<p>Ascomycete Systematics I 1:30 – 3:00 p.m.; Room 208AB</p> <p>Fungal Movement: Contemporary Experimental Analysis 1:30 – 5:10 p.m.; Room 302AB</p> <p>Basidiomycete Systematics 3:30 – 5:00 p.m.; Room 208AB</p>
Monday	<p>Viruses – Systematics/ Evolution/Ecology 8:00 – 11:15 a.m. Room 301B</p> <p>Bacteria – Systematics/ Evolution/Ecology 1:00 – 2:15 p.m.; Room 301B</p> <p>Biology and Epidemiology of Seed Transmission 1:00 – 4:30 p.m.; Room 304AB</p>	<p>Diseases – Cereals, Field, and Fiber Crops 8:00 – 11:30 a.m. Room 301B</p> <p>Diseases – Turf Grasses 8:00 – 9:30 a.m.; Room 208AB</p> <p>Disease Detection and Diagnostics 1:00 – 4:45 p.m.; Room 303AB</p> <p>Diseases – Fruits and Nuts 1:00 – 4:30 p.m.; Room 206A</p> <p>Forest Pathology 1:00 – 4:30 p.m.; Room 202</p>	<p>Epidemiology/Ecology/ Environmental Biology II 8:00 – 11:30 a.m.; Room 206B</p> <p>Population Biology of Oomycetes 8:00 – 11:30 a.m. Room 202</p> <p>Water and Disease Management in Nursery and Greenhouse Production 8:00 – 11:30 a.m.; Room 301A</p> <p>The Effects of Climate Change on Tree Diseases 1:00 – 4:30 p.m.; Room 302AB</p>	<p>The Role of Type III Effectors in Bacterial Virulence 7:45 – 11:30 a.m.; Room 302AB</p> <p>6th I.E. Melhus Graduate Student Symposium 1:00 – 4:00 p.m.; Room 206B</p> <p>Fungi – Genetics/ Molecular Biology/Cell Biology II 3:00 – 4:30 p.m.; Room 301B</p>	<p>New Products and Services 8:00 – 11:15 a.m.; Room 206A</p> <p>Host Resistance 8:00 – 11:45 a.m.; Room 205AB</p> <p>Urban Forestry Health Management 8:00 – 11:45 a.m.; Room 204AB</p> <p>Biological Control 1:00 – 4:45 p.m.; Room 205AB</p> <p>Diverse Strategies for Managing Mycotoxins 1:00 – 4:00 p.m.; Room 205C</p> <p>New Regulatory Challenges: Rapid Changes in Taxonomy of Plant Pathogens 1:00 – 4:15 p.m.; Room 301A</p>	<p>Syllabi: What Are Needed in Them and How Can I Improve Mine 9:30 a.m. – 12:00 p.m. Room 304AB</p>	<p>Presidential Address 8:30– 9:30 a.m.; Room 303AB</p> <p>Fungal Ecology– Mycorrhizae 10:00 – 11:30 a.m.; Room 208AB</p> <p>Fungal Systematics I 10:00 – 11:30 a.m.; Room 207</p> <p>Diversity of Zoosporic Fungi 1:00 – 4:30 p.m.; Room 204AB</p> <p>Fungal Ecology – Endophytes and Saprobes 3:00 – 4:30 p.m.; Room 203</p> <p>Fungal Molecular and Cell Biology 1:00 – 2:30 p.m.; Room 203</p>

<p>Tuesday</p>	<p>Fungi – Systematics/ Evolution/ Ecology 8:30 a.m. – 12:00 p.m. Room 205AB</p> <p>Postharvest Pathology and Mycotoxicology 10:30 a.m. – 12:00 p.m. Room 204AB</p> <p>Gene Clustering as a Mechanism for Microbial Innovation 1:30 – 4:30 p.m.; Room 205C</p>	<p>Crop Loss Assessment 8:30 – 10:00 a.m.; Room 202</p> <p>Long-Term Patterns of Spread and Intensification for Forest Pathogens 8:30 a.m. – 12:00 p.m.; Room 203</p> <p>Phyllosphere/ Rhizosphere Microbiology and Ecology 8:30 – 10:00 a.m.; Room 204AB</p> <p>Periodic Table of Plant Pathogens 1:30 – 5:00 p.m.; Room 205AB</p> <p>Phytophthora ramorum: An Environmental Threat; A Regulatory Quandary 1:30 – 4:30 p.m.; Room 302AB</p> <p>Population Genetics 1:30 – 4:45 p.m.; Room 301A</p>	<p>Illuminating the Unique Nature of Parasitic and Free-Living Nematode Genomes 8:30 a.m. – 12:00 p.m. Room 301B</p> <p>Molecular/Cellular Plant-Microbe Interactions 8:30 a.m. – 12:00 p.m. Room 206B</p> <p>Signals, Pools and Pathways to Host Resistance; SAR 8:30 – 11:30 a.m.; Room 302AB</p> <p>Viruses – Genetics/ Molecular Biology/Cell Biology 8:30 – 11:30 a.m.; Room 208AB</p> <p>Bacteria – Genetics/ Molecular Biology/Cell Biology 1:30 – 5:00 p.m.; Room 203</p> <p>Fungi – Genetics/ Molecular Biology/Cell Biology III 1:30 – 3:00 p.m.; Room 303A</p> <p>Molecular Signaling in Phyllosphere Interactions 1:30 – 4:30 p.m.; Room 304AB</p> <p>Nematodes – Genetics/ Molecular Biology/Cell Biology 3:30 – 4:15 p.m.; Room 303A</p>	<p>Contributions of the Chemical Industry to Crop Protection 8:30 a.m. – 12:30 p.m. Room 304AB</p> <p>Chemical Control I 1:30 – 5:00 p.m.; Room 303B</p> <p>Plant Disease Management 1:30 – 5:00 p.m.; Room 301B</p> <p>Research, Development, and Adoption of Biopesticides in the 21st Century 1:30 – 5:00 p.m.; Room 208AB</p>	<p>Career Counseling for the Budding Plant Pathologist 8:30 a.m. – 12:00 p.m. Room 206A</p>	<p>Karling Lecture 9:00 – 10:00 a.m.; Room 303AB</p> <p>Fungal Ecology Methods and Patterns 10:30 a.m. – 12:00 p.m. Room 202</p> <p>Fungal Pathogens: Population Structure and Distributions 10:30 a.m. – 12:00 p.m. Room 208AB</p> <p>Ascomycete Systematics II 1:30 – 3:00 p.m.; Room 202</p> <p>Bacterial Symbionts of Fungi 1:30 – 4:30 p.m.; Room 204AB</p> <p>Fungal Systematics II 3:30 – 5:00 p.m.; Room 202</p>	<p>Population and Species Divergence in Fungi 8:30 a.m. – 12:00 p.m. Room 304AB</p>
<p>Wednesday</p>	<p>Evolution in the Current Taxonomy of the Straminipiles: Phytophthora, Pythium and Beyond 8:30 a.m. – 12:00 p.m. Room 302AB</p> <p>Evolution of Virulence in Gram-Positive and Fastidious Bacteria 8:30 – 11:30 a.m.; Room 303A</p>	<p>1st International Symposium on Cercospora Leaf Spot of Sugar Beet 8:30 a.m. – 4:45 p.m. Room 205AB</p> <p>Diseases - Ornamentals 8:30 – 10:15 a.m.; Room 204AB</p>	<p>Detection of Invasive Pathogens in Forest and Ornamental Landscapes 8:30 a.m. – 12:30 p.m. Room 303B</p>	<p>Viruses as Minimalist Pathogens: Multiplicity of Protein Functions in Pathogenesis 8:30 a.m. – 12:00 p.m. Room 301A</p>	<p>Chemical Control II 8:30 a.m. – 12:00 p.m.; Room 202</p> <p>Exploiting Microbial Diversity for New Agents to Biologically Control Plant Diseases: Myxobacteria and Lysobacter spp. 8:30 a.m. – 12:00 p.m. Room 301B</p>	<p>Teaching Non-Traditional Mycology/ Plant Pathology Courses for Undergraduates 8:30 a.m. – 12:00 p.m. Room 203</p>	<p>Population and Species Divergence in Fungi 8:30 a.m. – 12:00 p.m. Room 304AB</p>

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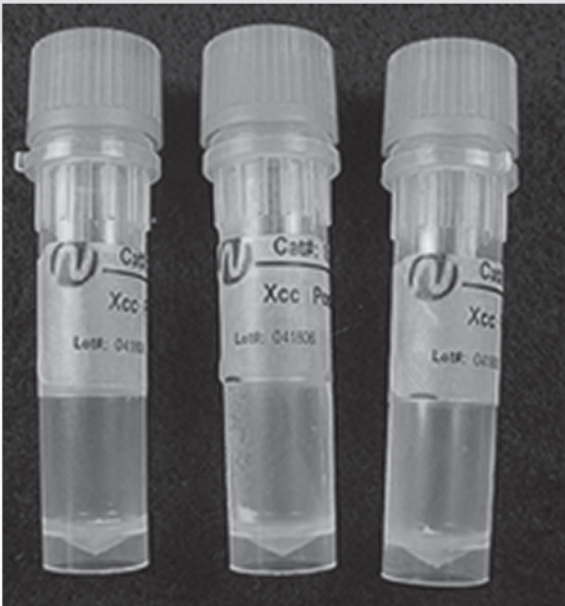
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Pseudomonas syringae pv tomato
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Begomo group
Tobacco mosaic virus
Tomato mosaic virus
Tomato spotted wilt virus
Tomato yellow leaf curl virus
Nematode resistance marker
Tomato mosaic virus resistance marker
Speck resistance marker
Tomato spotted wilt virus resistance marker
Verticillium race 1 resistance marker

Grapevines

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GENERAL INFORMATION

Registration Hours

Registration Desk will be located outside of Hall 400 in the Québec Convention Center

Saturday, July 29	2:00 – 6:00 p.m.
Sunday, July 30	7:30 a.m. – 7:30 p.m.
Monday, July 31	7:30 a.m. – 4:30 p.m.
Tuesday, August 1	8:00 a.m. – 4:30 p.m.
Wednesday, August 2	8:00 – 11:00 a.m.

Exhibit Hours

Exhibit Hall 400 AB

Sunday, July 30	9:00 a.m. – 4:00 p.m. (set-up) 7:00 – 10:00 p.m.
Monday, July 31	11:00 a.m. – 7:00 p.m.
Tuesday, August 1	11:00 a.m. – 2:00 p.m. 2:00 – 8:00 p.m. (take-down)

APS PRESS Hours

Exhibit Hall 400 AB

Sunday, July 30	7:00 – 10:00 p.m.
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Tuesday, August 1	9:00 a.m. – 5:00 p.m.
Wednesday, August 2	9:00 – 11:00 a.m.

Abstracts and Program Books

Abstract and program books are available at the Registration Desk. APS abstracts are also published in the supplement to the June issue of *Phytopathology*, CPS abstracts are published in the *Canadian Journal of Plant Pathology*, and MSA abstracts are published in *Inoculum*.

Technical Posters

More than 830 posters will be presented concurrently. Author presentation times are listed below. Lunch and refreshments will be available for purchase during open hours.

Poster Hours

Sunday, July 30	
12:00 – 5:00 p.m.	Poster Set-up
7:00 – 10:00 p.m.	Welcome Reception with Exhibits and Poster Viewing
7:30 – 8:30 p.m.	Authors Present—Session A (even numbers)
8:30 – 9:30 p.m.	Authors Present—Session B (odd numbers)
Monday, July 31	
7:30 a.m. – 7:00 p.m.	Poster Viewing Open
4:30 – 5:30 p.m.	Authors Present—Session B (odd numbers)
5:30 – 6:30 p.m.	Authors Present—Session A (even numbers)
Tuesday, August 1	
8:30 a.m. – 4:30 p.m.	Poster Viewing Open
4:30 – 6:30 p.m.	Poster Take-down

Joint Meeting Poster Proceedings CD-Rom

This easy-to-use, fully searchable CD-Rom will provide a record of the posters you visited, as well as posters you didn't have time to view. Citable abstracts of each poster are included. The CD-Rom was available to meeting attendees at the discounted rate of \$40 each, including shipping, when ordered with your registration. Posters are presented in PDF format. CD-Roms will be shipped approximately three weeks after the meeting.

Job Placement Service

Complimentary use of the online Job Placement Service to employers and job candidates will be available in Room 201C of the convention center. **The placement service will be open Saturday – Tuesday, during the following hours:**

Saturday, July 29	1:00 – 4:00 p.m.
Sunday, July 30	9:00 a.m. – 4:00 p.m.
Monday, July 31	9:00 a.m. – 4:00 p.m.
Tuesday, August 1	9:00 a.m. – 4:00 p.m.

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APS Central

Find out what is happening in APS by stopping by APS Central, located in the registration area. Learn about the latest initiatives in public affairs, outreach, and education, as well as industry relations and international programs, all in one spot. Provide suggestions and help advance APS or sign up to be involved in the areas that interest you the most. Stop by and check it out!

Open Meeting Rooms

Small meeting rooms are available for use throughout the meeting. To check availability, location, and to reserve a meeting time, stop by the Registration Desk.

Getting Around Québec City

Walking is one of the best ways to experience Québec City. If your feet get tired, hire a horse-drawn carriage to show you the sites of the walled city. Public transportation and taxicabs are plentiful and affordable.

Weather

The average temperature during the day is 76°F (24°C), but the nights cool down to a comfortable 55°F (13°C). Be sure to dress appropriately for both the indoors and outdoors and don't forget to bring a light jacket or sweater.

Media

Members of the media seeking interviews onsite should contact APS staff member Amy Steigman at the Registration Desk. Media kits and current press releases will also be available at registration.

Photo Release

Photographs will be taken at the APS/CPS/MSA Joint Meeting. By registering for this meeting, you agree to allow APS/CPS/MSA to use your photo in any of their publications or websites.

Dress

The official dress of the meeting is business casual.

Safety Tips

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

Procedures in Case of Fire

In case of fire:

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

Emergency Information

Medical emergencies should be communicated to either an APS staff member at the Registration Desk or a Québec City Convention Centre employee. All Centre security employees are trained as First-Responders. Phone the local emergency response team by dialing 911. An Emergency Medical Technician (EMT) will be available during limited show hours. The hospital facility located closest to the Convention Center is (APS/CPS/MSA do not endorse this facility):

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11 Côte du Palais
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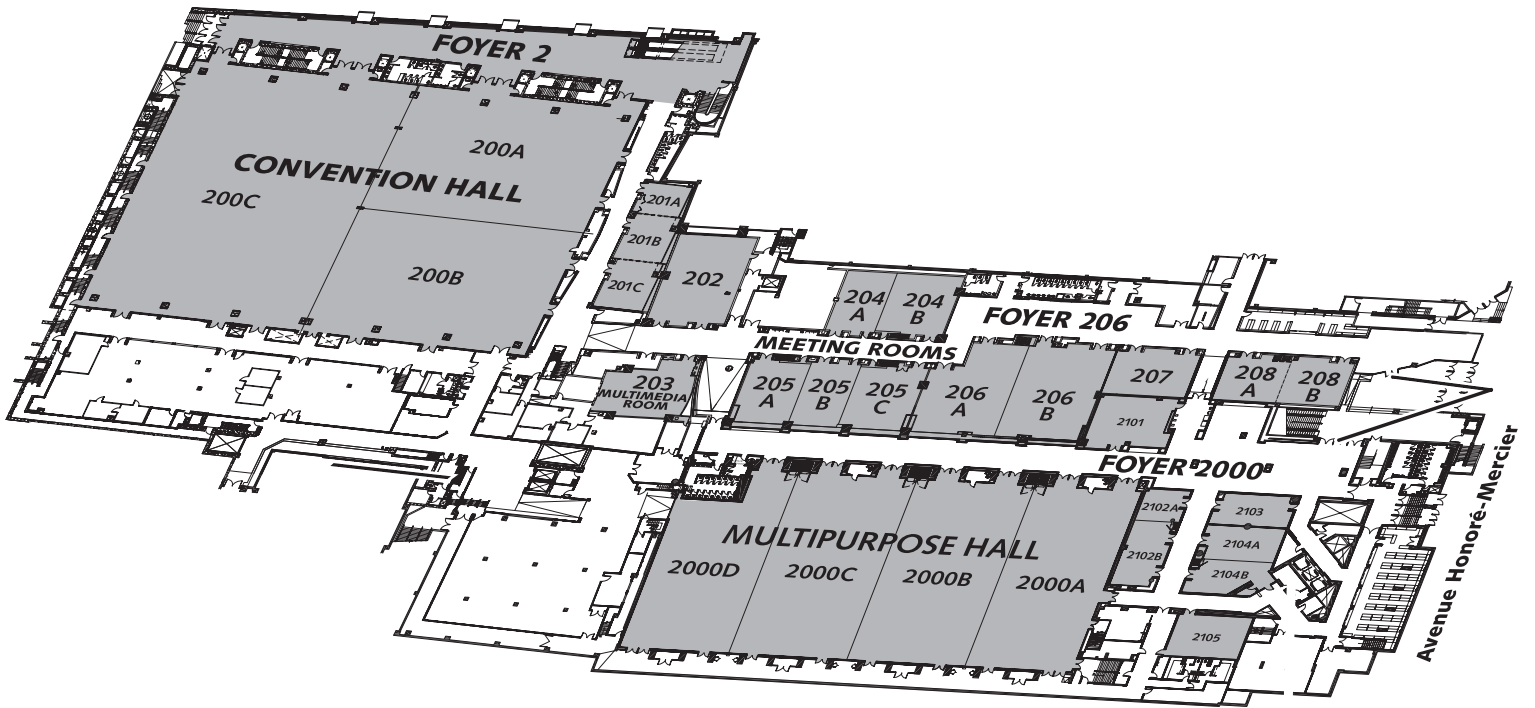
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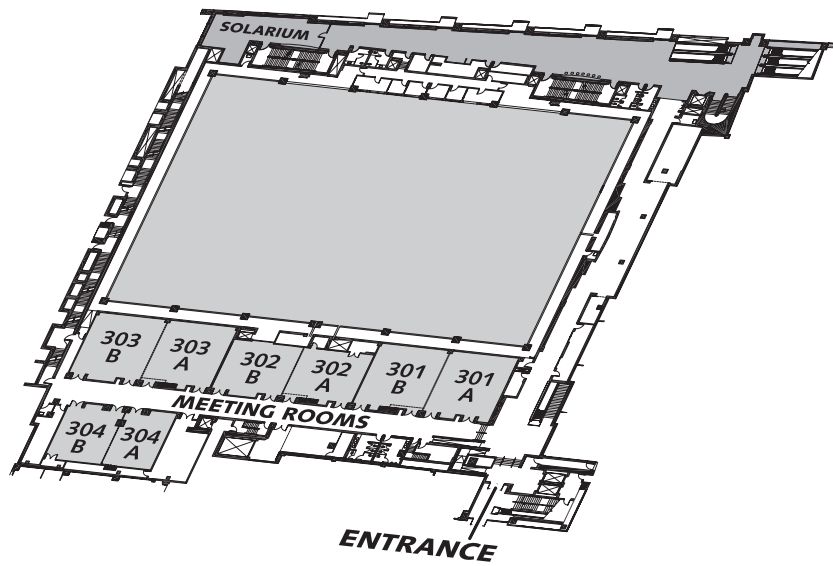


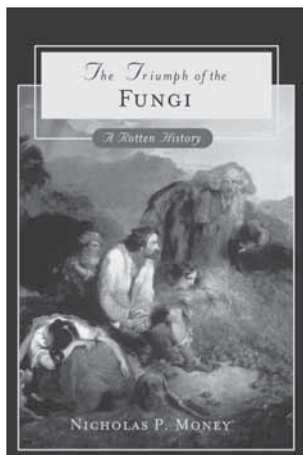
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July 2006 \$29.95

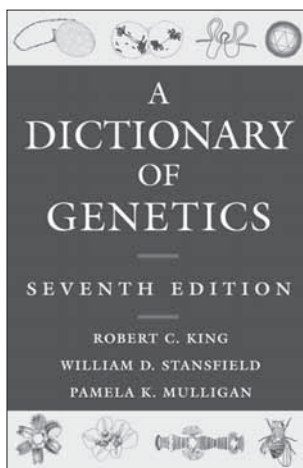
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ECOLOGY AND EVOLUTION

EDITED BY FERNANDO E. VEGA AND
MEREDITH BLACKWELL

There is a significant and increasing interest in using fungi as biocontrol agents for insect pests in agricultural systems, and also a growing interest in the basic biology of insect-fungal associations from the perspective of parasitism, symbiosis, and infection. Vega and Blackwell are well-regarded in this field, and they have assembled an impressive short book of ten chapters to cover the most important topics, incorporating new molecular techniques wherever possible.

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July 2006 paper \$34.95 cloth \$74.50

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PLANT NEMATOTOLOGY

EDITED BY R. N. PERRY AND M. MOENS

Written by subject experts, this book provides an indispensable overview of all aspects of plant-parasitic nematodes. It reviews the basic structure and classification of nematodes, their taxonomy and phylogeny and the major groups of plant-parasitic nematodes. It then covers their life cycle biology, the molecular characteristics of plant-nematode interaction and genetic engineering for resistance, and discusses quarantine legislation, sampling methods and various management strategies.

(CABI Publishing)

July 2006 paper \$100.00

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PROGRAM HIGHLIGHTS

Welcome & Plenary Session

Sunday, July 30

*9:00 – 11:00 a.m. * Room 200AB*

The welcome and joint APS/CPS/MSA plenary session will feature an expert panel of speakers, David Gilchrist from the University of California, Zamir Punja from Simon Fraser University, and Jeffrey Townsend from the University of Connecticut, to address the theme Biological Interactions and Biological Crossroads. This session will highlight the multiple levels of organization of living systems - molecular, cellular, organismal, and community - and the interactions that occur within them. Further, it will consider the richness of the science of mycology and plant pathology that stems from the convergence of disciplines of which each is composed.

Welcome Reception

Sunday, July 30

*7:00 – 10:00 p.m. * Exhibit Hall 400AB*

Kick-start your annual meeting experience at the Welcome Reception. Mix and mingle with exhibitors, poster authors, and old and new colleagues; view the spectacular Art in APS display, browse the APS PRESS Bookstore, and bid on APS-OIP Silent Auction items while enjoying desserts and beverages. This reception is included in the registration fee.

Society Business Meetings

Tuesday, August 1

Be sure to attend one of the Society business meetings to stay abreast of all of the latest happenings in your society.

- **MSA Business Meeting with Breakfast** - 7:00 – 9:00 a.m.
** Room 200B*
- **CPS Business Meeting with Luncheon** - 12:00 – 1:30 p.m.
** Room 200A*
- **APS Business Meeting** - 12:30 – 1:30 p.m. ** Room 200B*

Evening Party

Tuesday, August 1

Included in your registration is your choice of a Tuesday evening party. Choose from the CPS Banquet, MSA Auction, or APS Party.

- **CPS Awards & Honors Banquet** – 6:30 – 11:00 p.m.
** Room 200A*
- **MSA Social and Auction** – 6:30 – 11:00 p.m. ** Room 200B*
- **APS Party: Québec City – Joie de vivre!** – 7:45 – 11:00 p.m.
** Room 200C*



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JOINT MEETING DAILY SCHEDULE

All exhibits, registration, and sessions are being held at the Québec City Convention Centre unless otherwise marked.

Friday, July 28

7:00 a.m. – 3:30 p.m.	APS Leadership Forum	Porte Kent – Hilton
8:00 a.m. – 5:00 p.m.	MSA Council Meeting	Porte St Louis – Hilton
3:30 – 5:30 p.m.	APS Executive & Financial Advisory Committees	Dufferin – Hilton
3:30 – 6:30 p.m.	APS Councilor's Forum	Beauport – Hilton
6:00 – 9:00 p.m.	CPS Financial Advisory Committee	Dufferin – Hilton

Saturday, July 29

7:30 a.m. – 5:30 p.m.	Grosse Île: The Irish Potato Famine Revisited	
7:30 a.m. – 6:00 p.m.	Forest Pathology Field Trip	
8:00 a.m. – 12:00 p.m.	APS Council Meeting	Panorama Vieux-Port – Hilton
8:00 a.m. – 4:30 p.m.	Turf Grass Field Trip	
8:00 a.m. – 4:30 p.m.	MSA Foray	
8:00 a.m. – 5:00 p.m.	CPS Outgoing Board Meeting	Panorama Plains – Hilton
8:00 a.m. – 5:30 p.m.	Real-time PCR Diagnostic: A Hands-on Workshop	
9:00 a.m. – 12:30 p.m.	Spatial Statistics in Agricultural Research Workshop	Porte St Louis – Hilton
10:00 a.m. – 5:30 p.m.	Bayesian Data Analysis for Plant Pathology (Beginner/Intermediate) Workshop	Beauport – Hilton
11:00 a.m. – 3:00 p.m.	APS PRESS Board Meeting	Villeray – Hilton
12:00 – 5:00 p.m.	APS Office of International Programs Lunch and Board Meeting	Courville/Monmorency – Hilton
1:00 – 4:00 p.m.	APS Placement	201C
1:00 – 5:00 p.m.	BioInformatic Tools for the Beginner/Intermediate Researcher	Porte Kent – Hilton
2:00 – 6:00 p.m.	Registration	Level 4
2:30 – 6:00 p.m.	APS Publications Board Meeting	Lauzon – Hilton
3:00 – 4:00 p.m.	APS Section Chairs Meeting	201B
3:00 – 4:00 p.m.	APS Committee Chair/Vice-Chair Orientation	301A
4:00 – 5:00 p.m.	APS Program Planning Orientation	301A
4:00 – 5:30 p.m.	MSA Microbial Forensics Interest Community Meeting	201A
4:00 – 10:30 p.m.	MSA Foray Discussion	Foyer 3 Area
4:30 – 5:30 p.m.	First Timers Orientation	301B
5:30 – 7:00 p.m.	APS Committee Meetings	
	• Early Career Professionals Committee	201B
	• Plant Disease Management Reports (formerly F&N/B&C)	203
	• Bacteriology Committee	204A
	• Biochemistry, Physiology and Molecular Biology Committee	204B
	• Chemical Control Committee	205AB
	• Crop Loss Assessment & Risk Evaluation Committee	205C
	• Genetics Committee	206A
	• Host Resistance Committee	206B
	• Plant Pathogen and Disease Detection Committee	207
	• Seed Pathology Committee	208AB
	• Virology Committee	302AB
7:00 – 8:30 p.m.	APS Committee Meetings	
	• APS PRESS: Illustrations of Plant Pathogens and Diseases Committee	202
	• APS PRESS: Phytopathological Classics	203
	• Diagnostics Committee	204A
	• Diseases of Ornamental Plants Committee	204B
	• Emerging Diseases and Pathogens	301A
	• Environmental Quality and Plant Health Committee	205AB
	• Forest Pathology Committee	205C
	• Integrated Pest Management Committee	206A
	• Joint Committee of Women & Cultural Diversity	206B
	• Mycotoxicology Committee	207

	• Pathogen Resistance Committee	208AB
	• Postharvest Pathology Committee	302AB
	• Tropical Plant Pathology Committee	303AB
	• Turfgrass Pathology Committee	304AB
7:00 – 10:00 p.m.	MSA Endophytic Biology Information Committee	201B
8:30 – 10:30 p.m.	APS Committee Meetings	
	• APS PRESS: Standardization of Common Names for Plant Diseases Committee	202
	• Crop Biosecurity Committee	203
	• Biological Control Committee	204A
	• Biotechnology Committee	204B
	• Epidemiology Committee	205AB
	• Mycology Committee	205C
	• Nematology Committee	206A
	• Phyllosphere Microbiology Committee	206B
	• Soil Microbiology and Root Diseases Committee	207

New Timing for APS General Policy Committees!

Check the committee schedule carefully as most of the **APS General Policy Committees will now be meeting on Sunday afternoon**. If you have ever considered being on an APS committee, now is the time to get involved. Being a member of an APS committee is a great way to meet and interact with colleagues with whom you share interests.

APS Membership—Your Connection to Science, People, and Progress

In addition to numerous discounts on APS products and services, APS membership provides unique opportunities to:

- Connect with more than 4,800 plant health scientists from around the world
- Join an APS Division and meet with colleagues in your geographic area to exchange ideas and share information
- Strengthen your leadership skills and professional contacts by serving on the Society's Council, Offices, Boards, and Committees
- Stay connected through free, biweekly APS News Capsules, the free, monthly member newsletter, *Phytopathology News*, and unlimited access to *APSnet*
- Find job opportunities through the APS placement service
- Make a difference. Your membership and involvement in APS supports the advancement of plant health science worldwide.



Help keep the Society strong and growing by telling colleagues about the many benefits of APS membership. Encourage them to join today!



SATURDAY HIGHLIGHTS

Grosse Île: The Irish Potato Famine Revisited

7:30 a.m. – 5:30 p.m.

Sponsoring Committee: Centennial Planning

Organizer: Richard Bélanger, l'Université Laval, Québec City, QC, Canada



Experience the most important and tragic event in plant pathology history. The small island of Grosse-Île stands as a poignant and visible link with Ireland's Great Famine of 1845-1849. Grosse-Île was designated as a quarantine stop-over for European immigrants to the New World as early as 1832. But in 1847, an unprecedented number of immigrants, the large majority being Irish, left for Québec. The resulting situation was tragic. The immigrants, weakened by malnutrition and famine, arrived in a deplorable state, many stricken with typhus. This illness quickly took on epidemic proportions. Explore the island, experience the history, and get a glimpse into life in the 1800s during the tour of Grosse-Île. The tour includes transportation via a beautiful two-hour cruise on the St. Lawrence River, access to the island, guided tours in English, and lunch.

Forest Pathology Field Trip, co-sponsored by APS & CPS

7:30 a.m. – 6:00 p.m.

Sponsoring Committee: Forest Pathology

Organizer: Louis Bernier, Université Laval, Québec, QC, Canada

This field trip will take participants to various locations in the St. Lawrence River Valley to visit natural forest stands and plantations and to discuss several tree diseases and their management, including white pine blister rust, septoria canker, and leaf rusts of hybrid poplars, larch diseases, Dutch elm disease, perennial necrotic canker, and sapstain of wood.

MSA Foray

8:00 a.m. – 4:30 p.m.

Sponsor: Mycological Society of America

Organizer: Donald G. Ruch, Ball State University, Muncie, IN

This year's foray will be hosted by the local mushroom club (CMAQ). The selected sites are near Beauport, a site recognized for its diversity of mushrooms and fungi, and the Domaine Maizeret, where lunch will be served. The sites are mixed forests with young and mature forest stands.

Turfgrass Field Trip

8:00 a.m. – 4:30 p.m.

Sponsoring Committee: Turfgrass

Organizer: Guillaume Grégoire, l'Université Laval, Québec, QC, Canada

This tour will take participants to various locations in the Québec area to visit different turfgrass facilities, such as golf courses and athletic fields. Participants will also have the chance to meet with professional turfgrass managers and discuss their strategies to manage turf and control diseases.

Real-Time PCR Diagnostic: A Hands-On Workshop,

co-sponsored by APS & CPS

8:00 a.m. – 5:30 p.m. * Off-site

Sponsoring Committee: Forest Pathology, Diagnostic

Organizer: Richard Hamelin, Canadian Forest Services, Québec, QC, Canada

Learn all the steps necessary to perform real-time PCR diagnostic assays of plant pathogens. The workshop is targeted to students, extension specialists, diagnosticians, and investigators with an interest in learning the theory and practice of real-time PCR. Participants are expected to have a basic knowledge of molecular techniques, such as DNA extraction and PCR. The workshop will cover the theory behind real-time PCR, hands-on experiments, and analysis and interpretation of the data.

Spatial Statistics in Agricultural Research Workshop

9:00 a.m. – 12:30 p.m. * Porte St Louis – Hilton

Sponsoring Committee: NCCC - 170

Organizer: Don Bullock, University of Illinois, Urbana, IL

Learn the basic concepts of spatial statistics and how they can be applied in agricultural research. Incorporation of spatial considerations into experimental design, analysis of variance, and regression problems will be considered. Numerous examples will be used throughout to illustrate the concepts and techniques. This workshop is targeted to agricultural scientists and is presented by members of the Multi-State Research Project NCR-170 Research Advances in Agricultural Statistics. No previous experience with spatial statistics is required.

Bayesian Data Analysis for Plant Pathology Workshop

10:00 a.m. – 5:30 p.m. * Beauport – Hilton

Sponsoring Committee: Epidemiology

Organizers: Paul Esker, Iowa State University, Ames, IA; Asimina Mila, North Carolina State University, Raleigh, NC; Jonathan Yuen, Swedish University of Agricultural Sciences, Uppsala, Sweden

Explore this exciting area of statistics and its potentially wide-ranging applications for plant pathological researchers. Learn what Bayesian data analysis is and receive a-hands-on experience in running Bayesian analyses. A background in statistics and probability theory is recommended. Participants MUST HAVE the program WinBUGS downloaded and installed on their computers. Information regarding WinBUGS is available at: <http://www.mrc-bsu.cam.ac.uk/bugs/>.

10:00 a.m.	Welcome and Introduction
10:15 a.m.	Session I
12:30 p.m.	Lunch Break
1:30 p.m.	Session II

Bioinformatic Tools for the Beginner/Intermediate Researcher

1:00 – 4:30 p.m. * *Porte Kent – Hilton*

Section: Professionalism/Service/Outreach

Organizers: Frank Martin, USDA-ARS, Salinas, CA

Sponsoring Committees: Genetics, Host Resistance

With the rapid increase in the amount of pathogen and host sequence data available to researchers, there are greater opportunities to utilize this data in plant pathology research. This workshop provides an overview of different bioinformatics programs useful in genomics research. The target audience is the beginner/intermediate researcher.

- 1:00 p.m. S-1. New tools for reconstructing historical population processes from patterns of DNA sequence variation in contemporary populations. I. CARBONE (1). (1) North Carolina State University, Raleigh, NC
- 1:30 p.m. S-2. Use of bioinformatics in plant pathology: How to get the most out of genomic data. C.R. BUELL (1). (1) Institute for Genomic Research, Rockville, MD
- 2:00 p.m. S-3. Zomes: Tools for comparative analysis of plants, fungi, and animals. D. ROKHSAR (1). (1) Joint Genomics Institute, Walnut Creek, CA
- 3:00 p.m. S-4. Pathogen Portal (PathPort), a bioinformatics resource for software tools and curated data. O.R. CRASTA (1). (1) Virginia Bioinformatics Institute, Virginia Tech, Blacksburg, VA
- 3:30 pm. S-5. Comparative fungal genomics of plant pathogens. L.J. MA (1). (1) Broad Institute of MIT and Harvard, Cambridge, MA
- 4:00 p.m. S-6. PLEXdb: A unified expression profiling database for plants and plant pathogens. R. WISE (1). (1) USDA-ARS, Iowa State University, Ames, IA

APS Committee Chair/Vice-Chair Orientation

3:00 – 4:00 p.m. * *Room 301A*

All current APS committee chairs/vice-chairs should plan to attend this important orientation session, which will provide an overview of the opportunities available to enhance committee efforts. APS Past President Jim MacDonald, Senior Councilor-at-Large Allison Tally, and Intermediate Councilor-at-Large Barb Christ will lead discussions that highlight recent APS initiatives, processes for taking action on committee issues, and procedural logistics for chairs and vice-chairs. Packets with committee rosters and the Committee Annual Report Form will be provided for each chair.

APS Program Planning Orientation

4:00 – 5:00 p.m. * *Room 301A*

Join the APS annual meeting Program Planning Committee to learn what steps are needed to host a special session in 2007 and beyond. This session will discuss how to submit an application and how the planning process works.

First Timer's Orientation

4:30 – 5:30 p.m. * *Room 301B*

Make the most of your first Annual Meeting experience! Meet with key leaders in APS, CPS, and MSA and find out first-hand how to take advantage of all the opportunities available at the meeting.

Visit APS Central – Your Professional Home

APS invites you to take a break and stop by APS Central, located across from the Registration Desk, to learn about the many exciting activities members of APS Offices and Boards have accomplished this year.



This is your chance to learn about the latest initiatives in public policy, public affairs, outreach, and education, as well as industry relations and international programs.

Materials from each of the APS Offices and Boards will be on display and you will have the opportunity to use the space to relax and informally meet with other members.

While you are there, be sure to pick up your free meeting postcard, provided by OPAE! APS will mail the postcards for you if you drop them off in the mailbox provided.

We'll see you there!



JOINT MEETING DAILY SCHEDULE

Sunday, July 30

7:00 – 8:30 a.m.	APS-OIP 5K Fun Run/2.5K Walk	Plains of Abraham Battlefield Park
7:00 – 9:00 a.m.	Vegetable Extension & Plant Research Breakfast	Courville/Monmorency – Hilton
7:00 – 10:00 a.m.	APSnet Education Center Editorial Board	Lauzon – Hilton
7:30 – 8:30 a.m.	APS Phytopathology Senior Editor's Meeting, <i>by invitation</i>	Villeray – Hilton
7:30 a.m. – 7:30 p.m.	Registration	Level 4
8:30 – 9:00 a.m.	APS Phytopathology Editorial Board Meeting, <i>by invitation</i>	Villeray – Hilton
8:30 – 9:00 a.m.	Moderator Orientation	202
9:00 – 11:00 a.m.	Welcome & Plenary Session	200AB
9:00 a.m. – 4:00 p.m.	APS Placement	201C
9:00 a.m. – 4:00 p.m.	Exhibit Set-up	400AB
11:00 a.m. – 3:00 p.m.	PMN Strategic Planning Meeting	Belair – Hilton
11:30 a.m. – 1:00 p.m.	Deciduous Workers Lunch	Panorama Plaines – Hilton
11:30 a.m. – 1:00 p.m.	APS Journals Senior Editors Luncheon, <i>by invitation</i>	Panorama Vieux-Port – Hilton
11:30 a.m. – 1:30 p.m.	APS Foundation Lunch, <i>invitation only</i>	Panorama Citadelle – Hilton
11:30 a.m. – 1:30 p.m.	APS Division Officers Luncheon, <i>invitation only</i>	Beauport – Hilton
12:00 – 5:00 p.m.	Poster Set-up	400AB
12:30 – 2:00 p.m.	NPDN Update & Planning Meeting	Ste-Foy/Portneut-Hilton
12:30 – 5:00 p.m.	APS Office of Electronic Communication Board Meeting	201B
1:00 – 1:30 p.m.	Plant Health Progress Editorial Board Meeting	207
1:15 – 5:00 p.m.	Culture collections in the genomics age	304AB
1:30 – 3:00 p.m.	Ascomycota Systematics I	208AB
1:30 – 4:30 p.m.	Navigating Funding Agencies and Updates from the Public Policy Board	204B
1:30 – 4:45 p.m.	Cacao Diseases: Important Threats to Chocolate Production Worldwide	206B
1:30 – 4:45 p.m.	Functional Genomics Meets Bacterial Diseases, Part III: <i>Xanthomonas</i> and <i>Xylella</i> Genomics	205C
1:30 – 5:00 p.m.	Fungal endophytes: Diversity and function in forest ecosystems	206A
1:30 – 5:00 p.m.	Fungal Movement: Contemporary Experimental Analysis	302AB
1:30 – 5:00 p.m.	The Role of Fungi in Science and Human Affairs	303AB
1:30 – 5:15 p.m.	Epidemiology/Ecology/Environmental Biology I	202
1:30 – 5:15 p.m.	Fungi – Genetics/Molecular Biology/Cell Biology I	205AB
1:30 – 5:15 p.m.	Integrated Pest Management	301AB
3:30 – 5:00 p.m.	Basidiomycota Systematics	208AB
5:00 – 6:30 p.m.	APS General Policy Committee Meetings	
	• Awards & Honors Committee	208AB
	• Collections and Germplasm Committee	304AB
	• Extension Committee	303AB
	• Industry Committee	206A
	• Placement Committee	206B
	• Regulatory Plant Pathology Committee	205C
	• Teaching Committee	207
5:00 – 7:00 p.m.	APS 101: Early Career Professionals Informational Social	Panorama Plaines/Citadelle – Hilton
5:00 – 7:00 p.m.	APS Graduate Student Committee Meeting & Social	Porte St-Louis – Hilton
5:30 – 7:00 p.m.	APS Joint Committee of Women and Cultural Diversity Social	Villeray – Hilton
7:00 – 9:30 p.m.	APS-OIP Silent Auction: <i>Connecting Knowledge with a Growing World</i>	400AB
7:00 – 10:00 p.m.	APS PRESS Bookstore	400AB
7:00 – 10:00 p.m.	Welcome Reception with Exhibits & Posters	400AB

TECHNICAL SESSIONS

Listed in alphabetic order by title.

Ascomycete Systematics I

1:30 – 3:00 p.m. * Room 208AB

Mycological Society of America

Moderator: Barry M. Pryor, University of Arizona, Tucson, AZ

- 1:30 p.m. MO-1. Members of a novel Ascomycota clade detected from soil. Presenter: T.M. McLenon (1); Co-Author(s): C. W. Schadt (2), Christopher, L. Rizvi (1), A. P. Martin (4), S. K. Schmidt (4), R. Vilgalys (5), J.M. Moncalvo (3). (1) University of Toronto, Canada; (2) Oak Ridge National Laboratory, USA; (3) Royal Ontario Museum, Canada; (4) University of Colorado, USA; (5) Duke University, Durham, NC.
- 1:45 p.m. MO-2. Phylogeny of the *Ophiostoma minutum* complex. Presenter: A. Plattner (1); Co-Author(s): K. Jae-Jin (1), C. Breuil (1), G. Hausner (2), J. Reid (2), Y. Yamaoka (3). (1) University of British Columbia, Vancouver, BC, Canada, (2) University of Manitoba, Winnipeg, MB, Canada; (3) University of Tsukuba, Tsuku, Japan
- 2:00 p.m. MO-3. Molecular phylogeny of the Verrucariales (Ascomycota) and the evolution of nutritional modes in the Chaetothyriomycetidae. Presenter: C. Gueidan (1); Co-Author(s): F. Lutzoni (1). (1) Duke University, Durham, NC USA.
- 2:15 p.m. MO-4. Phylogenetic relationships among *Ulocladium* and related *Alternaria* and *Embellisia* spp. based upon rDNA and protein coding genes. Presenter: F. Runa (1); Co-Author(s): B. M. Pryor (1) University of Arizona, Tucson, AZ
- 2:30 p.m. MO-5. Molecular systematics of small-spored *Alternaria* species. Presenter: M. Andrew (1); Co-Author(s): T.L. Peever (1), and B.M. Pryor (2). (1) Washington State University, Pullman, WA, (2) University of Arizona, Tucson, AZ
- 2:45 p.m. MO-6. Molecular systematics of *Alternaria* species-groups and species concepts. Presenter: B. M. Pryor (1); Co-Author(s): S.G. Hong (1), and F. Runa (1). (1) University of Arizona, Tucson, AZ

Basidiomycete Systematics

3:30 – 5:00 p.m. * Room 208AB

Mycological Society of America

Moderator: David J. McLaughlin, University of Minnesota, St. Paul, MN

- 3:30 p.m. MO-7. The elusive little pig: Unraveling the taxonomy and evolution of porcini. Presenter: B.T.M. Dentinger (1); Co-Author(s): D.J. McLaughlin (1), (1) University of Minnesota, St. Paul, MN
- 3:45 p.m. MO-8. Phylogeny and biogeography of Caribbean Boletales. Presenter: B. Ortiz-Santana (1); Co-Author(s): D. J. Lodge (1), and T. J. Baroni (2). (1) USDA-FS, Luquillo, PR, (2) State University of New York, Cortland, NY

- 4:00 p.m. MO-9. An integrated approach to identify basidiomycete cultures. Presenter: S. Zhou (1); Co-Author(s): S. E. Anagnost (1). (1) State University of New York, Syracuse, NY
- 4:15 p.m. MO-10. New taxa in *Agaricus* section *Duploannulati* from North America. Presenter: R. W. Kerrigan (1); Co-Author(s): P. Callac (2). (1) Sylvan Research, Kittanning, PA, (2) INRA, MYCSA, Ornon cedex, France
- 4:30 p.m. MO-11. What can ultrastructure of cystidia tell us about fungal evolution? Presenter: M. Padamsee (1); Co-Author(s): G. J. Celio (1), B. T. M. Dentinger (1), and D. J. McLaughlin (1). (1) University of Minnesota, St. Paul, MN
- 4:45 p.m. MO-12. The search for subcellular characters for the AFTOL Structural and Biochemical Database: Three traits of *Auriscalpium vulgare*. Presenter: G. J. Celio (1); Co-Author(s): M. Padamsee (1), B. T. M. Dentinger (1), D. J. McLaughlin (1). (1) University of Minnesota, St. Paul, MN

Epidemiology/Ecology/Environmental Biology I

1:30 – 5:15 p.m. * Room 202

Section: Epidemiology/Ecology/Environmental Biology

Moderators: Li-Fang Chen, University of California, Davis, CA; Lawrence Osborne, South Dakota State University, Brookings, SD

- 1:30 p.m. AO-1. *Tilletia indica* teliospore dispersal from a concentrated point source. T. W. ALLEN (1), G. L. Peterson (3), K. C. Steddom (2), F. Workneh (1), C. M. Rush (1). (1) Texas Agricultural Experiment Station, Bushland, TX; (2) Texas Agricultural Experiment Station, Overton, TX; (3) USDA-ARS
- 1:45 p.m. AO-2. Preliminary evaluation of passive spore traps for *Phakopsora pachyrhizi*, the soybean rust pathogen. E. MUMMA (1), R. Schneider (1), C. Robertson (1), C. Giles (1), J. Marois (2), D. Wright (2). (1) Dept. Plant Pathology & Crop Physiology, Louisiana State University AgCenter, Baton Rouge, LA ; (2) North Florida Research and Education Center, University of Florida, Quincy, FL, USA
- 2:00 p.m. AO-3. Behavior of lilac leaves infected with *Phytophthora ramorum* when placed on the surface of nursery pots. N. SHISHKOFF (1). (1) Foreign Disease/Weed Science Research Unit, Fort Detrick, Frederick, MD
- 2:15 p.m. AO-4. Pathogen evolution in response to host resistance genes: Evidence from fields experiments with *Rhynchosporium secalis* on barley. M. M. ABANG (3), M. Baum (1), S. Ceccarelli (1), S. Grando (1), C. C. Linde (5), A. H. Yahyaoui (1), J. Zhan (4), B. A. McDonald (2). (1) ICARDA, Aleppo, Syria; (2) Plant Pathology, IBZ, ETH Zurich, Switzerland; (3) Plant Pathology, IBZ, ETH Zurich, Switzerland/ICARDA, Aleppo, Syria; (4) SCRI, Invergowrie, Dundee, Scotland,

TECHNICAL SESSIONS

UK; (5) School of Botany and Zoology, ANU, Canberra, Australia

- 2:30 p.m. AO-5. Evaluation of infection potential and sporulation of *Phytophthora ramorum* on five *Rhododendron* cultivars. V. T. MCDONALD (1), N. J. Grunwald (2), R. G. Linderman (2). (1) Dept. Botany and Plant Pathology, Oregon State University, Corvallis, OR; (2) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR
- 2:45 p.m. AO-6. The effects of solar radiation on the mortality of *Phakopsora pachyrhizi* urediniospores. N. S. DUFAULT (2), S. A. Isard (2), M. R. Miles (3), G. L. Hartman (3), E. D. De Wolf (2), W. Morel (1). (1) Centro Regional de Investigación Agrícola, Capitan Miranda, Itapua, Paraguay; (2) Pennsylvania State University, University Park, PA, USA; (3) University of Illinois, Urbana, IL, USA
- 3:30 p.m. AO-7. Community epidemiology in tallgrass prairie. K. A. GARRETT (1). (1) Kansas State University, Manhattan, KS, USA
- 3:45 p.m. AO-8. Does the over-winter survival of *Phytophthora infestans* lead to a negative selection of the most aggressive isolates?. M. JOSSELIN (1), C. Roselyne (1), A. Didier (1). (1) UMR BiO3P, INRA Rennes, Domaine de la Motte, Le Rheu Cedex, France
- 4:00 p.m. AO-9. Temporal inoculum dynamics for Fusarium head blight of wheat and barley in South Dakota. L. E. OSBORNE (1), J. M. Stein (1). (1) South Dakota State University, Brookings, SD, USA
- 4:15 p.m. AO-10. Investigation of the curly top virus-cucurbit interaction: Evidence for a role of the acquisition host in leafhopper transmission. L. CHEN (1). (1) UC Davis, Davis, CA
- 4:30 p.m. AO-11. Clonality and adaptation to the host in the wheat leaf rust pathogen *Puccinia triticina*. H. GOYEAU (2), F. Halkett (1), B. Pariaud (2), M. Zapater (1), J. Carlier (1), C. Lannou (2). (1) CIRAD UMR BGPI, Montpellier, France; (2) INRA Epidémiologie Thiverval-Grignon, France
- 4:45 p.m. AO-12. Yield effects and tuber infection efficiency of three *Potato virus Y* strains. P. M. BALDAUF (1), S. M. Gray (2), K. L. Perry (1). (1) Department of Plant Pathology, Cornell University, Ithaca, NY, USA; (2) USDA-ARS, Plant Protection Research Unit & Department of Plant Pathology, Cornell University, Ithaca, NY, USA
- 5:00 p.m. AO-13. Studies examining the diversity and biology of *Alternaria dauci* isolates collected from cultivated carrot. P. M. ROGERS (1), W. R. Stevenson (1). (1) University of Wisconsin-Madison, Dept. of Plant Pathology, Madison, WI, USA

Fungi – Genetics/Molecular Biology/Cell Biology I

1:30 p.m. – 5:15 p.m. * Room 205AB

Section: Molecular/Cellular Plant-Microbe Interactions

Moderators: Katherine Dobinson, Agriculture and Agri-food Canada, London, ON, Canada; Paola Versonese, North Carolina State University, Raleigh, NC

- 1:30 p.m. AO-14. Cyto-histopathology of the sugar beet - *Rhizoctonia solani* disease interaction. S. NAGENDRAN (1), M. J. McGrath (2). (1) Michigan State University, E. Lansing, MI, USA; (2) USDA-ARS, Sugarbeet and Bean Research Unit, E. Lansing, MI, USA
- 1:45 p.m. AO-15. Lectins in binucleate *Rhizoctonia* species. M. MGHALU (1), M. Horibe (2), H. Kawagishi (2), M. Kubota (1), M. Hyakumachi (1). (1) Gifu University, Japan; (2) Shizuoka University, Japan
- 2:00 p.m. AO-16. A functional maize oxylipin biosynthetic pathway is required for fungal conidiation and fumonisin production. X. Gao (2), W. Shim (2), I. Feussner (1), M. KOLOMIETS (2). (1) Georg-August-University, Goettingen, Germany; (2) Texas A&M University, College Station, TX, USA
- 2:15 p.m. AO-17. Controlling the black shank disease of tobacco by silencing the cutinase gene in the pathogen, *Phytophthora parasitica* var. *nicotianae*. A. M. BAILEY (2), C. L. Niblett (1), A. S. Csinos (3). (1) 43 Village del Prado, St. Augustine, FL, USA; (2) CINVESTAV, Irapuato, Mexico; (3) University of Georgia Coastal Plain Experiment Station, Tifton, GA, USA
- 2:30 p.m. AO-18. Differential gene expression between near-isogenic tomato genotypes in response to late blight infection in the field. G. CAI (1), S. Restrepo (2), K. Myers (1), C. D. Smart (2), W. E. Fry (1). (1) Department of Plant Pathology, Cornell University, Ithaca, NY 14850, USA; (2) NY State Agricultural Experiment Station, Geneva, NY, USA
- 2:45 p.m. AO-19. Perithecia development and sexual fertility are affected in ophiostomatoid fungi deficient in melanin production. P. TANGUAY (1), S. Massoumi Alamouti (1), C. Breuil (1). (1) University of British Columbia, Vancouver, British Columbia, Canada
- 3:30 p.m. AO-20. Silencing of the aflatoxin cluster in a diploid strain of *Aspergillus flavus* is relieved by ectopic *afR* expression. C. A. JACOBUS (1), C. P. Woloshuk (2), D. Robertson (1), G. A. Payne (1). (1) North Carolina State University, Raleigh, NC, USA; (2) Purdue University, West Lafayette, IN, USA
- 3:45 p.m. AO-21. AFLP genetic analysis of eleven unique endophytes isolated from *Festuca pratensis* and *Lolium prene* grass varieties. A. H. CHAMBERS (1), J. Benson (1), B. G. Geary (1). (1) Brigham Young University, Provo, UT, USA
- 4:00 p.m. CO-2. Comparison of ToxB gene expression in virulent and low-virulence isolates of *Pyrenophora*

tritici-repentis Presenter: S. AMAIKE, Department of Agriculture, Food and Nutritional Science, University of Alberta, Edmonton, Canada; Co-Author(s): S.E. Strelkov, Department of Agriculture, Food and Nutritional Science, University of Alberta, Edmonton

- 4:15 p.m. CO-3. Heterologous expression of functional Ptr ToxB, a host specific toxin produced by *Pyrenophora tritici-repentis*, from pathogenic and nonpathogenic isolates of the fungus. Presenter: Y.M. KIM, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB ; Co-Author(s): S.E. Strelkov, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB
- 4:30 p.m. CO-4. Analysis of single nucleotide polymorphisms in populations of *Phytophthora ramorum*. Presenter: G.J. BILODEAU, Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, QC; Co-Author(s): C.A. Lévesque, Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa, ON; A.W. DeCock, Centraalbureau voor Schimmelcultures, The Netherlands; C. Husson, INRA Nancy, Unité de Recherche Pathologie forestière, France and R.C. Hamelin, Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, QC
- 4:45 p.m. CO-5. A systemic approach to breeding for biotic and abiotic stress resistance makes more sense. Presenter: A. COMEAU, Centre de recherche et de développement sur les sols et les grandes cultures, Agriculture et Agroalimentaire Canada, Québec, QC; Co-Author(s): F. Langevin, Centre de recherche et de développement sur les sols et les grandes cultures, Agriculture et Agroalimentaire Canada, Québec, QC; S. Haber, Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, MB; V. Caetano, EMBRAPA Clima Temperado, Brazil and IRDA, Saint-Hyacinthe, QC and M. Lévesque, Centre de recherche et de développement sur les sols et les grandes cultures, Agriculture et Agroalimentaire Canada, Québec, QC
- 5:00 p.m. CO-6. Elicitation of the phytoalexins rutalexin and brassilexin in *Brassica juncea* following inoculation with *Albugo candida* or copper chloride. Presenter: R.S. GADAGI, Department of Chemistry, University of Saskatchewan, Saskatoon, SK; Co-Author(s): M.S.C. Pedras, Department of Chemistry, University of Saskatchewan, Saskatoon, SK; Q.A. Zheng, Department of Chemistry, University of Saskatchewan, Saskatoon, SK and R.S. Rimmer, Saskatoon Research Center, Agriculture and Agri-Food Canada, Saskatoon, SK

Integrated Pest Management

1:30 – 5:15 p.m. * Room 301AB

Section: Plant Disease Management

Moderators: Gary Vallad, University of California, Davis, CA; Scott Gold, University of Georgia, Athens, GA

- 1:30 p.m. CO-1. Influences of organic mulches on populations of the root-lesion nematode, *Pratylenchus penetrans*, in the root zones of apple and red raspberry. Presenter: T.A. FORGE, Pacific Agri-Food Research Centre Agriculture and Agri-Food Canada Agassiz, BC; Co-Author(s): E. Hogue, PAFRC, AAFC, Summerland, BC; D. Nielsen, PAFRC, AAFC, Summerland, BC; G. Nielsen, PAFRC, AAFC, Summerland, BC; and C. Kempler, Pacific Agri-Food Research Centre Agriculture and Agri-Food Canada Agassiz, BC
- 1:45 p.m. AO-22. Biological control of leaf rust in organically-grown coffee. F. Haddad (1), L. A. MAFFIA (1), E. S. Mizubuti (1), H. Teixeira (1). (1) Universidade Federal de Vicosa- Vicosa- MG- Brazil
- 2:00 p.m. AO-23. Additive impacts of plant pathogen-insect enhances pest-plant control efficacy: Experimental evidence from the rust-insect-melaleuca system. M. B. RAYAMAJHI (1), P. D. Pratt (1), T. D. Center (1). (1) USDA-ARS, Invasive Plant Research Laboratory, Fort Lauderdale, FL 33314
- 2:15 p.m. AO-24. An epidemiological detective story: The hunt for a cheap two-bit model. N. MCROBERTS (2), G. Hughes (3), L. V. Madden (1). (1) Ohio State University; (2) Scottish Agricultural College; (3) University of Edinburgh
- 2:30 p.m. AO-25. Set treatment for controlling internal discoloration of horseradish root. M. BABADOOST (1). (1) Department of Crop Sciences, University of Illinois, Urbana, IL 61801, USA
- 2:45 p.m. AO-26. An interdisciplinary approach to soil health and its impact on vegetable root disease management. B. K. GUGINO (3), O. J. Idowu (1), G. S. Abawi (3), H. M. Van Es (1), D. W. Wolfe (2). (1) Dept. of Crop and Soil Science, Cornell University, Ithaca, NY; (2) Dept. of Horticulture, Cornell University, Geneva, NY; (3) Dept. of Plant Pathology, Cornell University, NYSAES, Geneva, NY
- 3:30 p.m. AO-27. Integrated management of viral tomato diseases in Southern Italy. A. Fanigliulo (1), S. Comes (1), R. Pacella (1), T. M. MOMOL (3), S. M. Olson (2), A. Crescenzi (1). (1) Dipartimento di Biologia, Università degli Studi della Basilicata, Potenza, Italy; (2) NFREC, Horticultural Sciences Department, University of Florida-IFAS, Quincy, FL; (3) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL

2006 National Soybean Rust Symposium

Make plans now to participate in the *2006 National Soybean Rust Symposium* to be held

November 29 – December 1, 2006 at the Adam's Mark Hotel in St. Louis, Missouri.

Join key leaders in state and federal government, grower organizations, international institutions, research, extension, crop consulting, agribusiness and others to hear results, determine progress, and share perspectives on soybean rust in 2006.

Interactive sessions will feature:

- Biology of Soybean Rust
- Economics & Policy
- Epidemiology
- Host Response
- Application technology
- Disease assessment
- Forecasting
- Monitoring
- Control

The event will begin with a poster viewing reception on November 29. The technical program will begin at 8:00 a.m. on November 30 and end at noon on December 1.

Visit www.apsnet.org/online/SBR/ for the latest event information and to sign up for symposium updates.

Mark your calendars and plan to attend this premier event!

www.apsnet.org/online/SBR

TECHNICAL SESSIONS

- 3:45 p.m. AO-28. Plant essential oils and particle films for the management of tomato spotted wilt on tomatoes. S. R. REITZ (1), G. Maiorino (3), L. Ritchie (2), S. Olson (2), R. Sprenkel (2), A. Crescenzi (3), M. Momol (2). (1) USDA-ARS, Tallahassee, FL, USA; (2) University of Florida, Quincy, FL, USA; (3) Università degli Studi della Basilicata, Potenza, Italy
- 4:00 p.m. AO-29. **Roundup:** Integrating approaches to management of bacterial diseases of vegetables in Florida: Trying Hard-Doing So-So. K. PERNEZNY (1). (1) University of Florida, Belle Glade, FL
- 4:30 p.m. AO-30. Effects of soil type, fertility, and mycorrhizal inoculation on Paper Birch in a simulated urban setting. N. M. KLECZEWSKI (2), D. A. Herms (1), E. Bonello (2). (1) The Ohio State University, Department of Entomology; (2) The Ohio State University, Department of Plant Pathology
- 4:45 p.m. AO-31. Grafting provides a multi-strategic management tool for heirloom tomato production systems. C. L. RIVARD (1), F. J. Louws (1). (1) North Carolina State University, Raleigh, NC, USA
- 5:00 p.m. AO-32. The development and impact of Verticillium wilt on post-harvest quality of lettuce. G. E. VALLAD (2), Q. Qin (3), R. J. Hayes (1), K. V. Subbarao (2). (1) Agricultural Research Service, United States Department of Agriculture, Salinas, CA; (2) Department of Plant Pathology, University of California-Davis, Salinas, CA, USA; (3) Texas A & M University, College Station, TX, USA

SYMPOSIA

Listed in alphabetic order by title.

Cacao Diseases: Important Threats to Chocolate Production Worldwide

1:30 – 4:45 p.m. * 206B

Section: Diseases of Plants

Sponsoring Committees: OIP, Mycology, Tropical Plant Pathology

Organizers: Randy Ploetz, University of Florida, Homestead, FL; Cathie Aime, USDA-ARS, Beltsville, MD

Moderators: Randy Ploetz, University of Florida, Homestead, FL; Cathie Aime, USDA-ARS, Beltsville, MD

Financial Sponsor: Masterfoods USA, A Division of MARS, Inc.

Cacao, an ancient and sacred Mesoamerican crop, supports a major international industry. In 2003, 3.4 million metric tons of beans were produced with a value of \$4.4 billion, and in 2001, the global chocolate market was worth \$73 billion. Diseases are the most important constraints to cacao production and the continued viability of the world's confectionary trades. Three are most important. Black pod, caused by at least six species of *Phytophthora*, occurs worldwide and exerts the largest impact. In contrast, frosty pod, caused by *Moniliophthora roreri*, and witches' broom, caused by *M. perniciosa*, are restricted to American production areas; if they spread, they would devastate production in Asia, and in West Africa, where 80% of all production occurs. Several other diseases poses equally serious threats, but have limited distributions: most notable are ceratocystis wilt, caused by *C. cacaofunesta*, swollen shoot, caused by *Cacao swollen shoot virus*, and vascular streak dieback, caused by *Oncobasidium theobromae*. Current research has revealed new insights on the biology, origins, pathology and phylogeny of the pathogens, as well as resistance to, and the biological and chemical management of, the diseases.

- 1:30 p.m. S-7. Cacao diseases: Important threats to chocolate production worldwide. R.C. PLOETZ (1). (1) University of Florida, Homestead, FL
- 1:45 p.m. S-8. Cacao diseases: The trilogy revisited. H.C. EVANS (1). (1) CABI Bioscience, Ascot, Berkshire, UK
- 2:15 p.m. S-9. Frosty pod: A disease of limited geographic distribution but unlimited potential for damage. W. PHILLIPS-MORA (1), M.J. Wilkinson (2). (1) Tropical Agricultural Research and Higher Education Center (CATIE), Turrialba, Costa Rica; (2) The University of Reading, Reading, UK
- 2:30 p.m. S-10. New phylogenies: Revelations on cacao pathogens and the diseases they cause. M.C. AIME (1). (1) USDA-ARS, Beltsville, MD
- 2:45 p.m. S-11. Ceratocystis wilt: A "new" disease of increasing importance. C.J. ENGELBRECHT (1), T.C. Harrington (1). (1) Iowa State University, Ames, IA
- 3:00 p.m. Break
- 3:30 p.m. S-12. Black pod: Diverse pathogens and the greatest global impact on cacao yield. D.I. GUEST (1). (1) University of Sydney, Sydney, Australia

- 3:45 p.m. S-13. Vascular streak dieback: A new encounter disease that is caused by an obligate basidiomycete, *Oncobasidium theobromae*. D.I. GUEST (1). (1) University of Sydney, Sydney, Australia
- 4:00 p.m. S-14. Cacao diseases: A global perspective from an industry point of view. P.K. HEBBAR (1). (1) Mars Inc./USDA-ARS, Beltsville, MD
- 4:15 p.m. S-15. Development of a marker assisted selection program for cacao. R.J. SCHNELL (1), J.S. Brown (1), D.N. Kuhn (1), C. Cervantes-Martinez (1), J.W. Borrone (1), C.T. Olano (1), J. C. Motamayor (2). (1) USDA-ARS, Miami, FL; (2) Mars Inc., Miami, FL
- 4:30 p.m. Panel discussion. Where do we go from here?

Culture Collections in the Genomics Age, co-sponsored by APS & CPS

1:15 – 5:00 p.m. * 304AB

Section: Biology of Plant Pathogens

Organizers: Weidong Chen and Xianming Chen, USDA-ARS, Pullman, WA

Moderators: Weidong Chen and Xianming Chen, USDA-ARS, Pullman, WA

Sponsoring Committees: Collections and Germplasm, Mycology

Financial sponsor: Partial funding provided by USDA Widely Prevalent Fungi List Project via APS Mycology Committee

Culture collections, including private, public, national, and industrial collections that relate to bacteria, fungi, and viruses, have played important roles in microbiology, mycology, plant pathology, and many other scientific disciplines. Recent advances in biotechnology and information technology provide new techniques, such as DNA sequencing, microarray analysis, and comparative and functional genomics, for characterizing and accessing culture collections. This symposium will bring experts from different culture collection organizations to provide perspectives and prospects on how to benefit culture collections from recent technological advances in modernizing and strengthening culture collections, and the history, current status and importance of culture collections to research in the genomics age.

- 1:15 p.m. S-16. Introduction. W. Chen (1), X. Chen (1). (1) USDA-ARS, Washington State University, Pullman, WA
- 1:30 p.m. S-17. Major collections of plant pathogens: History, status, and importance to the quality of research in the genomics age. M.D. COFFEY (1). (1) University of California, Riverside, CA
- 2:00 p.m. S-18. Microbial culture collections in Canada and the importance of ex-situ conservation of temperate organisms. K.A. SEIFERT (1), C.A. Lévesque (1), K. Bernard (2), C. Babcock (1). (1) Agriculture & Agri-Food Canada, Ottawa, ON, Canada; (2) Public Health Agency of Canada, Winnipeg, MB, Canada
- 2:30 p.m. S-19. The value of culture collections and herbaria

SYMPOSIA

in the DNA age. A.Y. ROSSMAN (1), D.F. Farr (1). (1) USDA-ARS, Beltsville, MD

3:00 p.m. Break

3:30 p.m. S-20. Bacterial culture collections: Their status and contributions to plant pathology and genomics research. J.B. JONES (1). (1) University of Florida, Gainesville, FL

4:00 p.m. S-21. *Xylella fastidiosa* collection and genomic research. J. CHEN (1). (1) USDA-ARS, Parlier, CA

4:30 p.m. S-22. Culture collections, genomics and bioinformatics: The golden triangle. V. ROBERT (1), J. Stalpers (1), G. Verkley (1). (1) Centraalbureau voor Schimmelcultures, Utrecht, Netherlands

Fungal Movement: Contemporary Experimental Analysis

1:30 – 5:10 p.m. * Room 302AB

Section/Sponsor: Mycological Society of America

Organizer/Moderator: Nicholas P. Money, Miami University, Oxford, OH

Few scientists are aware of the extraordinary range of movements accomplished by fungi. The speed of these biophysical processes ranges from the slow extension of hyphae accompanying the penetration of plant tissues, to the blisteringly fast expulsion of spores from asci. Recent advances in the study of these phenomena has come from three main sources: (i) the use of ultra high speed digital video to study fast spore movements, (ii) the employment of new analytical tools to determine the chemical composition of minuscule fluid samples, and (iii) the application of fresh mathematical approaches to model fungal movement. In this symposium, speakers from diverse backgrounds will offer insights into all three areas of inquiry.

1:30 p.m. S-23. Introduction: Historical perspective on the study of fungal movement. N.P. MONEY (1). (1) Miami University, Oxford, OH

1:40 p.m. S-24. Exploring fungal growth with confocal and multiphoton microscopy. K.J. CZYMMEK (1). (1) University of Delaware, Newark, DE

2:10 p.m. S-25. The mechanics of tip growth in fungi and beyond. J. DUMAIS (1). (1) Harvard, Cambridge, MA

2:40 p.m. S-26. Modeling fungal penetration. M. TABOR, University of Arizona, Tucson, AZ

3:10 p.m. Break

3:40 p.m. S-27. The launch of the ballistospore. N.P. MONEY (1). (1) Miami University, Oxford, OH

4:10 p.m. S-28. The launch of ascospores: observations and mathematical analysis. J.L. STOLZE (1), M. FISCHER (2). (1) Miami University, Oxford, OH; (2) College of Mount St. Joseph, OH

4:40 p.m. S-29. Convergence: explosive spore and seed dispersal in plants. J.L. EDWARDS (1), D.L. WHITAKER (1). (1) Williams College, Williamstown, MA

Functional Genomics Meets Bacterial Diseases, Part III: *Xanthomonas* and *Xylella* Genomics

1:30 – 4:45 p.m. * Room 205C

Section: Biology of Plant Pathogens

Organizers: Frank Louws, North Carolina State University, Raleigh, NC; Jeff Jones, University of Florida, Gainesville, FL

Moderators: Frank Louws, North Carolina State University, Raleigh, NC; Jeff Jones, University of Florida, Gainesville, FL

Sponsoring Committee: Bacteriology

Sequencing of entire genomes has rapidly advanced our understanding of bacterial DNA composition. Whereas sequence analysis is highly valuable and informative, the benefit lies in enhanced knowledge about the biology of the pathogen including the nature of parasitism with attention toward improving tactics to manage plant diseases. *Xanthomonas* and *Xylella* are two major groups of bacterial plant pathogens that affect a wide range of economically important crops worldwide. This symposium will provide an overview of the challenges these pathogens present and detail current research on deciphering the entire genome of *Xanthomonas* and *Xylella* strains.

1:30 p.m. S-30. *Xanthomonas*: The pathogen. F.J. LOUWS (1). (1) North Carolina State University, Raleigh, NC

1:45 p.m. S-31. Functional genomics of *Xanthomonas campestris* pv. *vesicatoria*. U. BONAS (1), F. Thieme (1), D. Büttner (1), R. Koebnik (1). (1) Martin-Luther-University, Halle, Germany

2:15 p.m. S-32. Cyclic di-GMP signalling in the virulence and environmental adaptation of *Xanthomonas campestris*. J.M. DOW (1), R. Ryan (1), Y. Fouhy (1), J. Lucey (1), Y.Q. He (2), J. X. Feng (2), J.L. Tang (2). (1) University College Cork, Cork, Ireland; (2) Guangxi University, Nanning, People's Republic of China

2:45 p.m. S-33. *Xylella*: The pathogen. D. HOPKINS (1). (1) University of Florida, Apopka, FL

3:00 p.m. Break

3:30 p.m. S-34. Comparative genomic analyses among xanthomonadales. M. VAN SLUYS (1,2), H. Lu (3), A.M. Varani (1), W. Lima (4), C.F.M. Menck (4), V. Brendel (3), A.J. Bogdanove (3), J. Leach (2). (1) IBUSP, Sao Paulo, SP, Brazil; (2) Colorado State University, Fort Collins, CO; (3) Iowa State University, Ames, IA; (4) ICP-USP, Sao Paulo, SP, Brazil

4:00 p.m. S-35. Functional analyses of *Xylella fastidiosa* genes predicted to be involved with plant pathogenesis and insect transmission. B.C. KIRKPATRICK (1), M.R. Guilhabert (1), M.C. Roper (1), T. Voegel (1), C. Greve (1), J. Labavitch (1). (1) University of California, Davis, CA

4:30 p.m. S-36. Functional genomics and plant disease management. J. B. JONES (1). (1) University of Florida, Gainesville, FL

Fungal Endophytes: Diversity and Function in Forest Ecosystems

1:30 – 5:00 p.m. * Room 206A

Section: Biology of Plant Pathogens

Organizers: Ned Klopfenstein, USDA Forest Service, Moscow, ID; Mee-Sook Kim, USDA Forest Service, Moscow, ID; Richard Hamelin, Canadian Forest Service, Québec, QC, Canada

Moderators: Ned Klopfenstein, USDA Forest Service, Moscow, ID; Richard Hamelin, Canadian Forest Service, Québec, QC, Canada

Sponsoring Committees: Forest Pathology, Mycology

Ecological roles of fungal endophytes are an understudied aspect of forest ecosystem processes. This symposium will address 1) taxonomic diversity, 2) interactions with pathogens and insects, and 3) interactions with other environmental factors (e.g., temperature, moisture, nutrition, and fire).

- 1:30 p.m. S-37. General aspects of grass endophytes: A baseline for comparing endophytes of woody plants. C.L. SCHARDL (1). (1) University of Kentucky, Lexington, KY
- 2:00 p.m. S-38. Ecological roles of endophytes in forest ecosystems. J.K. STONE (1). (1) Oregon State University, Corvallis, OR
- 2:30 p.m. S-39. From the leaf to the landscape: Endophyte diversity and interactions at small and large spatial scales. A.E. ARNOLD (1), F. Lutzoni (2). (1) University of Arizona, Tucson, AZ; (2) Duke University, Durham, NC
- 3:00 p.m. Break
- 3:30 p.m. S-40. Biodiversity of foliar endophytes in conifers from boreal forests. J.A. BÉRUBÉ (1), F.O.P. Stefani (1), S. Sokolski (3). (1) Canadian Forest Service, Québec, QC, Canada; (2) Université Laval, Québec, QC, Canada
- 4:00 p.m. S-41. Fungal endophytes isolated from roots of Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) from prescribed burn sites. J.R. GOETZ III (1). (1) Washington State University, Pullman, WA
- 4:30 p.m. S-42. Latent fungal pathogens of woody plants: Power that has not yet come forth! G.R. STANOSZ (1). (1) University of Wisconsin, Madison, WI

Navigating Funding Agencies and Updates from the Public Policy Board

1:30 – 4:30 p.m. * Room 204B

Section: Professionalism/Service/Outreach

Organizers: Stella Melugin Coakley, Oregon State University, Corvallis, OR; Scott Gold, University of Georgia, Athens, GA

Moderators: Stella Coakley, Oregon State University, Corvallis, OR; Scott Gold, University of Georgia, Athens, GA

Sponsoring Committee: APS Public Policy Board

The APS Public Policy Board (PPB) is actively involved in issues related to plant pathology with current emphases on

funding, plant biosecurity, genomics, permitting, and education. Speakers include members of the PPB and others invited to address progress on initiatives, including updates on funding opportunities within various international and U.S. Federal agencies. There will be an opportunity for discussion and engagement of the attendees to obtain feedback from APS members on board activities that impact research, education, and management of plant health.

- 1:30 p.m. S-43. Introduction. S.M. COAKLEY (1). (1) Oregon State University, Corvallis, OR
- 1:45 p.m. S-44. Overview of funding opportunities for international cooperation.
- 2:00 p.m. S-45. National research initiatives within competitive programs. A. LICHENS-PARK (1). (1) USDA CSREES, Washington, DC
- 2:15 p.m. S-46. Opportunities within the Department of Energy/Joint Genome Institute
- 2:30 p.m. S-47. Opportunities within the NSF and joint programs with DOE, NIH and USDA. A. LICHENS-PARK (1). J.L. SHERWOOD (1). (1) USDA CSREES, Washington, DC
- 2:45 p.m. S-48. Overview from Washington D.C. on issues of importance to plant health research, teaching, and extension. K. EVERSOLE (1). (1) Eversole Associates, Bethesda, MD
- 3:00 p.m. Break
- 3:30 p.m. S-49. Update on permitting issues: Movement of pathogens internationally and nationally. J. STEADMAN (1), S. JOHNSON (2). (1) University of Nebraska, Lincoln, NE; (2) USDA APHIS Riverdale, MD
- 3:45 p.m. S-50. Center for Plant Biosecurity: Coordinating issues for plant health. J. FLETCHER (1). (1) Oklahoma State University, Stillwater, OK
- 4:00 p.m. Engaging in public policy issues—How members can benefit and contribute. Panel of Public Policy Board Members

The Role of Fungi in Science and Human Affairs,

co-sponsored by APS & MSA

1:30 – 5:00 p.m. * Room 303AB

Section: Diseases of Plants

Organizers: Carrie Harmon, University of Florida, Gainesville, FL; Paul Peterson, Clemson University, Florence, SC

Moderators: Carrie Harmon, University of Florida, Gainesville, FL; Richard Hamelin, NRC Canada Forest Service, Ste-Foy, QC, Canada

Sponsoring Committees: Phytopathological Classics, Mycology, Centennial Planning

Financial Sponsor: Partial funding provided by USDA-APHIS Prevalent Fungi List via APS Mycology Committee



This session presents historical perspectives on mycology and plant pathology. By placing the work in a historical and scientific context, we hope to stimulate discussions regarding the future goals and needs for plant pathology, mycology, and allied fields. Invited speakers include historians of science and research scientists. This will be the third part of a series of

Place Your Bid at the APS-OIP Silent Auction Sunday Night



Now's your chance to pick up fabulous cultural items from around the world. Simply place a bid during the Silent Auction at the APS Welcome Reception on Sunday, July 30 from 7:00-9:30 p.m. Browse each item, but don't limit your bidding to just one. With each winning bid you will take home a unique item and your gift will help to build international relationships worldwide.

Special thanks to all of the volunteers, participants and sponsors who made this year's Silent Auction possible. Funds raised will support the new *Connecting Knowledge with a Growing World* workshop series. The workshops will connect plant pathologists from around the world via grants to fund international collaboration. Your support is helping make a positive difference in the world!



SYMPOSIA

historical symposia that began in 2004, in preparation for the 2008 centennial meeting.

- 1:15 p.m. S-51. Introduction. R.C. HAMELIN (1). (1) NRC Canada Forest Service, Ste-Foy, QC, Canada
- 1:30 p.m. S-52. A brief history of systematic mycology in the United States with emphasis on invasive fungi. A. ROSSMAN (1). (1) USDA, Beltsville, MD
- 2:00 p.m. S-53. Morphology, molecules, and mycology. L.D. DUNKLE (1). (1) USDA-ARS, Purdue University, West Lafayette, IN
- 2:30 p.m. S-54. Grape diseases, Bordeaux mixture, and the origins of American plant pathology. P.D. PETERSON (1). (1) Clemson University, Florence, SC
- 3:00 p.m. Break
- 3:30 p.m. S-55. Chronicle of an epidemic foretold: Global responses to the coffee rust, 1870–1990. S. MCCOOK (1). (1) University of Guelph, Guelph, ON, Canada
- 4:00 p.m. S-56. A hundred years of chestnut blight. B.I. HILLMAN (1). (1) Rutgers University, New Brunswick, NJ
- 4:30 p.m. S-57. Ergot and its introduction to the *materia medica*. K.B.G. SCHOLTHOF (1). (1) Texas A&M University, College Station, TX

NETWORKING EVENTS

APS-OIP 5K Fun Run/2.5K Walk

7:00 a.m. – 8:30 a.m. (*Racers arrive by 6:30 a.m.*)*

Plains of Abraham Battlefield Park



Organizer: Le Club de course à pied de l'Université Laval

Join your friends and make a positive difference in the world! The APS Office of International Programs (OIP) 5K Fun Run/2.5K Walk for International Outreach and Collaboration is being coordinated by Le Club de course à pied de l'Université Laval. The event will take place rain or shine in the historic Plains of Abraham Battlefield Park. Proceeds will go to help enhance various APS international activities. All racers should pick up their bib, t-shirt and course map on Saturday, July 29 at the meeting registration located in the Québec City Convention Centre from 2:00 – 6:00 p.m. Onsite race registrations will also be accepted at that time. The race will start and finish at the Joan of Arc garden area near the Delta Hotel. Racers should meet at the start line by 6:30 a.m. If you aren't racing make sure to come out and cheer on your fellow colleagues, the finish line.

Vegetable Extension & Research Plant Pathologists Breakfast

7:00 a.m. – 9:00 a.m. * Courville/Monmorency – Hilton
 This annual event, sponsored by the vegetable seed industry, promotes the sharing of ideas on seed health and expounds on the phytosanitary needs of the vegetable seed industry. This year's presentation is *Seed-Associated Versus Seed-Transmitted: Mechanisms, Issues and Implications* by Robert Gilbertson, University of California, Davis, CA. This event is by invitation only.

Welcome & Plenary Session

9:00 – 11:00 a.m. * Room 200AB

The welcome and joint APS/CPS/MSA plenary session will feature an expert panel of speakers, consisting of David Gilchrist from the University of California, Zamir Punja from Simon Fraser University, and Jeffrey Townsend from the University of Connecticut, to address the theme Biological Interactions and Biological Crossroads. This session will highlight the multiple levels of organization of living systems - molecular, cellular, organismal, and community - and the interactions that occur within them. Further, it will consider the richness of the science of mycology and plant pathology that stems from the convergence of disciplines of which each is composed.

- 9:00 a.m. Welcome by APS President, J. ANDREWS, University of Wisconsin, Madison, WI
- 9:10 a.m. Welcome by CPS President, A. LEVESQUE, Agriculture and Agri-Food Canada, Ottawa, ON, Canada
- 9:20 a.m. Welcome by MSA President, J. ANDERSON, University of Toronto, Mississauga, ON, Canada
- 9:30 a.m. Genome-wide gene expression in the fungi: genetics, development, and the environment. J. P. TOWNSEND, University of Connecticut, Storrs, CT
- 10:00 a.m. Biotechnology and plant disease management - can we get beyond the crossroads? A Canadian perspective. Z. K. PUNJA, Simon Fraser University, Burnaby, BC, Canada
- 10:30 a.m. Convergent Challenges and Opportunities in an Evolving Discipline. D. GILCHRIST, University of California, Davis, CA

APS 101: Early Career Professionals Informational Social

5:00 – 7:00 p.m. * Panorama Plaines/Citadelle – Hilton
 Join the Early Career Professionals Committee and learn how you can volunteer and influence the future direction of APS! Join APS leaders in a discussion about the different APS boards and committees and how you can become more involved. Short presentations will be made by representatives from various programs within APS with questions and answers to follow. This informational social is open to anyone in the early stages of their career; there is no charge to attend.

APS Graduate Student Committee Meeting and Social

5:00 – 7:00 p.m. * Porte St-Louis – Hilton
 Graduate and undergraduate students – make plans to meet with your plant pathology colleagues in a casual and relaxed environment at this year's annual meeting. Learn about the current activities of the APS Graduate Student Committee and opportunities for involvement. Heavy hors d'oeuvres and beverages will be served. This event is complimentary and is limited to graduate and undergraduate students only.

Joint Committee of Women in Plant Pathology and Cultural Diversity Social

5:30 – 7:00 p.m. * Villeray – Hilton
 Interested in advancing issues related to women in plant pathology and cultural diversity? Join your peers at this informal social which is open to all meeting attendees, especially those who have a passion in fostering relationships with diverse audiences. *Ticket required.*

Welcome Reception

7:00 – 10:00 p.m. * Exhibit Hall 400AB
 Kick-start your annual meeting experience at the Welcome Reception. Mix and mingle with exhibitors, poster authors, and old and new colleagues; view the spectacular Art in APS display, browse the APS PRESS Bookstore and bid on APS-OIP Silent Auction items while enjoying desserts and beverages. This reception is included in the registration fee.

APS-OIP Silent Auction: Connecting Knowledge with a Growing World

7:00 – 9:30 p.m. * Exhibit Hall 400AB
 The APS Office of International Programs will again present a sampling of fabulous cultural items for the APS-OIP Silent Auction: Connecting Knowledge with a Growing World. You are invited to bid during the APS Welcome Reception. Your gift will help to build international relationships worldwide. **Note:** Items to donate should be brought to the registration area by noon on Sunday, July 30. Questions? Ask for Michelle Bjerkness or Amy Steigman at registration.



Art in Phytopathology

Sunday, July 30 – Tuesday, August 1, 2006 * Exhibit Hall 400AB
 The Art in Phytopathology exhibit presents an opportunity for creative APS/CPS/MSA members to showcase their artistic talents. Art in Phytopathology has been a popular attraction at the APS annual meeting for several years. Stop by and view the art throughout the meeting.

JOINT MEETING DAILY SCHEDULE

Monday, July 31

6:30 – 8:00 a.m.	Extension Plant Pathologists Breakfast	Villeray – Hilton
7:00 – 8:30 a.m.	Task Force on Culture Collections	201B
7:00 – 9:30 a.m.	APS Centennial Planning Committee	Courville/Monmorency – Hilton
7:00 – 10:00 a.m.	APS Public Policy Board	Ste-Foy/Portneuf – Hilton
7:30 a.m. – 4:30 p.m.	Registration	Level 4
7:30 a.m. – 7:00 p.m.	Poster Viewing	400AB
7:45 – 11:30 a.m.	The Role of Type III Effectors in Bacterial Virulence	302AB
8:00 – 9:30 a.m.	Diseases – Turf Grasses	208AB
8:00 – 11:15 a.m.	New Products and Services	206A
8:00 – 11:15 a.m.	Viruses – Systematics/Evolution/Ecology	205C
8:00 – 11:30 a.m.	Diseases – Cereals, Field, and Fiber Crops	301B
8:00 – 11:30 a.m.	Epidemiology/Ecology/Environmental Biology II	206B
8:00 – 11:30 a.m.	Population Biology of Oomycetes	202
8:00 – 11:30 a.m.	Water and Disease Management in Nursery and Greenhouse Production	301A
8:00 – 11:45 a.m.	Plant Disease Management—Host Resistance	205AB
8:00 – 11:45 a.m.	Urban Forestry Health Management	204AB
8:00 a.m. – 12:00 p.m.	Project Directors Meeting - USDA-CSREES Plant Biosecurity Competitive Program	203
8:30 – 9:30 a.m.	MSA Presidential Address	303AB
9:00 a.m. – 4:00 p.m.	APS Placement	201C
9:00 a.m. – 7:00 p.m.	APS PRESS Bookstore	400AB
9:30 a.m. – 12:00 p.m.	Syllabi: What Are Needed in Them and How Can I Improve Mine	304AB
10:00 – 11:30 a.m.	Fungal Ecology–Mycorrhizae	208AB
10:00 – 11:30 a.m.	Fungal Systematics I	207
11:00 a.m. – 7:00 p.m.	Exhibits Open	400AB
	<i>Concession service available in hall from 11:00 a.m. – 2:00 p.m.</i>	
11:30 a.m. – 1:00 p.m.	APS Graduate Student & Industry Lunch	Le Panorama – Hilton
11:30 a.m. – 1:00 p.m.	APS Past President's Lunch	Lauzon – Hilton
11:30 a.m. – 1:00 p.m.	APS Phytopathology News Advisory Board Meeting	Bélair – Hilton
11:30 a.m. – 1:30 p.m.	APS/SON 2007 Planning Meeting	Portneuf – Hilton
12:00 – 1:00 p.m.	APS Prevalent Bacteria/APHIS Ad-Hoc Committee Meeting	Courville/Monmorency – Hilton
1:00 – 2:15 p.m.	Bacteria – Systematics/Evolution/Ecology	301B
1:00 – 2:30 p.m.	Fungal Molecular and Cell Biology	203
1:00 – 3:00 p.m.	APS Affiliates Meeting	Beauport – Hilton
1:00 – 4:00 p.m.	6th I.E. Melhus Graduate Student Symposium: <i>Student research at the forefront of genetics and genomics of pathogenicity and host resistance.</i>	206B
1:00 – 4:00 p.m.	Diverse Strategies for Managing Mycotoxins	205C
1:00 – 4:15 p.m.	New Regulatory Challenges: Rapid Changes in Taxonomy of Plant Pathogens	301A
1:00 – 4:30 p.m.	Biological Control	205AB
1:00 – 4:30 p.m.	Biology and Epidemiology of Seed Transmission	304AB
1:00 – 4:30 p.m.	Diseases – Fruits and Nuts	206A
1:00 – 4:30 p.m.	Diversity of Zoosporic Fungi	204AB
1:00 – 4:30 p.m.	Forest Pathology	202
1:00 – 4:30 p.m.	The Effects of Climate Change on Tree Diseases	302AB
1:00 – 4:45 p.m.	Disease Detection and Diagnostics	303AB
2:00 – 4:00 p.m.	APS Office of Industry Relations Board Meeting	201B
3:00 – 4:30 p.m.	Fungal Ecology – Endophytes and Saprobes	203
3:00 – 4:30 p.m.	Fungi – Genetics/Molecular Biology/Cell Biology II	301B
4:30 – 6:30 p.m.	Poster Authors Present	400AB
5:00 – 6:30 p.m.	SPDN Update & Planning Meeting	207
5:00 – 7:00 p.m.	USDA-ARS Social	Solarium
6:30 – 10:30 p.m.	Industry & Extension Social	
7:00 – 9:00 p.m.	Alumni Socials	Grand Ballroom – Hilton
	<i>Iowa State University; Mid-west States; North Carolina State University; Old West Trails; Texas A&M University; University of California-Davis; University of California-Riverside; University of Florida; University of Kentucky; University of Minnesota; University of Wisconsin</i>	

MORNING TECHNICAL SESSIONS

Listed in alphabetic order by title.

Diseases – Cereals, Field, and Fiber Crops

8:00 a.m. – 11:30 a.m. * Room 301B

Section: Diseases of Plants

Moderators: Xianming Chen, USDA-ARS and Washington State University, Pullman, WA; Fouad Daayf, University of Manitoba, Winnipeg, MB, Canada

- 8:00 a.m. AO-33. Antimicrobial activity of pyrrocidines from *Acremonium zeae* against endophytes and pathogens of maize. D. T. WICKLOW (1), S. M. Poling (1). (1) USDA, ARS, NCAUR
- 8:15 a.m. AO-34. Effects of temperature on initiation of infection in soybean by isolates of *Phakopsora pachyrhizi* and *P. meibomia*. M. R. BONDE (1), S. E. Nester (1), D. K. Berner (1), R. D. Frederick (1). (1) USDA-ARS, FDWSRU, Fort Detrick, MD, USA
- 8:30 a.m. AO-35. A relationship between the number of *Gibberella zeae* propagules present during heading and deoxynivalenol (DON) content in wheat grain. J. M. STEIN (1), L. E. Osborne (1). (1) Plant Science Department, South Dakota State University, Brookings, SD, USA
- 8:45 a.m. AO-36. Fusarium head blight: Is fungal biofilm formation related to variance in fungicide efficacy? M. W. HARDING (1), L. R. Marques (1), R. J. Howard (2), M. E. Olson (1). (1) MBEC BioProducts, Calgary, AB, Canada; (2) Alberta Agriculture, Food and Rural Development - CDCS, Brooks, AB, Canada
- 9:00 a.m. AO-37. Root development and water use efficiency of hard red winter wheat infected by *Wheat streak mosaic virus*. J. A. PRICE (1), D. C. Jones (1), F. Workneh (1), T. Allen (1), M. Balota (1), C. M. Rush (1). (1) Texas Agric. Exp. Stn., Bushland, TX, USA
- 9:15 a.m. AO-38. Studies on soybean rust (*Phakopsora pachyrhizi*). P.M. CALDWELL (1). (1) University of KwaZulu-Natal, South Africa
- 9:30 a.m. AO-39. Stripe rust epidemic and races of *Puccinia striiformis* in the United States in 2005. X. CHEN (1), L. Penman (2). (1) USDA-ARS and Washington State University, Pullman, WA, USA; (2) Washington State University, Pullman, WA, USA
- 9:45 a.m. Break
- 10:00 a.m. AO-40. The impact of foliar diseases of soybean in Iowa during the 2005 growing season. A. E. ROBERTSON (1), F. W. Nutter (1), P. D. Esker (1), J. M. Shriver (1), S. S. Navi (1). (1) Iowa State University, Ames, IA, USA
- 10:15 a.m. AO-41. Identification and characterisation of *Pythium* spp. of major crops in Southwestern Uganda. V. G. GICHURU (1), R. Buruchara (3), P. Okori (1), F. Opio (2), M. Ugen (2). (1) Department of Crop Science, Makerere University, Kampala; (2) Namulonge Agricultural Research

- Institute, Kampala; (3) Centro Internacional de Agricultura Tropical (CIAT)
- 10:30 a.m. AO-42. Virulence variability among isolates of *Blumeria graminis* f. sp. *tritici* from wheat in Iran. M. RAZAVI (1), M. Torabi (2), M. Karimi Jashni (1), H. Kazemi (1). (1) Plant Pests and Diseases Research Institute, Tehran, Tehran, Iran; (2) Seed and Plant Improvement Institute, Karaj, Tehran, Iran
- 10:45 a.m. AO-43. Infection cushion formation by *Rhizoctonia* spp. on peanut and wheat root systems. V. CHOPPAKATLA (1), H. A. Melouk (1), R. M. Hunger (1). (1) Oklahoma State University
- 11:00 a.m. CO-11. Take-all of wheat: From epidemiology to integrated management. Presenter: P. LUCAS, UMR Biologie des Organismes et des Populations appliquée à la Protection des Plantes, INRA, Le Rheu, France; Co-Author(s): M.H. Jeuffroy, UMR Agronomie, INRA, France and J.M. Meynard, UMR Agronomie, INRA, France
- 11:15 a.m. CO-12. Specific variations in relative humidity make *Leptosphaeria maculans* PG1 isolates highly aggressive on canola cotyledons. Presenter: A. ELHADRAMI, Department of Plant Science, University of Manitoba, Winnipeg, MB; Co-Author(s): W.G.D. Fernando, and F. Daayf, Department of Plant Science, University of Manitoba, Winnipeg, MB

Diseases – Turf Grasses

8:00 – 9:30 a.m. * Room 208AB

Section: Diseases of Plants

Moderators: Francis Wong, University of California, Riverside, CA; Wakar Uddin, The Pennsylvania State University, State College, PA

- 8:00 a.m. AO-44. Dynamics of azoxystrobin-resistant *Magnaporthe grisea* causing gray leaf spot of perennial ryegrass (*Lolium perenne*) turf. B. MA (1), W. Uddin (1), G. Olaya (2). (1) Penn State University, University Park, PA; (2) Syngenta Crop Protection, Vero Beach, FL
- 8:15 a.m. AO-45. The first molecular marker-based linkage map of the psychrophilic Basidiomycete *Typhula ishikariensis*. S. CHANG (1), G. Jung (1). (1) University of Wisconsin, Department of Plant Pathology, Madison, WI
- 8:30 a.m. AO-46. Identification and characterization of *Waitea circinata* var. *circinata* causing disease on annual bluegrass in the western U.S.. K. A. DE LA CERDA (1), J. C. Rios (1), C. J. Nielsen (1), F. P. Wong (1). (1) University of California, Riverside, CA, USA
- 8:45 a.m. AO-47. Association of genetic structure of *Sclerotinia homoeocarpa* populations with fungicide sensitivity on the golf course turf. Y. JO (1), G. Jung (1). (1) Plant Pathology, University of Wisconsin, Madison, WI

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#20-06

MORNING TECHNICAL SESSIONS

- 9:00 a.m. AO-48. Influence of nitrogen source and rate on severity of anthracnose basal rot in mixed creeping bentgrass and annual bluegrass putting greens. W. UDDIN (1), M. D. Soika (1), E. Soika (1). (1) Penn State University, University Park, PA
- 9:15 a.m. AO-49. Genetic diversity of *Pyricularia grisea* isolates collected from perennial ryegrass and kikuyugrass in California and Nevada. K. A. De la Cerda (2), K. L. Huryn (2), G. W. Douhan (2), W. Uddin (1), F. WONG (2). (1) The Pennsylvania State University, State College, PA, USA; (2) UC Riverside, Riverside, CA, USA

Epidemiology/Ecology/Environmental Biology II

8:00 a.m. – 11:30 a.m.* Room 206B

Section: Epidemiology/Ecology/Environmental Biology

Moderators: Clive Bock, University of Florida, Ft. Pierce, FL; Lori Trummer, USDA Forest Service, Anchorage, AK

- 8:00 a.m. AO-50. Modeling the abundance of propagules of *Gibberella zeae* within wheat canopies. P. A. PAUL (3), L. V. Madden (3), P. E. Lipps (3), E. De Wolf (4), G. Shaner (1), G. Buechley (1), T. Adhikari (2), S. Ali (2), J. Stein (5), L. Osborne (5). (1) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, USA; (2) Department of Plant Pathology, North Dakota State University, Fargo, ND, USA; (3) Department of Plant Pathology, The Ohio State University, Wooster, OH, USA; (4) Department of Plant Pathology, The Pennsylvania State University, University Park, PA, USA; (5) Plant Science Department, South Dakota State University, Brookings, SD, USA
- 8:15 a.m. AO-51. Spatial patterns of sclerotia of *Sclerotinia sclerotiorum* in commercial lettuce fields of southern Arizona. P. CHITRAMPALAM (1), B. M. Pryor (1), P. J. Figuli (1). (1) University of Arizona, Tucson, AZ, USA
- 8:30 a.m. AO-52. The effect of environmental pH on the toxic secretions of the fungus. Z. PAZ (1), S. Burdman (1), Z. Kerem (1), L. Kushnir (1), A. Gafni (1), U. Gerson (1), A. Szejnberg (1). (1) Hebrew University of Jerusalem, Rehovot, Israel
- 8:45 a.m. AO-53. Factors affecting infection of citrus with *Xanthomonas axonopodis* pv. *citri*. C. H. BOCK (3), P. E. Parker (1), A. Z. Cook (1), T. R. Gottwald (2). (1) USDA-APHIS-PDDML, Edinburg, TX; (2) USDA-ARS-USHRL, Ft. Pierce, FL; (3) University of Florida, Ft. Pierce, FL
- 9:00 a.m. AO-54. Spatial pattern analysis of take-all disease of wheat. M. GOSME (1), L. Willocquet (1), P. Lucas (1). (1) UMR BIO3P, INRA Rennes, France
- 9:15 a.m. AO-55. Incorporation of distance-of-spread calculations into a weather-based model describing disease distribution after severe weather events. M. S. IREY (1), T. Gottwald (1). (1) USDA/ARS, Fort Pierce, FL

- 9:30 a.m. Break
- 10:00 a.m. AO-56. Characterization of *Xylella fastidiosa* and epidemiology of the plant diseases caused by the bacterium in Costa Rica. M. MONTERO-ASTÚA (2), E. Aguilar (2), C. Chacón (2), J. Garita-Cambronero (2), L. Garita (2), W. Villalobos (2), L. Moreira (2), W. Li (4), C. Godoy (3), J. S. Hartung (5), C. Rivera (1). (1) CIBCM and Escuela de Microbiología, Universidad de Costa Rica (UCR), San Pedro 2060, Costa Rica; (2) CIBCM, Universidad de Costa Rica (UCR), San Pedro, Costa Rica; (3) Museo de Zoología, Universidad de Costa Rica (UCR), San Pedro, Costa Rica; (4) USDA-APHIS-PPQ, Beltsville, MD; (5) USDA-ARS, Beltsville, MD
- 10:15 a.m. AO-58. A weather based, site-specific disease prediction model for Sclerotinia blight epidemics on peanut. D. L. SMITH (1), J. E. Hollowell (1), T. G. Isleib (1), B. B. Shew (1). (1) North Carolina State University, Raleigh, NC, USA
- 10:30 a.m. AO-59. Effect of osmotic and matric potential on sclerotial germination of *Verticillium dahliae* and disease development in *Pistacia vera*. Z. BANIHASHEMI (1), A. R. Saadatman (1). (1) College of Agriculture, Shiraz University, Shiraz, Iran
- 10:45 a.m. AO-60. **Roundup:** Networks and epidemiology. M. J. JEGER (1), M. Pautasso (1). (1) Imperial College London, Ashford, UK
- 11:15 a.m. AO-57. Variability in *Rhizoctonia solani* the fungus that causes sheath blight of rice. M. K. NAIK (2), P. S. Prasad (2), R. D. Prasad (2), S. S. Navi (1). (1) Iowa State University, Ames, IA, USA; (2) Plant Pathology Dept, College of Agriculture, Raichur, India

Fungal Ecology–Mycorrhizae

10:00 – 11:30 a.m. * Room 208AB

Mycological Society of America

Moderators: Thomas J. Volk, University of Wisconsin, La Crosse, WI; Michael F. Allen, University of California, Riverside, CA

- 10:00 a.m. MO-13. Effect of Novel Living forest Organisms on ectomycorrhizal diversity. Presenter: F.O.P. STEFANI (1); Co-Author(s): J-M Moncalvo (2), R.C. Hamelin (3). (1) Université Laval, Sainte-Foy, QC, Canada, (2) Royal Ontario Museum, ON, Canada, (3) Canadian Forest Service, Sainte-Foy, QC, Canada
- 10:15 a.m. MO-14. Morphological and molecular characterization of mycorrhizal fungi associated with a disjunct stand of American chestnut *Castanea dentata* in Wisconsin. Presenter: J. M. PALMER (1); Co-Author(s): D. L. L. Czederpiltz (1), and T. J. Volk (2). (1) University of Wisconsin, La Crosse, WI, (2) USDA Forest Service, Madison WI
- 10:30 a.m. MO-15. The successful nursery production of red

spruce seedlings with indigenous ectomycorrhizal fungi of the endangered Southern Appalachian spruce-fir ecosystem. Presenter: B. MILLER (1); Co-Author(s): C. S. McCleneghan (1), and H. Neufeld (2). (1) Virginia Polytechnic Institute and State University, Blacksburg, VA, (2) Appalachian State University, Boone, NC

- 10:45 a.m. MO-16. Long-term effect of fertilization on ectomycorrhizal diversity of western hemlock (*Tsuga heterophylla*). Presenter: S.H.A. Wright (1); Co-Author(s): S. Lim (1), S. Berch (1), and M.L. Berbee (1). (1) University of British Columbia, Vancouver, BC, Canada.
- 11:00 a.m. MO-17. Molecular and morphological analyses of ectomycorrhizal fungal community composition across hemlock dominance and defoliation gradients. Presenter: J. JOHNSON (1); Co-Author(s): A.G. Sirulnik (1), A.R. Tuininga (1), and J.D. Lewis (1). (1) Fordham University, Armonk, NY
- 11:15 a.m. MO-18. Using Microscopy and PCR to verify the mycorrhizal association of *Morchella esculenta* with *Ulmus americana*. Presenter: B. D. O'REILLY (1); Co-Author(s): T. J. Volk (1). (1) University of Wisconsin, La Crosse, WI

Fungal Systematics I

10:00 – 11:30 a.m. * Room 207

Mycological Society of America

Moderator: Jolanta Miadlikowska, Duke University, NC

- 10:00 a.m. MO-19. Myxomycetes of Cocos Island, Costa Rica. Presenter: C. ROJAS (1); Co-Author(s): S. L. Stephenson (1). (1) University of Arkansas, Fayetteville, AR
- 10:15 a.m. MO-20. Internal Transcribed Spacers 1 and 2 as molecular markers for the study of genetic variation in populations of myxomycetes. Presenter: K. E. WINSETT (1); Co-Author(s): J.D. Silberman (1), S. L. Stephenson (1). (1) University of Arkansas, Fayetteville, AR
- 10:30 a.m. MO-21. Oomycete species of Pakistan - a morphological and molecular study. Presenter: M. A. LODHI (1,2); Co-Author(s): S. Shahzad (1), A. Ghaffar (1), and C A. Levesque (2). (1)University of Karachi, Pakistan, (2) Agriculture and Agri-Food Canada, Ottawa, ON, Canada.
- 10:45 a.m. MO-22. More characters or taxa? A case study with the Lecanoromycetes using new tree visualization tools. Presenter: F. LUTZONI (1); Co-Author(s): F. Kauff (1), J. Miadlikowska (1), D. Winslow (1), and R. Brady (1). (1) Duke University, Durham, NC
- 11:00 a.m. MO-23. Resolving species boundaries in *Peltigera* using multi-locus phylogenetics. Presenter: H. O'BRIEN (1); Co-Author(s): J. Miadlikowska (1), T. Goward (1), F. Lutzoni (2). (1) Duke University, Durham, NC; (2) University of British Columbia, Vancouver, BC, Canada

MORNING TECHNICAL SESSIONS

11:15 a.m. MO-24. "More and better": improvement in phylogenetic systematics of the Lecanoromycetes Pezizomycotina, Ascomycota). Presenter: J. MIADLIKOWSKA (1); Co-Author(s): F. Kauff (2), V. Hofstetter (1), E. Fraker (1), M. Grube (1), V. Reeb (1), and F. Lutzoni (1). (1) Duke University, Durham, NC, (2) Karl-Franzens-Universität, Graz, Austria.

Host Resistance

8:00 – 11:45 a.m. * Room 205AB

Section: Plant Disease Management

Moderators: Fleet Lee, University of Arkansas, Stuttgart, AR; Hilary Mayton, Cornell University, Ithaca, NY

8:00 a.m. CO-7. Resistance to Wheat streak mosaic virus in durum wheat. Presenter: S. HABER, Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, MB; Co-Author(s): J. Gilbert, Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, MB; J.G. Steinberg, Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, MB; J. Clarke, Semi-Arid Prairie Agriculture Research Centre, Swift Current, SK and J. Thomas, Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, MB

8:15 a.m. CO-8. Genetic analysis of resistance to necrosis inducing *Pyrenophora tritici-repentis* races 3 and 5 in tetraploid wheat. Presenter: P.K. SINGH, Department of Plant Sciences, North Dakota State University, Fargo, ND, USA; Co-Author(s): J.L. Gonzalez-Hernandez, Department of Plant Sciences, North Dakota State University, Fargo, ND, USA; M. Mergoum, Department of Plant Sciences, North Dakota State University, Fargo, ND, USA; S. Ali, Department of Plant Pathology, North Dakota State University, Fargo, ND, USA; T.B. Adhikari, Department of Plant Pathology, North Dakota State University, Fargo, ND, USA; S.F. Kianian, Department of Plant Sciences, North Dakota State University, Fargo, ND, USA; E.M. Elias, Department of Plant Sciences, North Dakota State University, Fargo, ND, USA and G.R. Hughes, Department of Plant Sciences, University of Saskatchewan, Saskatoon, SK, Canada

8:30 a.m. CO-9. Breeding for fusarium head blight resistance in winter wheat in Ontario using conventional methods and biotechnology. Presenter: L. TAMBURIC-LLINCIC, Ridgetown Campus, University of Guelph, Ridgetown, ON; Co-Author(s): D.E. Falk, Department of Plant Agriculture, University of Guelph, Guelph, ON and A.W. Schaafsma, Ridgetown Campus, University of Guelph, Ridgetown, ON

8:45 a.m. AO-71. Application of recombinant antibody technology (scFv) to confer tolerance to phytopathogens. B. YAJIMA (1), N. Kav (1). (1)

University of Alberta, Edmonton, Alberta, Canada
9:00 a.m. AO-72. Identification and development of resistance to soybean rust in Nigeria. R. Bandyopadhyay (1), C. PAUL (4), M. Twizeyimana (1), R. Adeleke (1), M. Miles (3), G. Hartman (2). (1) International Institute for Tropical Agriculture, Ibadan, Nigeria; (2) USDA/ARS and University of Illinois, Urbana-Champaign, IL, USA; (3) USDA/ARS, Urbana, IL, USA; (4) University of Illinois, Urbana-Champaign, IL, USA

9:15 a.m. AO-73. Historical use of field resistance to control rice blast in Arkansas. F. N. LEE (1), R. D. Cartwright (3), C. E. Wilson (2), K. A. Moldenhauer (1). (1) University of Arkansas, Division of Agriculture, Rice Research & Extension Center, Stuttgart, AR, USA; (2) University of Arkansas, Division of Agriculture, Cooperative Extension Service, Little Rock, AR, USA; (3) University of Arkansas, Division of Agriculture, Cooperative Extension Service, Plant Pathology, Fayetteville, AR, USA

9:30 a.m. Break

10:00 a.m. AO-74. Field performance of transgenic virginia-type peanut cultivars with the oxalate oxidase gene for resistance to Sclerotinia blight. D. E. PARTRIDGE (2), P. M. Phipps (2), D. L. Coker (2), E. A. Grabau (1). (1) Department of Plant Pathology, Virginia Tech, Blacksburg, VA, USA; (2) Tidewater Agricultural Research & Extension Center, Virginia Tech, Suffolk, VA, USA

10:15 a.m. AO-75. Transfer of reniform nematode resistance from *Gossypium longicalyx* L. (F genome) to *Gossypium hirsutum* L. (AD genome). A. A. BELL (2), A. F. Robinson (2), N. Dighe (1), D. M. Stelly (1), M. Menz (1). (1) Texas A&M University, College Station, TX, USA; (2) USDA-ARS, College Station, TX, USA

10:30 a.m. AO-76. Adaptability of *Heterodera glycines* to new hosts and resistant soybean cultivars. T. L. NIBLACK (1), A. L. Colgrove (1). (1) Department of Crop Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, USA

10:45 a.m. AO-77. Potential increased resistance to *Fusarium* species in sorghum lines genetically modified for reduced lignin content. D. L. FUNNELL (1), J. F. Pedersen (1). (1) USDA-ARS, Grain, Forage and Bioenergy Research, Lincoln, NE, USA

11:00 a.m. AO-78. Foliar and tuber late blight resistance in a *Solanum tuberosum* potato mapping population. H. MAYTON (2), I. Simko (3), W. De Jong (1), W. E. Fry (2). (1) Department Plant Breeding, Cornell University, Ithaca, NY; (2) Department Plant Pathology, Cornell University, Ithaca, NY; (3) USDA/ARS, Salinas, CA

11:15 a.m. AO-79. Race stability in *Phytophthora nicotianae*, the causal agent of black shank of tobacco. C. A. GALLUP (1), H. Shew (1). (1) North Carolina State University, Department of Plant Pathology

11:30 a.m. AO-80. Genetics of resistance to witches' broom disease caused by *Crinipellis perniciosa* in cacao. S. SURUJDEO-MAHARAJ (1), P. Umaharan (2). (1) Cocoa Research Unit, University of the West Indies, St. Augustine, Trinidad; (2) University of the West Indies, St. Augustine, Trinidad

Viruses – Systematics/Evolution/Ecology

8:00 a.m. – 11:15 a.m. * Room 301B

Section: Biology of Plant Pathogens

Moderators: Jorge Abad, North Carolina State University, Raleigh, NC; Rodolfo Acosta, Texas A&M University, Amarillo, TX

8:00 a.m. AO-61. Characterization and epidemiology of Raspberry mottle associated virus, a novel *Closterovirus*. I. E. Tzanetakis (1), A. Halgren (1), N. Mosier (2), R. R. MARTIN (2). (1) Oregon State University, Corvallis, OR, USA; (2) USDA-ARS HCRL, Corvallis, OR, USA

8:15 a.m. AO-62. Relationship between pathogenicity and quasispecies structures of *Beet necrotic yellow vein virus* (BNYVV). R. ACOSTA-LEAL (2), C. Rush (2), M. Fawley (1). (1) North Dakota State University, Fargo, ND; (2) Texas Agricultural Experiment Station, Amarillo, TX, USA

8:30 a.m. AO-63. Biology and genetics of lettuce dieback disease and *Lettuce necrotic stunt virus*. W. M. WINTERMANTEL (1), R. C. Grube (2), A. G. Anchieta (1). (1) USDA-ARS, Salinas, CA, USA; (2) University of New Hampshire, Durham, NH, USA

8:45 a.m. AO-64. Evidence for natural reassortment of TSWV genome segments in tomato, pepper and cabbage. J. A. Abad (1), M. Tsompana (2), S. L. New (1), E. J. Parks (1), J. L. Speck (1), I. Carbone (1), J. W. MOYER (1). (1) North Carolina State University, Raleigh, NC; (2) University of North Carolina, Chapel Hill, NC

9:00 a.m. AO-65. Population structure of *Impatiens necrotic spot virus* (INSV) isolates from five continents. J. A. ABAD (1), E. J. Parks (1), J. L. Speck (1), J. W. Moyer (1). (1) North Carolina State University, Raleigh, NC

9:15 a.m. AO-66. Population structures of the RNA molecules for citrus exocortis and cachexia disease viroids. G. VIDALAKIS (1), J. S. Semancik (1). (1) Department of Plant Pathology, University of California, Riverside, CA 92521, USA

9:30 a.m. Break

10:00 a.m. AO-67. Characteristics of the mycovirus in *Plasmopara halstedii*, the downy mildew pathogen of the sunflower (*Helianthus annuus*). M. HELLER-DOHMEN (2), J. C. Göpfert (1), R. Hammerschmidt (3), O. Spring (1). (1) Botany, University of Hohenheim, Stuttgart, Germany; (2) Botany, University of Hohenheim, Stuttgart, Germany + Plant Pathology, Michigan State University, East Lansing, MI, USA; (3)

Plant Pathology, Michigan State University, East Lansing, MI, USA

10:15 a.m. AO-68. A novel virus in *Angelica lucida* (wild celery) in Alaska. N. L. ROBERTSON (1). (1) USDA, ARS, Palmer, AK, USA

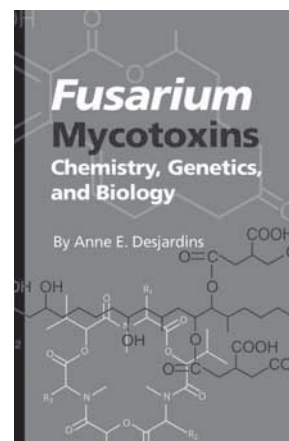
10:30 a.m. AO-69. A novel whitefly-transmitted potyvirus isolated from cucurbits in Florida. S. ADKINS (2), S. E. Webb (3), D. Achor (4), C. A. Baker (1). (1) FDACS-DPI, Gainesville, FL, USA; (2) USDA-ARS-USHRL, Fort Pierce, FL, USA; (3) University of Florida, Gainesville, FL, USA; (4) University of Florida, Lake Alfred, FL, USA

10:45 a.m. AO-70. Molecular characterization of several new and emerging potyviruses of ornamental plants. R. JORDAN (1), M. Guaragna (1). (1) US National Arboretum, Floral & Nursery Plants Research, USDA-ARS, Beltsville, MD, USA

11:00 a.m. CO-10. Comparison of PLRV and PVY detection in potato tuber samples tested by RT-PCR, ELISA, and field visual inspections. Presenter: R. Hugue, Institut de recherche et de developpement en agroenvironnement, Québec; Co-Author(s): E. Plante, Institut de recherche et de developpement en agroenvironnement, Québec and N. Daigle, Institut de recherche et de developpement en agroenvironnement, Québec

MONDAY

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MONDAY

AFTERNOON TECHNICAL SESSIONS

Listed in alphabetic order by title.

Bacteria – Systematics/Evolution/Ecology

1:00 – 2:15 p.m. * Room 301B

Section: Biology of Plant Pathogens

Moderators: Carole Beaulieu, Université de Sherbrooke, Sherbrooke, QC, Canada; Jian Yao, University of Wisconsin, Madison, WI

- 1:15 p.m. CO-15. Potential of weed species as a reservoir for *Xanthomonas campestris* pv. *vitians*, the bacterial leaf spot of lettuce pathogen. Presenter: V. Toussaint, Horticultural Research and Development Centre, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC; Co-Author(s): D.L. Benoit, cultural Research and Development Centre, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC; M. Bélanger, cultural Research and Development Centre, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC; M. Cadieux, cultural Research and Development Centre, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC and M. Ciotola, cultural Research and Development Centre, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC
- 1:30 p.m. CO-16. Competition between *Erwinia amylovora* and *Erwinia pyrifoliae* on pear blossoms. Presenter: S.M. Lehman, Department of Biological Sciences, Brock University, St. Catharines, ON; Co-Author(s): W.S. Kim, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, Vineland Station, ON and A.M. Svircev, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, Vineland Station, ON
- 1:30 p.m. CO-17. Soil nutrient levels and other soil properties predictive of potato common scab Presenter: G. Lazarovits, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, London, ON; Co-Author(s): G. Patterson, A & L Canada Laboratories Inc., London, ON; J. Hill, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, London, ON; K.L. Conn, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, London, ON and N. Crump, Institute for Horticultural Development, Private Bag 15, South Eastern Mail Centre, Victoria 3176 Australia
- 1:45 p.m. AO-126. The role of bacterial aerotaxis in *Ralstonia solanacearum* interactions with host plants. J. YAO (1), C. Allen (1). (1) Dept. of Plant Pathology, University of Wisconsin, Madison, WI, USA
- 2:00 p.m. AO-128. Motility trails of *Xylella fastidiosa* on culture media surfaces visualized by reflection

contrast microscopy. J. CHEN (1), R. Groves (1), E. L. Civerolo (1). (1) USDA-ARS, Parlier, CA, USA

Biological Control

1:00 – 4:45 p.m. * Room 205AB

Section: Plant Disease Management

Moderators: Maryann Borsick, Cornell University, Ithaca, NY; Russell Tweddell, Université Laval, Québec, QC, Canada

- 1:00 p.m. CO-13. Biological control of damping-off disease of cucumber in the United Arab Emirates using streptomycete and non-streptomycete actinomycetes capable of producing cell-wall degrading enzymes. Presenter: K.A. EL TARABILY, Department of Biology, Faculty of Science, United Arab Emirates University, United Arab Emirates; Co-Author(s): F. McKenna, Natural Science Center Inc., Steele, AL
- 1:15 p.m. CO-14. Is the inhibition of *Phytophthora nicotianae* in tomato roots induced by *Glomus mosseae* and *G. intraradices* related to changes in root exudation? Presenter: L. LIOUSSANNE, Institut de recherche en biologie végétale, Université de Montréal, Montréal, QC; Co-Author(s): , M. Jolicoeur, Unité de Recherche Bio-P2, Département de Génie chimique, Ecole Polytechnique de Montréal, Montréal, QC and M. St-Arnaud, Institut de recherche en biologie végétale, Université de Montréal, Montréal, QC
- 1:30 p.m. AO-116. Effect of botanical extracts for control of *Botrytis cinerea* in tomato in San Quintin Valley, Baja California, Mexico. R. J. HOLGUÍN-PEÑA (1), E. O. Rueda-Puente (2). (1) Centro de Investigaciones Biológicas del Noroeste, S.C.; (2) Universidad de Sonora, Santa Ana, Sonora, Mexico
- 1:45 p.m. AO-117. Effect of the biofumigant Muscador on strawberry plant growth and yield. J. C. MERTELY (1), J. W. Noling (1), N. A. Peres (1). (1) University of Florida
- 2:00 p.m. AO-118. Biological control of Armillaria root disease of grapevine. K. BAUMGARTNER (1), A. E. Warnock (1). (1) USDA-ARS, Davis, CA, USA
- 2:15 p.m. AO-119. Promotion of plant growth and biological control of diseases of cucumber caused by *Pythium aphanidermatum* by endophytic actinomycetes in UAE. K. EL-TARABILY (2), G. Hardy (3), K. Sivasithamparam (1). (1) Faculty of Natural and Agricultural Sciences, University of Western Australia, W.A., 6009, Australia; (2) Department of Biology, Faculty of Science, United Arab Emirates University, Al-Ain, United Arab Emirates; (3) School of Biological Sciences and Biotechnology, Murdoch University, Murdoch, W.A., Australia
- 2:30 p.m. Break
- 3:00 p.m. AO-120. Pathogen inhibitory activity of indigenous *Streptomyces* from Lower Rio Grande Valley agricultural soils. A. A. GARZA (1). (1)

The University of Texas Pan-American, Edinburg, TX, USA

- 3:15 p.m. AO-121. Induction of multiple systemic resistance pathways modifies gene expression and disease control in tomato. M. A. BORSICK (1), J. K. Davidson (2), T. J. Glover (2), C. D. Smart (1). (1) Cornell University, Geneva, NY, USA; (2) Hobart and William Smith Colleges, Geneva, NY, USA
- 3:30 p.m. AO-123. A biological method to reduce wetwood in wood products. D. YANG (1). (1) Forintek Canada Corp., Eastern Laboratory, Sainte-Foy, Quebec, Canada
- 3:45 p.m. AO-124. Mass production and formulation of *Microsphaeropsis amaranthi*, a candidate bioherbicide for the control of weedy Amaranthaceae. Y. M. SHABANA (1), S. G. Hallett (1). (1) Department of Botany & Plant Pathology, Purdue University, West Lafayette, IN, USA
- 4:00 p.m. AO-125. Endophytic actinomycetes: Effective biocontrol agents for cereal root diseases. C. M. FRANCO (3), P. Michelsen (3), V. M. Conn (3), R. Loria (1), S. Moll (2). (1) Cornell University, Ithaca, NY, USA; (2) Flinders University, Adelaide and Cornell University, Ithaca, NY, USA; (3) Flinders University, Adelaide, Australia
- 4:15 p.m. AO-122. An investigation of the bio-control of Fusarium wilt of pepper {*Capsicum annum* (linn)} caused by *Fusarium oxysporum*. A. O. SALAMI (1). (1) Department of Plant Science, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, Nigeria
- 4:30 p.m. AO-191. Demonstration of biofumigation activity of *Muscador albus* in soil substrates. J. MERCIER (1), J. I. Jimenez (1). (1) AgraQuest Inc., Davis, CA, USA

Disease Detection and Diagnostics

1:00 – 4:45 p.m. * Room 303AB

Section: Diseases of Plants

Moderators: Huimin Xu, Canadian Food Inspection Agency, Charlottetown Laboratory, Charlottetown, PE, Canada; Jianjun Hao, University of California, Davis, CA

- 1:00 p.m. AO-81. Integration of science and group decision making to derive exotic species priorities. K. A. SCHWARTZBURG (1), L. E. Duffié (1), W. D. Bailey (1). (1) USDA APHIS PPQ Center for Plant Health Science and Technology (CPHST), Raleigh, NC, USA
- 1:15 p.m. AO-82. Genetic analysis of a Canadian *Potato latent virus* isolate and specific detection of this virus in potato. H. XU (1), J. Nie (1). (1) Canadian Food Inspection Agency, Charlottetown Laboratory, Charlottetown, PE, Canada
- 1:30 p.m. AO-83. CANARY B-cell sensor for rapid identification of plant pathogens. F. NARGI (1). (1) MIT Lincoln Laboratory, Lexington, MA, USA

AFTERNOON TECHNICAL SESSIONS

- 1:45 p.m. AO-84. Detection of *Phakopsora pachyrhizi* spores in rain using a real-time PCR assay. C. W. BARNES (2), L. J. Szabo (2), J. L. Johnson (3), V. C. Bowersox (1), K. S. Harlin (1). (1) NADP, Illinois State Water Survey, Champaign, IL, USA; (2) USDA-ARS, St. Paul MN, USA, University of Minnesota, St. Paul, MN, USA; (3) University of Minnesota, St. Paul, MN, USA
- 2:00 p.m. AO-85. **Roundup:** Setting up a private diagnostic lab - A case study. A. R. CHASE (1). (1) Chase Research Gardens Inc., Mount Aukum, CA
- 2:30 p.m. Break
- 3:00 p.m. AO-86. Detection of *Pythium* species causing carrot cavity spot and evaluation of their sensitivity to mefenoxam. J. HAO (1), M. Davis (1). (1) Department of Plant Pathology, University of California, Davis, CA, USA
- 3:15 p.m. AO-87. Macroarray detection of known and emerging fungal and oomycete pathogens on solanaceous crops. N. ZHANG (1), C. D. Smart (1). (1) Cornell University, Geneva, NY, USA
- 3:30 p.m. AO-88. Occurrence of *Erwinia carotovora* on wasabi (*Wasabia japonica*) causing rhizome blackening. G. RODRIGUEZ (1), Z. Punja (1). (1) Simon Fraser University, Burnaby, BC, Canada
- 3:45 p.m. AO-89. Changes in volatile production during an infection of tomato plants by *Botrytis cinerea*. R. JANSEN (2), M. Miebach (1), E. Kleist (1), E. van Henten (2), J. Wildt (1). (1) Institute Phytosphere, Forschungszentrum Jülich, Jülich, Germany; (2) Farm Technology Group, Wageningen University, Wageningen, The Netherlands
- 4:00 p.m. AO-90. Comparison of DNA amplification methods for improved detection of *Candidatus Liberibacter* species associated with citrus Huanglongbing. W. Li (1), J. S. Hartung (2), L. LEVY (1). (1) USDA, APHIS, PPQ, CPHST, Beltsville, MD; (2) USDA, ARS, Fruit Laboratory, Beltsville, MD
- 4:15 p.m. AO-91. Occurrence of Rubbery brown rot or Phytophthora root rot of carrots (*Daucus carota* L.) in Michigan. C. C. SAUDE (1), M. K. Hausbeck (1). (1) Dept. Plant Pathology, Michigan State University, East Lansing, MI
- 4:30 p.m. CO-18. Direct real-time PCR: no RNA extraction involved high throughput plant diagnostic tool for Plum pox virus detection. Presenter: W.S. KIM, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, Vineland Station, ON; Co-Author(s): L. Stobbs, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, Vineland Station, ON; D. James, Centre for Plant Health, Canadian Food Inspection Agency, BC; D. Rochon, Pacific Agri-Food Research Centre, Summerland, BC and A. M. Svirce, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, Vineland Station, ON

Diseases – Fruits and Nuts

1:00 – 4:30 p.m. * Room 206A

Section: Diseases of Plants

Moderators: Jay Pscheidt, Oregon State University, Corvallis, OR; Lance Cadle-Davidson, USDA-ARS, GGRU, NYSAES, Geneva, NY

- 1:00 p.m. AO-92. Detecting potential inoculum sources of *Colletotrichum acutatum* for infection of new strawberry plantings in California. D. GUBLER (1), H. Su (1), A. F. Feliciano (1). (1) Department of Plant Pathology, University of California at Davis, Davis, CA, USA
- 1:15 p.m. AO-93. Potential alternate sources of inoculum for causal agents of esca (black measles) of grapevine in California. S. ROONEY-LATHAM (1), A. Eskalen (1), L. L. Gallegos (1), W. Gubler (1). (1) Department of Plant Pathology University of California-Davis, Davis, CA, USA
- 1:30 p.m. AO-94. Influence of grafting on resistance of B9 apple rootstock to fire blight (*Erwinia amylovora*). N. L. RUSSO (1), T. L. Robinson (1), G. Fazio (2), H. S. Aldwinckle (1). (1) Cornell University; (2) USDA-ARS PGRU
- 1:45 p.m. AO-95. Occurrence, identification, and distribution of fungal pathogens occurring on grapevine cankers in California. J. R. URBEZ-TORRES (2), G. M. Leavitt (3), W. D. Gubler (1). (1) CE Specialist, Department of Plant Pathology, University of California, Davis, CA; (2) Department of Plant Pathology, University of California, Davis, CA; (3) University of California Cooperative Extension, Madera, CA
- 2:00 p.m. AO-96. Occurrence of two new species of *Togninia* in California. A. ESKALEN (1), S. N. Rooney-Latham (1), L. L. Gallegos (1), W. D. Gubler (1). (1) Dept. of Plant Pathology, University of California, Davis, CA, USA
- 2:15 p.m. AO-97. Fairy ring disease increases host genetic diversity in cultivated cranberry. J. J. POLASHOCK (2), P. V. Oudemans (1). (1) Rutgers University, Chatsworth, NJ 08019; (2) USDA-ARS, Fruit Lab, Chatsworth, NJ 08019
- 2:30 p.m. Break
- 3:00 p.m. AO-98. Impact of fairy ring on cranberry yield. P. V. OUDEMANS (1), J. J. Polashock (2). (1) Rutgers, The State University; (2) USDA-ARS Fruit Lab
- 3:15 p.m. AO-99. The eastern filbert blight epidemic in the Pacific Northwest: Survey versus biology. J. W. PSCHIEDT (1), P. Grimaldi (1), R. Penhallegon (1). (1) Oregon State University
- 3:30 p.m. AO-100. Searching for the molecular basis of grape ontogenic resistance incorporating epidemiology and proteomics techniques. C. T. GEE (1), D. M. Gadoury (1), T. W. Thannhauser (2), L. E. Cadle-Davidson (3). (1) Department of Plant Pathology, Cornell University, Geneva, NY, USA; (2) USDA-ARS, FCPC, Ithaca, NY, USA;

- 3:45 p.m. (3) USDA-ARS, GGRU, NYSAES, Geneva, NY, USA
 AO-101. Phosphite induces defence responses in *Arabidopsis thaliana* challenged with *Phytophthora palmivora*. R. DANIEL (1), D. I. Guest (1). (1) Faculty of Agriculture, Food and Natural Resources, The University of Sydney, NSW, Australia
- 4:00 p.m. AO-102. The effect of minimum temperatures on blossom populations and infection potential of *Erwinia amylovora*. M. M. DEWDNEY (1), R. C. Seem (1), H. S. Aldwinckle (1). (1) NYSAES Cornell University, Geneva, NY, USA
- 4:15 p.m. AO-103. Cellular phenotypes of prehaustorial, hypersensitive, and ontogenic resistance against grapevine powdery mildew on developing leaves. L. CADLE-DAVIDSON (1). (1) USDA-ARS, Grape Genetics Research Unit, Geneva, NY, USA

Forest Pathology

1:00 – 4:30 p.m. * Room 202

Section: Diseases of Plants

Moderators: Danny Rioux, Canadian Forest Service, Ste-Foy, QC, Canada; Pedro Uribe, USDA-ARS, Beltsville, MD

- 1:00 p.m. AO-104. Presence of double-stranded RNA viruses in the genome of the sapstain fungus *Ceratocystis resinifera* and their effect on the host phenotype. C. MORIN (1), L. Bernier (1). (1) CRBF, Universite Laval, Quebec, QC, Canada
- 1:15 p.m. AO-105. Sporulation of *Phytophthora ramorum* and *P. kernoviae* on asymptomatic foliage. S. DENMAN (1), E. Moralejo (3), S. Kirk (2), E. Orton (2), J. Webber (2). (1) Forest Research, Alice Holt Lodge, Farnham, Surrey, UK; (2) Forest Research, UK; (3) IMEDEA (CSIC-UIB), Miquel Marquès 21, 07190, Esporles, Balearic Islands, Spain
- 1:30 p.m. AO-106. Host-mediated cross induction of systemic resistance between a pathogen and an insect in Austrian pine. A. EYLES (1), C. Wallis (1), R. Chorbadjian (1), D. Herms (1), D. Cipollini (2), P. Bonello (1). (1) The Ohio State University, Columbus, OH, USA; (2) Wright State University, Dayton, OH, USA
- 1:45 p.m. AO-107. A new *Phytophthora* from *Austrocedrus* trees with symptoms of “Mal del cipres” in the Patagonian Andes of Argentina. A. Greslebin (2), E. M. HANSEN (1). (1) Oregon State University; (2) Proteccion Forestal, Centro de Investigacion y Extension Forestal Andino Patagonico, Esquel Argentina
- 2:00 p.m. AO-108. *Diplodia pinea*, *D. scrobiculata*, and dead naturally occurring red and jack pine seedlings and saplings with collar rot symptoms. G. R. STANOSZ (1), D. R. Smith (1). (1) Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, USA
- 2:15 p.m. AO-109. Beech mortality and drought in Maine. M. T. KASSON (1). (1) University of Maine,

Department of Forest Ecosystem Science, Orono, ME, USA

- 2:30 p.m. Break
- 3:00 p.m. AO-110. Nuclear and cytoplasmic degeneration in fusiform rust-infected cortical tissues of loblolly, longleaf, shortleaf and slash pines. C. H. WALKINSHAW (1). (1) U.S. Forest Service, Pineville, LA
- 3:15 p.m. AO-111. Molecular characterization of *Fusarium oxysporum* and *F. commune* isolates collected from a conifer nursery. J. E. STEWART (2), M. Kim (2), R. L. James (1), R. Dumroese (3), N. B. Klopfenstein (2). (1) USDA Forest Service-FHP, Coeur d’Alene, ID, USA; (2) USDA Forest Service-RMRS, Moscow, ID, USA; (3) USDA Forest Service-SRS, Moscow, ID, USA
- 3:30 p.m. AO-112. *In vitro* identification of genes involved in the pathogenic interaction between *Ulmus americana* and *Ophiostoma novo ulmi*. M. AOUN (1), V. Jacobi (1), L. Bernier (1). (1) Centre de Recherche en Biologie forestière, Université Laval, Quebec, Canada. G1k 7p4
- 3:45 p.m. AO-113. An ammonium transporter gene is a potential pathogenicity gene in *Ophiostoma novo-ulmi*. K. PLOURDE (1), L. Bernier (1). (1) Centre de recherche en biologie forestière, Université Laval, Québec (Qc), Canada
- 4:00 p.m. AO-114. New insights into the population diversity of *Phytophthora citricola* pathogenic on European beech (*Fagus sylvatica*). A. H. NELSON (1), G. E. Weiland (1), G. W. Hudler (1). (1) Department of Plant Pathology, Cornell University, Ithaca, NY, USA
- 4:15 p.m. AO-115. Importance of DNA quality in the sensitivity of detection of *Phytophthora ramorum*. P. URIBE (1), F. N. Martin (2). (1) USDA-ARS; (2) fmartin@pw.ars.usda.gov

Fungi – Genetics/Molecular Biology/Cell Biology II

3:00 – 4:30 p.m. * Room 301B

Section: Molecular/Cellular Plant-Microbe Interactions

Moderators: Marie-Louise Milat, INRA, Dijon, France; Guillaume Bouret, University of Laval, Québec, QC, Canada

- 3:00 p.m. AO-129. *In vitro* characterization of virulence factors produced by *Eutypa lata* involved in branch dieback of grapevine. P. E. ROLSHAUSEN (2), L. Greve (2), J. M. Labavitch (2), N. E. Mahoney (1), R. J. Molyneux (1), W. Gubler (2). (1) USDA Albany, Berkeley, CA, USA; (2) University of California, Davis, CA, USA
- 3:15 p.m. AO-130. Isolation and identification of differentially expressed proteins in six barley lines inoculated with *Fusarium graminearum*. J. M. GEDDES (2), F. Eudes (1). (1) AAFC-Lethbridge, AB; (2) Agriculture and Agri-Food Canada, Lethbridge, AB
- 3:30 p.m. AO-131. Discovery and characterization of DNA transposons in the Dutch elm disease fungi. G.

AFTERNOON TECHNICAL SESSIONS

- BOUVET (1), V. Jacobi (1), L. Bernier (1). (1) Forest Biology Research Centre, Laval University, Quebec, QC, Canada
- 3:45 p.m. AO-132. Development of reverse genetic TILLING resources for the oomycetes *Phytophthora capsici* and *P. sojae*. O. P. HURTADO-GONZALES (1), C. Rippetoe (1), D. Gobena (1), L. Finley (1), K. H. Lamour (1). (1) Entomology and Plant Pathology Department, University of Tennessee, Knoxville, TN, USA
- 4:00 p.m. AO-133. Use of improved DelsGate, a universal, robust and rapid deletion construction method, for fungal functional genomics in an undergraduate lab course. S. E. GOLD (2), M. D. Garcia-Pedrajas (1). (1) Dpt. Microbiologia del Suelo Estacion Experimental del Zaidin, CSIC; (2) Plant Pathology, University of Georgia, Athens, GA, USA
- 4:15 p.m. AO-134. *Pythium oligandrum*- or oligandrin-induced grapevine protection against *Botrytis cinerea*. N. Mohamed (1), J. Lherminier (1), M. Farmer (1), J. Fromentin (1), N. Beno (1), V. Houot (1), M. MILAT (1), J. Blein (1). (1) INRA, Dijon, France

Fungal Molecular and Cell Biology

1:00 – 2:30 p.m. * Room 203

Mycological Society of America

Moderator: Karen Snetselaar, St Joseph's University, Philadelphia, PA

- 1:00 p.m. MO-25. 3-D characterization of a dimorphic fungus using conventional fluorescence microscopy. Presenter: K. SNETSELAAR(1); Co-Author(s): S. Yerrum(1), and M. McCann(1). St Joseph's Univ Philadelphia, PA
- 1:15 p.m. MO-26. Live cell imaging of actin::GFP in *Aspergillus nidulans*. Presenter: B.D. SHAW(1); Co-Author(s): S. Upadhyay(1). (1)Texas A&M University, College Station, TX
- 1:30 p.m. MO-27. Investigations into the fungal-fungal interaction between *Verticillium fungicola* and *Agaricus bisporus*. Presenter: P. D. COLLOPY(1); Co-Author(s): R. Amey(2), M. Challen(3), P. R. Mills(3), A. Bailey(1), and G. D. Foster(1). (1)University of Bristol, Bristol, UK, (2)Horticulture Research International, Warwick, UK, (3)Dartmouth University, Hanover, NH
- 1:45 p.m. MO-28. N-myristoylation of ADP-ribosylation factors in *Aspergillus nidulans*. Presenter: S. C. LEE(1); Co-Author(s): B.D. Shaw(1). (1)Texas A&M University, College Station, TX
- 2:00 p.m. MO-29. The *Aspergillus nidulans* guanine exchange factor, GefA, localizes to hyphal tips. Presenter: M. LONG(1); Co-Author(s): M.Thon(1) and B. Shaw(1). (1)Texas A&M University, College Station, TX
- 2:15 p.m. MO-30. Expression of ion transporter genes in *Gibberella zeae* as seen using an Affymetrix GeneChip. Presenter: H. E. HALLEN(1); Co-Author(s): J. C. Guenther(1), M. Huebner(1), and F. Trail(1). (1)Michigan State University, East Lansing, MI

Fungal Ecology – Endophytes and Saprobes

3:00 – 4:30 p.m. * Room 203

Mycological Society of America

Moderator: Elizabeth Arnold, University of Arizona, Tucson, AZ

- 3:00 p.m. MO-31. Diversity of saprophytic agarics in partially cut, maturing, and old growth stands in the Adirondack Park on New York. Presenter: J. L. HOUSEKNECHT (1); Co-Author(s): A. Weir (1). (1) State University of New York-ES, NY
- 3:15 p.m. MO-32. Co-Introduction of Fungal Endophytes in Spotted knapweed (*Centaurea maculosa* Lam.) Presenter: K. RAGHAVENDRA (1); Co-Author(s): G. Newcombe (1), and A. Shipunov (1). (1) University of Idaho, ID
- 3:30 p.m. MO-33. Coffee endophytes. Presenter: F. E. VEGA (1); Co-Author(s): F. Posada (1), M. C. Aime (2), S. W. Peterson (3), and S. A. Rehner (1). (1) Insect Biocontrol Laboratory, ARS, Beltsville, MD, (2) Systematic Botany and Mycology Laboratory, USDA, ARS, Beltsville, MD, (3)NCAUR/ARS/USDA, Peoria, IL
- 3:45 p.m. MO-34. Variation in the endophytic fungal community among different anatomical structures of *Bouteloua gracilis*. Presenter: J. HERRERA (1); Co-Author(s): A. Porrás-Alfaro (2), D. O. Natvig (2), and R. L. Sinsabaugh (2). (1) Truman State University, MO, (2) University of New Mexico, NM
- 4:00 p.m. MO-36. The effects of host plant variation on the endophyte community of corn (*Zea mays*). Presenter: J. J. PAN (1); Co-Author(s): G May (2). (1) University of Akron, OH, (2) University of Minnesota, St. Paul, MN
- 4:15 p.m. MO-36. *Trichoderma* endophytes of sapwood. Presenter: H. C. EVANS (1); Co-Author(s): G. J. Samuels (2), S. E. Thomas (2), and K. A. Holmes (2). (1) CABI Bioscience, Ascot, UK, (2) USDA-ARS, Beltsville, MD

MORNING SYMPOSIA

Listed in alphabetic order by title.

Mycological Society of America Presidential Address

8:30 a.m. – 9:30 a.m. * Room 303AB

“Haploids, Diploids, Dikaryons, and Fungal Evolution”
James Anderson, University of Toronto, Mississauga, ON, Canada

New Products and Services

8:00 – 11:15 a.m. * Room 206A

Section: Plant Disease Management

Organizer: Lorianne Fought, Bayer CropScience, Research Triangle Park, NC

Moderators: Lorianne Fought, Bayer CropScience, Research Triangle Park, NC; Brian Olson, Dow AgroSciences, Geneva, NY

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.

- 8:00 a.m. S-58. Mandipropamid: A new fungicide for control of late blight and downy mildew. T. HARP (1). (1) Syngenta Crop Protection, Vero Beach, FL
- 8:15 a.m. S-59. Regulatory update for the use of fenbuconazole, mancozeb, and quinoxyfen fungicides on agricultural crops. D. OUIMETTE (1), B. Olson (1). (1) Dow AgroSciences, Indianapolis, IN
- 8:30 a.m. S-60. FORUM fungicide: A new product for disease control in tomatoes, potatoes, vegetables and other crops. T. BURKDOLL (1). (1) BASE, Visalia, CA
- 8:45 a.m. S-61. Automatic and 3-dimensional phenotyping of complete plants. J. VANDENHIRTZ (1). (1) LemnaTec, Wuerselen, Germany
- 9:00 a.m. S-62. Proline and Provaro: New fungicides from Bayer CropScience for control of diseases in canola, pulse crops, and cereals. R. KAISER (1). (1) Bayer CropScience, Research Triangle Park, NC
- 9:15 a.m. S-63. Flint Max: A fungicide from Bayer CropScience for control of diseases in tree fruit and vine crops. L. FOUGHT (1). (1) Bayer CropScience, Research Triangle Park, NC
- 9:30 a.m. Break
- 10:00 a.m. S-64. Dimethyl disulfide (DMDS), a methyl-bromide replacement candidate. P. ROBINSON (1). (1) Cerexagri, Carmel, IN
- 10:15 a.m. S-65. Efficacy of fluoxastrobin (EVITO) against major foliar and soil-borne diseases in peanuts. A. KURTZ (1). (1) Arysta LifeScience, Plymouth, IN
- 10:30 a.m. S-66. Kasumin 2 L (Kasugamycin hydroxide). L. WADE (1). (1) Arysta LifeScience, Roseville, CA
- 10:45 a.m. S-67. Vortex FL, a new seed treatment from Bayer CropScience. J. RIGGS (1). (1) Bayer CropScience, Research Triangle Park, NC
- 11:00 a.m. S-68. PLANTPRO® nematicide and fungicide. C. KOHLS (1). (1) Ajay - SQM Group, Willow Grove, PA

Population Biology of Oomycetes

8:00 – 11:30 a.m. * Room 202

Section: Epidemiology/Ecology/Environmental Biology

Organizers: Niklaus Grunwald, USDA-ARS, Corvallis, OR; Richard Hamelin, NRC Canada Forest Service, Ste-Foy, QC, Canada

Moderators: Niklaus Grunwald, USDA-ARS, Corvallis, OR; Richard Hamelin, NRC Canada Forest Service, Ste-Foy, QC, Canada

Sponsoring Committees: Genetics, Mycology, Soil Microbiology

Oomycetes include some of the economically most important plant pathogens in genera such as *Phytophthora*, *Pythium* and *Aphanomyces* affecting all major crops. Oomycetes are diploid plant pathogens with a range of sexual and asexual reproductive strategies that have significant effects on the population and evolutionary dynamics of each species. Sexual reproduction can occur through selfing in homothallic species and through outcrossing in heterothallic species. This session will explore and contrast recent developments in our understanding of the evolutionary forces shaping populations of oomycete plant pathogens. Of particular interest will be the effect of different reproductive strategies on population structure. Implications for resistance breeding and plant disease management will be discussed.

- 8:00 a.m. S-69. Population biology of *Aphanomyces euteiches*, a distinctive oomycete. D.K. MALVICK (1). (1) University of Minnesota, St. Paul, MN
- 8:30 a.m. S-70. Importance of selfing and outcrossing in the population biology of *Pythium*. F. MARTIN (1). (1) USDA-ARS, Salinas, CA
- 9:00 a.m. S-71. Intraspecific variability within *Pythium*. J.T. TAMBONG (1), M. Perneel (2), M. Höfte (2), C.A. Lévesque (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, Canada; (2) Ghent University, Ghent, Belgium
- 9:30 a.m. Break
- 10:00 a.m. S-72. Genome sequencing and the population biology of *Phytophthora capsici*. K.H. LAMOUR (1). (1) University of Tennessee, Knoxville, TN
- 10:30 a.m. S-73. Evolution and structure of populations of *Phytophthora infestans* and relatives at their center of origin. N.J. GRUNWALD (1). (1) USDA-ARS, Corvallis, OR
- 11:00 a.m. S-74. Multiple analyses identify distinct lineages of *Phytophthora ramorum* throughout its known range in forests and nurseries and support its exotic nature. K. IVORS (1), D. Huberli (2), M. Garbelotto (2), P. Bonants (3). (1) North Carolina State University, Fletcher, NC; (2) University of California, Berkeley, CA; (3) Plant Research International, Wageningen, Netherlands

MORNING SYMPOSIA

Syllabi: What Are Needed in Them and How Can I Improve Mine

9:30 a.m. – 12:00 p.m. * Room 304AB

Sponsoring Committees: Teaching, Graduate Student

Organizer: Melissa Riley, Clemson University, Clemson, SC

Moderators: Carol Stiles, University of Florida, Gainesville, FL; and Melissa Riley, Clemson University, Clemson, SC

Examine effective techniques for developing and improving course syllabi. Components needed in a syllabus will be discussed in light of various issues that may arise during the conduct of a course. Participants will evaluate various syllabi (their own or those provided by workshop leaders) and discuss ways to improve them. This workshop is designed to help graduate students, new faculty, and society members who are new to teaching look for ways to improve teaching, through effective syllabi design.

- 9:30 a.m. S-75. Components of a syllabus. C. STILES (1). (1) University of Florida, Gainesville, FL
- 10:15 a.m. Discussion of syllabi components
- 10:45 a.m. S-76. How to avoid student grievances. M. RILEY (1). (1) Clemson University, Clemson, SC
- 11:15 a.m. Discussion of problems with syllabi
- 11:45 a.m. Summary of workshop—where do you go now? C. STILES and M. RILEY

The Role of Type III Effectors in Bacterial Virulence

7:45 – 11:30 a.m. * Room 302AB

Sections: Molecular/Cellular Plant–Microbe Interactions

Organizers: Frank White and Xiaoyan Tang, Kansas State University, Manhattan, KS

Moderator: Xiaoyan Tang, Kansas State University, Manhattan, KS

Sponsoring Committee: Bacteriology

The symposium will present the latest results from research on the mechanisms and the host targets of the type III effectors of bacterial plant pathogens. The type III effectors of *Xanthomonas* and *Pseudomonas* will be included as well as the results of genetic screens of host plants for increased susceptibility. The presenters will discuss the biochemical, enzymatic, and genetic data of effectors on host plant physiology and relate the findings to the parallel function of the effectors in the elicitation of resistance. The potential use of the research results for improved crop protect strategies and the implications for host and pathogen adaptation and evolution will be discussed.

- 7:45 a.m. S-77. Introduction. X. TANG (1). (1) Kansas State University, Manhattan, KS
- 8:00 a.m. S-78. Nonhost resistance, flagellin-signaling, and type III effectors. J.M. ZHOU (1). (1) National Institute of Biological Sciences, Changping, Beijing, China
- 8:30 a.m. S-79. RIN4 is a regulator of immune defense in Arabidopsis and a target of AvrRpm1 from *Pseudomonas syringae*. D. MACKEY (1). (1) Ohio State University, Columbus, OH

- 9:00 a.m. S-80. The molecular basis of HopM1-mediated suppression of host defense in bacterial speck disease. S.Y. HE (1). (1) Michigan State University, East Lansing, MI
- 9:30 a.m. Break
- 10:00 a.m. S-81. Xanthomonas XopN is a HEAT-repeat protein that physically interacts with a RLK and two pathogen-inducible 14-3-3 proteins from tomato. M.B. MUDGETT (1). (1) Stanford University, Stanford, CA
- 10:30 a.m. S-82. The activation of host susceptibility genes by members of the transcription activator-like type III effectors of *Xanthomonas oryzae*. F. WHITE (1), A. Sugio (1), B. Yang (1). (1) Kansas State University, Manhattan, KS
- 11:00 a.m. S-83. Roles of Pseudomonas type III effectors AvrPto and AvrPtoB in promoting susceptibility in tomato. G. MARTIN (1), R.B. Abramovitch (1), J.C. Anderson (1), N.C. Lin (1). (1) Boyce Thompson Institute and Cornell University, Ithaca, NY

Urban Forestry Health Management

8:00 – 11:45 a.m. * Room 204AB

Section: Plant Disease Management

Organizer: Daniel Collins, Southern University, Baton Rouge, LA

Moderators: Daniel Collins and Andra Johnson, Southern University, Baton Rouge, LA; and Nathan Kleczewski, Ohio State University, Columbus, OH

Sponsoring Committee: Forest Pathology

Urban forestry can be defined as the science, technology and art of managing trees and natural systems in and around urban environments. Trees and forests play an important role in the function and health of urban natural ecosystems by, improving air and water quality, protecting urban watersheds, creating wildlife habitat, and contributing to a community's economy and way of life. Plant diseases and environmental stressors are threats to the health of the urban forest. This symposium will include presentations on the latest research, education, extension, and outreach activities in the United States and Canada addressing urban forestry health management issues.

- 8:00 a.m. S-84. Introduction and overview of urban forestry health management. D. COLLINS (1). (1) Southern University, Baton Rouge, LA
- 8:15 a.m. S-85. Selection of American elms resistant to Dutch elm disease. M. HUBBES (1). (1) University of Toronto, Toronto, ON, Canada
- 8:30 a.m. S-86. There goes the neighborhood: How Canadian cities are trying to cope with exotic pathogens and pest. L. BERNIER (1). (1) Universite Laval, Ste-Foy, QC, Canada
- 8:45 a.m. S-87. Urban forest ecosystem assessment for Gulfport, Mississippi, prior to Hurricane Katrina's landfall. K. ABDOLLAHI (1), D. Collins (1), Z. Ning (1), G. Tarver (1). (1) Southern University, Baton Rouge, LA
- 9:00 a.m. Break

MORNING SYMPOSIA

- 9:30 a.m. S-88. On oaks felled by sudden oak death: How this disease impacted urban forest management. P. ŠVIHRA (1). (1) University of California, Novato, CA
- 9:45 a.m. S-89. Exotic pathogens and angry endophytes: Challenges to urban forest in California. T. GORDON (1). (1) University of California, Davis, CA
- 10:00 a.m. S-90. Effects of soil type, fertility, and mycorrhizal inoculation on trees in a simulated urban setting. N.M. KLECZEWSKI (1), D. Herms (1), P. Bonello (1). (1) Ohio State University, Columbus OH
- 10:15 a.m. S-91. Impact of oak wilt on urban forest in Texas. D.N. APPEL (1), K. Camilli (2). (1) Texas A&M University, College Station, TX; (2) University of Nevada, Reno, NV
- 10:30 a.m. S-92. Management of powdery mildew diseases of ornamentals. M. MMBAGA (1). (1) Tennessee State University, McMinnville, TN
- 10:45 a.m. S-93. Utilizing urban wood waste to improve urban forest health. A. JOHNSON (1). (1) Southern University, Baton Rouge, LA
- 11:00 a.m. S-94. *Phytophthora ramorum* (sudden oak death, ramorum blight): Detection in the urban forest interface. J. JONES (1). (1) USDA APHIS, Riverdale, MD
- 11:15 a.m. S-95. Five deadly threats to Midwestern urban forests. J. JUZWIK (1), T. Poland (2), K. Ward (1), G.R. Johnson (3). (1) USDA Forest Service, St. Paul, MN; (2) USDA Forest Service, East Lansing, MI; (3) University of Minnesota, St. Paul, MN
- 11:30 a.m. S-96. From the forest to the field: The ultimate challenge for urban trees. G.W. HUDLER (1). (1) Cornell University, Ithaca, NY

Water and Disease Management in Nursery and Greenhouse Production

8:00 – 11:30 a.m. * Room 301A

Section: Epidemiology/Ecology/Environmental Biology

Organizer: Charles Krause, USDA-ARS, Wooster, OH

Moderators: Steven Shafer, USDA-ARS, Peoria, IL; Michael Simini, U.S. Army ECBC, Aberdeen Proving Ground, MD

Sponsoring Committee: Environmental Quality and Plant Health, Diseases of Ornamental Plants

Water handling, recirculation and monitoring systems in nurseries and greenhouse production will be examined related to the challenges of disease management and ameliorating environmental concerns. Current water and nutrient use strategies of the “Green Industry” will be described with discussions of alternative disease management systems.

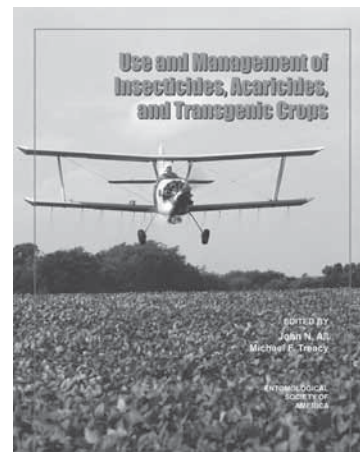
- 8:00 a.m. S-97. Environmental resource management for horticultural crop production, water quality protection and water conservation. J.S. OWENS JR. (1), J.P. Albano (1), S.L. Warren (1), T.E. Bilderback (1), D.C. Fare (1), S.L. Klaine (1),

T. Whitwell (1), P.C. Wilson (1), T.H. Yeager (1), C.J. Catanzaro. (1) Oregon State University, Aurora, OR

- 8:45 a.m. S-98. Water management in California nurseries. J. KABASHIMA (1). (1) University of California Cooperative Extension, Costa Mesa, CA
- 9:30 a.m. Break
- 10:00 a.m. S-99. Water manage monitoring system in pot-in pot production. R. ZONDAG (1), H. Zhu (1), C. Krause (1). (1) Ohio State University Extension and USDA-ARS, Painesville, OH
- 10:45 a.m. S-100. Current European nursery and greenhouse water management strategies. M.S. KRAUSE (1), T. Vermeiren (1), K.A. Willems (1). (1) DeNayer Institute, Katholieke Universiteit Leuven, St. Katelijne-Waver, Belgium

MONDAY

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#3-06

AFTERNOON SYMPOSIA

Listed in alphabetic order by title.

6th I.E. Melhus Graduate Student Symposium: Student Research at the Forefront of Genetics and Genomics of Pathogenicity and Host Resistance

1:00 – 4:00 p.m. * Room 206B

Section: Molecular/Cellular Plant-Microbe Interactions

Sponsoring Committees: Host Resistance, Genetics

Organizer: Margaret Redinbaugh, USDA-ARS, Wooster, OH

Moderators: Ray Hammerschmidt, Michigan State University, East Lansing, MI; Margaret Redinbaugh, USDA-ARS, Wooster, OH

Financial Sponsor: APS Foundation

This symposium will feature presentations of thesis work of five outstanding APS graduate students that highlight novel approaches to understanding the genetics or genomics of pathogens and their hosts. Student speakers were competitively selected.

- 1:00 p.m. S-101. Genetic response of the host and pathogen during *Erwinia amylovora* infection. S.E. BLUMER (1), Y.F. Zhao (1), G.W. Sundin (1). (1) Michigan State University, East Lansing, MI
- 1:30 p.m. S-102. Identification of host selective toxins and genetic analysis of their significance in the wheat-Stagonospora nodorum interaction. Z. LIU (1). (1) North Dakota State University, Fargo, ND
- 2:00 p.m. S-103. Integrating phenotypic, molecular and in silico approaches for quantitative resistance to rice blast. M.G.C. CARRILLO (1). (1) IRRI/University of Philippines, Manila, Philippines
- 2:30 p.m. Break
- 3:00 p.m. S-104. Characterization of a *Pseudomonas syringae* genomic island in the post-genomics age. A.R. RECORDS (1), N. Wang (1), S.E. Fulton (1), D.C. Gross (1). (1) Texas A&M University, College Station, TX
- 3:30 p.m. S-105. Analysis of common bacterial blight bacteria in the midwestern United States: Genetic diversity and the interaction with *Phaseolus vulgaris* L. breeding lines developed by direct and marker-assisted selection. R.W. DUNCAN (1), S.P. Singh (2), R.L. Gilbertson (1). (1) University of California, Davis, CA; (2) University of Idaho, Kimberly, ID

Biology and Epidemiology of Seed Transmission

1:00 – 4:30 p.m. * Room 304AB

Section: Biology of Plant Pathogens

Organizers: Wayne Wiebe, Syngenta Seeds, Inc., Nampa, ID; Betsy Randall-Schadel, USDA APHIS PPQ CPHST, Raleigh, NC; Lindsey du Toit, Washington State University, Mount Vernon, WA

Moderators: Betsy Randall-Schadel, USDA APHIS PPQ CPHST, Raleigh, NC; Lindsey du Toit, Washington State University, Mount Vernon, WA

Sponsoring Committee: Seed Pathology

Seed transmitted pathogens exist in a unique environment and present novel challenges to understanding the epidemiology of the related diseases. Development of thresholds for seed health testing is dependent on an understanding of the epidemiology of seed transmission, but the need for valid seed health testing methods continues to be a major issue for the safe international movement of seed. The biology of seed transmitted pathogens and the related host seed are important, but often missing links in our understanding of the epidemiology of these diseases. This symposium will address the biology and epidemiology of a diverse range of seedborne pathosystems, following an overview of basic seed biology. The session will highlight the implications for risk analysis and future research needs, and will follow with a general discussion.

- 1:00 p.m. S-106. Biology and epidemiology of seedborne pathogens: Features that favor seed transmission, and implications for risk analysis. B.L. RANDALL-SCHADEL (1), R. Walcott (2). (1) USDA APHIS PPQ CPHST, Raleigh, NC; (2) University of Georgia, Athens, GA
- 1:30 p.m. S-107. Combining traditional and molecular approaches for improved understanding of the nature and importance of seed transmission in bacterial canker of tomato caused by *Clavibacter michiganensis* subsp. *michiganensis*. R.L. GILBERTSON (1). (1) University of California, Davis, CA
- 2:00 p.m. S-108. Biology and epidemiology of seed transmission in potyviruses. O. LE GALL (1), R. Krause-Sakate (2), E. Redondo (3), L. Svanella-Dumas (1), S. German-Retana (1), M. Zerbini (4), M. Rosales (5), T. Candresse (1). (1) GDPP, INRA Bordeaux, France; (2) UNESP, Botucatu, SP, Brazil; (3) formerly GDPP, INRA Bordeaux, France; (4) Bioagro, UFV, Viçosa, MG, Brazil; (5) INIA La Platina, Santiago, Chile
- 2:30 p.m. Break
- 3:00 p.m. S-109. Introduction of *Fusarium oxysporum* f. sp. *lactucae* into Arizona: Indirect evidence of seedborne transmission. G.M. Mbofung (1), B.M. PRYOR (1). (1) University of Arizona, Tucson, AZ
- 3:30 p.m. S-110. Anomalous and new epidemiological relationships of seed diseases caused by *Tilletia* species. B.J. GOATES (1). (1) USDA-ARS, Aberdeen, ID
- 4:00 p.m. S-111. Where are the research gaps in seedborne pathogen research? An industry perspective. W.L. WIEBE (1). (1) Syngenta Seeds, Inc, Nampa, ID
- 4:15 p.m. Discussion. L.J. DU TOIT (1). (1) Washington State University, Mount Vernon, WA

Diversity of Zoosporic Fungi

1:00 – 4:30 p.m. * Room 204AB

Section/Sponsor: Mycological Society of America, Biodiversity Committee

Organizer/Moderator: Joyce Longcore, University of Maine, Orono, ME

Pathogens in the Chytridiomycota and the Oomycota have recently increased public awareness of zoosporic true fungi and stramenopiles. This symposium brings together information from PEET, the Fungal Tree of Life and Biodiversity projects that add surprising information about the diversity and evolutionary patterns within the Chytridiomycota and the Oomycota.

- 1:00 p.m. S-112. What are zoosporic fungi and how has our view of them changed? D. PORTER (1). (1) University of Georgia, Athens, GA
- 1:30 p.m. S-113. Evolution of basal lineages in Fungi: deconstructing Chytridiomycota and Zygomycota. R. VILGALYS (1). (1) Duke University, Durham, NC
- 2:00 p.m. S-114. Chytrids - morphology and the demise of old hypotheses. P.M. LETCHER (1). (1) The University of Alabama, Tuscaloosa, AL
- 2:30 p.m. Break
- 3:00 p.m. S-115. The Saprolegniaceae—new species concepts. D.E. PADGETT (1). (1) The University of North Carolina, Wilmington NC
- 3:30 p.m. S-116. A functional genomics approach to study the ecology of *Pythium* and *Phytophthora*. C. A. LEVESQUE (1), J.T. TAMBONG (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON Canada
- 4:00 p.m. S-117. Molecular determination of zoosporic fungi in the environment. A.F. MEYER (1). (1) University of Colorado, Boulder, CO

Diverse Strategies for Managing Mycotoxins, co-sponsored by APS & CPS

1:00 – 4:00 p.m. * Room 205C

Section: Plant Disease Management

Organizer: Jeffrey Palumbo, USDA-ARS, Albany, CA

Moderators: Jeffrey Palumbo, USDA-ARS, Albany, CA; Ahmad Fakhoury, Southern Illinois University, Carbondale, IL

Sponsoring Committee: Mycotoxicology

The outbreak of aflatoxicosis in Kenya in 2004 demonstrated the limitations of how mycotoxins currently are managed in food and agricultural crops. This symposium will focus on mycotoxin management using a variety of approaches, including conventional and molecular breeding, and development of biological and natural product controls. Current problems and solutions will be discussed, using the Kenya outbreak as a case study.

- 1:00 p.m. S-118. An overview of aflatoxin exposure in Kenya and challenges for monitoring and management. H.K. NGUGI (1), D.M. Wilson (2). (1)

University of Georgia, Athens, GA; (2) University of Georgia, Tifton, GA

- 1:30 p.m. S-119. Clay-based interventions for aflatoxins. T.D. PHILLIPS (1), J.S. Wang (2), D. Ofori-Adjei (3), E. Afriyie-Gyawu (1), H.J. Huebner (1), N.A. Ankrah (3), P.E. Jolly (4), J.H. Williams (5). (1) Texas A&M University, College Station, TX; (2) Texas Tech University, Lubbock, TX; (3) University of Ghana, Legon, Accra, Ghana; (4) University of Alabama, Birmingham, AL; (5) University of Georgia, Griffin, GA
- 2:00 p.m. S-120. Molecular breeding for Fusarium resistance in wheat. D.J. SOMERS (1). (1) Agriculture and Agri-Food Canada, Winnipeg, MB, Canada
- 2:30 p.m. Break
- 3:00 p.m. S-121. Detection and sorting of single symptomatic maize grains infected by different fungal species and contaminated with mycotoxins. D.T. WICKLOW (1), T.C. Pearson (2). (1) USDA-ARS, Peoria, IL; (2) USDA-ARS, Manhattan, KS
- 3:30 p.m. S-122. Development and commercialization of Afla-guard, a biopesticide to control aflatoxin contamination in peanuts. J.W. DORNER (1). (1) USDA-ARS, Dawson, GA

The Effects of Climate Change on Tree Diseases

1:00 – 4:30 p.m. * Room 302AB

Section/Sponsor: Canadian Phytopathological Society

Organizer: Anthony Hopkins, Natural Resources Canada, Sault Ste. Marie, ON, Canada

Moderator: Anthony Hopkins, Natural Resources Canada, Sault Ste. Marie, ON, Canada

Financial Sponsor: Natural Resources Canada, Climate Change Action Fund

The activities of insects and diseases greatly influence the structure and function of forest ecosystems from regeneration through mortality. The relationship between climate and plant disease is well established, though there has been little attention paid to the link between climate change and tree diseases. While global warming might influence the distribution and abundance of diseases, our ability to identify and predict these factors is limited. On this basis, working to understand and monitor diseases is an important part of Canada's work to manage for climate change impacts. Proposed climate change scenarios, which include warmer winter temperatures and more frequent droughts in some locations, will affect the occurrence of plant diseases in forests. Climatic change could influence the epidemiology of plant diseases through effects on survival of primary inoculum, rate of disease progress during the growing season, and duration of epidemics. These effects will positively or negatively influence individual pathogens directly or through the interactions between diseases and abiotic events such as drought or storm damage. The symposium on the Effects of Climate Change of Forest Diseases will illustrate through case studies the potential impact of a changing climate on diseases of forest trees in North America and Europe.

AFTERNOON SYMPOSIA

- 1:00 p.m. S-123. Is an unprecedented Dothistroma needle blight epidemic related to climate change? A. WOODS (1). (1) British Columbia Ministry of Forests, Smithers, BC, Canada
- 1:45 p.m. S-124. Predicting effects of climate change on Swiss needle cast disease in the Pacific Northwest. J.K. STONE (1). (1) Oregon State University, Corvallis, OR
- 2:30 p.m. Break
- 3:00 p.m. S-125. Simulating potential effects of climate change on geographic range and activity of forest pathogenic fungi in Europe. M.L. DESPREZ-LOUSTAU (1). (1) INRA Bordeaux, UMR BIOGECO, Villenave d'Ornon, France
- 3:45 p.m. S-126. Forest pathogens with higher damage potential due to climate change in Europe. N. LA PORTA (1). (1) IASMA, S. Michele a/A (Trento), ITALY

New Regulatory Challenges: Rapid Changes in Taxonomy of Plant Pathogens

1:00 – 4:15 p.m. * Room 301A

Section: Plant Disease Management

Organizers/Moderators: Alexander Karasev, University of Idaho, Moscow, ID; Scott Adkins, USDA-ARS, Fort Pierce, FL

Moderators: Alexander Karasev, University of Idaho, Moscow, ID; Scott Adkins, USDA-ARS, Fort Pierce, FL

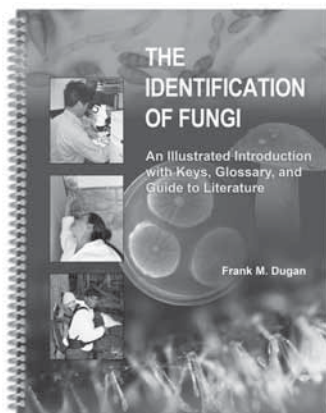
Sponsoring Committee: Virology

Financial sponsors: Samuel Roberts Noble Foundation, USDA-APHIS Virus Working Group

Taxonomy of plant pathogens has undergone tremendous changes in the past 10-15 years as a result of applications of molecular phylogenetic analyses to a massive amount of sequencing data accumulated for an ever growing number of plant pathogens. As a matter of fact, it is still changing rapidly, with new species, genera, and even families established and/or renamed monthly. For an academic scientist, it is not easy to follow all these changes – yet regulatory requirements may fall behind even quicker. When such rapid changes in taxonomy collide with regulatory guidelines which change much slower, two possible outcomes may occur – confusion and delays in permit issuance, or possible system breakdown. Thus, taxonomy may present new, unexpected challenges for regulatory agencies. This session will initiate a discussion on how to try to balance the fast pace of taxonomical changes with practical needs to regulate movement of plant pathogens.

- 1:00 p.m. S-127. Recent developments in plant virus taxonomy. C.M. FAUQUET (1). (1) Danforth Plant Science Center, St. Louis, MO
- 1:30 p.m. S-128. Taxonomy and regulatory challenges—APHIS prospective. P.H. BERGER (1). (1) USDA APHIS PPQ, Raleigh, NC
- 2:00 p.m. S-129. How to regulate microbial pathogens according to traits and not nomenclature. D.W. GABRIEL (1). (1) University of Florida, Gainesville, FL
- 2:30 p.m. Break
- 3:00 p.m. S-130. Situation for exotic pathogens of fruit crops in North America. L. LEVY (1). (1) USDA APHIS, Beltsville, MD
- 3:15 p.m. S-131. Challenges of plant virus classification: Implications for plant health regulation. D. JAMES (1). (1) Centre for Plant Health, Sidney, BC, Canada
- 3:30 p.m. S-132. Regulatory developments in Japan. T. IWANAMI (1). (1) National Institute of Fruit Tree Science, Tsukuba, Ibaraki, Japan
- 3:45 p.m. S-133. The USDA-APHIS endemic plant virus list—A historical perspective. J.H. HILL (1). (1) Iowa State University, Ames, IA
- 4:00 p.m. S-134. Taxonomy of plant viral and bacterial pathogens and obtaining a PPQ form 526. J.L. WHITE (1). (1) USDA and Plant Health Inspection Services, Riverdale Park, MD

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#6-06

NETWORKING EVENTS

Extension Plant Pathologists Breakfast

6:30 – 8:00 a.m. * Villeray – Hilton

Join fellow extension professionals for breakfast while contributing to the exchange of new information in extension plant pathology. *Ticket required.*

Project Director's Meeting – USDA-CSREES Plant Biosecurity Competitive Programs

8:00 a.m. – 12:00 p.m. * Room 203

Project Directors of awards from the USDA-CSREES Competitive Program on Plant Biosecurity will give presentations on the accomplishments of their projects. This will be followed by a discussion on the possible future direction of this program to fill gaps in knowledge in plant biosecurity.

Graduate Student/Industry Lunch

11:30 – 1:00 p.m. * Le Panorama – Hilton

New this year, the APS Industry Committee is sponsoring a luncheon for the graduate students. The event will provide an opportunity for graduate students to visit with industry representatives from a variety of companies and to learn about job opportunities available in industry. This event is complimentary for graduate students. *Both graduate students and industry members need a ticket for this event.*

Industry & Extension Social

6:30 – 10:30 p.m. * Manoir Montmorency

This annual favorite will take place at Parc de la Chute-Montmorency and Manoir Montmorency, located a short bus ride from the Québec Convention Center. The Montmorency Falls, cascading 83 metres down to the river below (30 metres higher than Niagara Falls), are situated on a historical site of natural beauty in the Montmorency Falls Park. A cable car runs up to the Manoir Montmorency, where spectacular views await you. Stroll the grounds and trails surrounding the falls at your own pace (all paths are lighted). A dinner reception is included, along with admission to the national park, tickets for the gondola ride, bus service and two drinks per person. Buses begin departing from the Québec Convention Centre at 6:30 p.m. Boarding begins at 6:15 p.m. *Ticket required.*

University Alumni Socials

7:00 – 9:00 p.m. * Grand Ballroom – Hilton

Catch up with fellow alumni at the following university alumni socials!

- Iowa State University
- Mid-west States
- North Carolina State University
- Old West Trails
- Texas A&M University
- University of California-Davis
- University of California-Riverside
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MONDAY


#5-06

JOINT MEETING DAILY SCHEDULE

Tuesday, August 1


7:00 – 8:30 a.m.	APS Sustaining Associates Breakfast	Monmorency – Hilton
7:30 – 8:30 a.m.	APS Plant Disease Senior Editors Meeting, <i>by invitation</i>	Belaire – Hilton
7:00 – 9:00 a.m.	APS Scientific Programs Board Meeting	201B
7:00 – 9:00 a.m.	Department Heads Breakfast	Courville – Hilton
7:00 – 9:00 a.m.	MSA Business Meeting with Breakfast	200B
7:00 – 9:00 a.m.	Small Fruit Disease Working Breakfast	Beauport – Hilton
7:00 a.m. – 12:00 p.m.	APS Foundation Board Meeting, <i>by invitation</i>	Portneuf Room – Hilton
8:00 a.m. – 12:00 p.m.	Master Gardener Educators/APS PRESS	Ste-Foy Room – Hilton
8:00 a.m. – 4:30 p.m.	Registration	Level 4
8:30 – 9:00 a.m.	APS Plant Disease Editorial Board Meeting, <i>by invitation</i>	Belaire – Hilton
8:30 – 10:00 a.m.	Crop Loss Assessment	202
8:30 – 10:00 a.m.	Phyllosphere/Rhizosphere Microbiology and Ecology	204AB
8:30 – 11:30 a.m.	Signals, Pools and Pathways to Host Resistance; SAR	302AB
8:30 – 11:30 a.m.	Viruses – Genetics/Molecular Biology/Cell Biology	208AB
8:30 a.m. – 12:00 p.m.	Career Counseling for the Budding Plant Pathologist	206A
8:30 a.m. – 12:00 p.m.	Fungi – Systematics/Evolution/Ecology	205AB
8:30 a.m. – 12:00 p.m.	Illuminating the Unique Nature of Parasitic and Free-Living Nematode Genomes	301B
8:30 a.m. – 12:00 p.m.	Long-Term Patterns of Spread and Intensification for Forest Pathogens	203
8:30 a.m. – 12:00 p.m.	Molecular/Cellular Plant–Microbe Interactions	206B
8:30 a.m. – 12:30 p.m.	Contributions of the Chemical Industry to Crop Protection	304AB
8:30 a.m. – 4:30 p.m.	Poster Viewing	400AB
9:00 – 10:00 a.m.	MSA Karling Lecture	303AB
9:00 a.m. – 4:00 p.m.	APS Placement	201C
9:00 a.m. – 5:00 p.m.	APS PRESS Bookstore	400AB
10:00 – 11:00 a.m.	Discuss publishing in <i>Plant Health Progress</i> with Editor-in-Chief D. Michael Benson	400AB
10:00 – 11:00 a.m.	Publish your passion with APS PRESS	400AB
	Meet with Editor-in-Chief Rose Gergerich	
10:30 a.m. – 12:00 p.m.	Postharvest Pathology and Mycotoxicology	204AB
10:30 a.m. – 12:00 p.m.	Fungal Ecology Methods and Patterns	202
10:30 a.m. – 12:00 p.m.	Fungal Pathogens: population structure and distributions	208AB
11:00 a.m. – 2:00 p.m.	Exhibits Open	400AB

TUESDAY



Together We Make a Difference!

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Concession service available in hall from 11:00 a.m. – 2:00 p.m.

11:15 a.m. – 12:00 p.m.	Author Signing: Essential Plant Pathology Textbook with Gail Schumann and Cleo D'Arcy	400AB
11:30 a.m. – 1:30 p.m.	Prevalent Fungi/APHIS Ad-Hoc Committee Meeting	207
12:00 – 1:30 p.m.	CPS Business Meeting with Luncheon	200A
12:30 – 1:30 p.m.	APS Business Meeting	200B
1:30 – 3:30 p.m.	APS Office of Public Affairs & Education Board Meeting	201B
1:30 – 3:00 p.m.	Ascomycete Systematics	202
1:30 – 3:00 p.m.	Fungi – Genetics/Molecular Biology/Cell Biology III	303A
1:30 – 4:30 p.m.	Gene Clustering As a Mechanism for Microbial Innovation	205C
1:30 – 4:30 p.m.	Molecular Signaling in Phyllosphere Interactions	304AB
1:30 – 4:30 p.m.	<i>Phytophthora ramorum</i> : An Environmental Threat; A Regulatory Quandary	302AB
1:30 – 4:45 p.m.	Population Genetics	301A
1:30 – 5:00 p.m.	Bacterial Symbionts Of Fungi (MSA)	204AB
1:30 – 5:00 p.m.	Bacteria – Genetics/Molecular Biology/Cell Biology	203
1:30 – 5:00 p.m.	Chemical Control I	303B
1:30 – 5:00 p.m.	Periodic Table of Plant Pathogens	205AB
1:30 – 5:00 p.m.	Plant Disease Management	301B
1:30 – 5:00 p.m.	Research, Development, and Adoption of Biopesticides in the 21st Century	208AB
2:00 – 8:00 p.m.	Exhibit Take-down	400AB
3:30 – 4:15 p.m.	Nematodes – Genetics/Molecular Biology/Cell Biology	303A
3:30 – 5:00 p.m.	Fungal Systematics II	202
3:30 – 5:30 p.m.	APS 2007 Annual Meeting Program Planning	207
4:00 – 5:30 p.m.	MSA Committees Reception	Delta Hotel
4:30 – 6:30 p.m.	Poster Take-down	400AB
6:30 – 7:30 p.m.	APS Awards & Honors Ceremony	206AB
6:30 – 11:00 p.m.	CPS Awards & Honors Banquet	200A
6:30 – 11:00 p.m.	MSA Social and Auction	200B
7:30 – 7:45 p.m.	APS Presidential Ceremony	206AB
7:45 – 11:00 p.m.	APS Party: Québec City – Joie de vivre!	200C

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MORNING TECHNICAL SESSIONS

Listed in alphabetic order by title.

Crop Loss Assessment

8:30 – 10:00 a.m. * Room 202

Section: Diseases of Plants

Moderators: Paul Esker, Iowa State University, Ames, IA;
Raymond Schneider, Louisiana State University, Baton Rouge, LA

- 8:30 a.m. AO-135. Damage caused by wheat take-all at varying spatial patterns of injury. L. WILLOCQUET (2), A. Dunoyer (1). (1) INRA, UMR BiO3P, Le Rheu cedex, France; (2) INRA, UMR-Santé Végétale, Villenave d'Ornon cedex, France
- 8:45 a.m. AO-136. Use of digital imagery to estimate crop loss due to rhizomania in fields planted to rhizomania resistant cultivars. D. C. JONES (3), C. M. Rush (3), M. Bredehoeft (2), A. Cattanaach (1). (1) American Crystal Sugar Company; (2) Southern Minn Beet Sugar Coop; (3) Texas Agric. Exp. Stn., Bushland, TX, USA
- 9:00 a.m. AO-137. Development of yield loss forecasting models for several soybean diseases. R. SCHNEIDER (1), G. Padgett (1), P. Bollich (1), J. Bond (1), G. Romero (1). (1) Dept. Plant Pathology and Crop Physiology, Louisiana State University AgCenter, Baton Rouge, LA, USA
- 9:15 a.m. AO-138. Development of mapping tools to generate disease risk contour maps depicting prevalence, incidence, and severity of soybean diseases in Iowa in 2005. F. W. NUTTER (1), A. Robertson (1), A. Khalil (1), P. D. Esker (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA, USA
- 9:30 a.m. AO-139. Improved forecasting for Stewart's disease of corn in Iowa. P. D. ESKER (1), J. Harri (3), P. M. Dixon (2), F. W. Nutter (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA, USA; (2) Department of Statistics, Iowa State University, Ames, IA, USA; (3) Iowa Department of Agriculture and Land Stewardship, Ankeny, IA, USA
- 9:45 a.m. AO-140. Distribution and prevalence of brown root rot of forage legumes in the northeastern United States. M. J. WUNSCH (1), A. H. Baker (1), R. C. Larsen (2), G. C. Bergstrom (1). (1) Department of Plant Pathology, Cornell University, Ithaca, NY, USA; (2) USDA-ARS, Prosser, WA, USA

Fungal Ecology Methods and Patterns

10:30 a.m. – 12:00 p.m. * Room 202

Mycological Society of America

Moderator: D. Jean Lodge, USDA-Forest Service, Luquillo, PR

- 10:30 a.m. MO-43. A 'dirty' business: Testing the limitations of terminal restriction fragment length polymorphism (TRFLP) analysis of soil fungi. Presenter: P.G. AVIS (1); Co-Author(s): I. Dickie (2), and G.M. Mueller (1). (1) Field Museum,

Chicago, IL, (2) Landcare Research, Lincoln, New Zealand

- 10:45 a.m. MO-44. Developing and testing technologies to study in situ fungal dynamics in the field. Presenter: M.F. ALLEN (1); (1) University of California, Riverside, CA
- 11:00 a.m. MO-45. A modified method to visualize infection sites of spores of *Beauveria bassiana*, an entomopathogen on the citrus root weevil, *Diaprepes abbreviatus*. Presenter: J.L. GILLET (1); Co-Author(s): J.W. Kimbrough (1). (1) University of Florida, Gainesville, FL
- 11:15 a.m. MO-46. Do Residual Trees Help Seedlings? Exploring the Nurse-Tree Effect on Mycorrhizal Colonization. Presenter: E.T. CLINE (1); Co-Author(s): R.L. Edmonds (2). (1) USDA-ARS, Beltsville, MD, (2) University of Washington, Seattle, WA
- 11:30 a.m. MO-47. Measuring fungal diversity associated with decaying spruce wood. Presenter: A. FISCHER (1); Co-Author(s): J.M. Moncalvo (2), J. Malcolm (3), J. Klironomos (1). (1) University of Guelph, Guelph, ON, Canada, (2) Royal Ontario Museum, Toronto, ON, Canada, (3) University of Toronto, Toronto, ON, Canada
- 11:45 a.m. MO-48. Common environmental *Fusarium* clones associated with human infections, food contamination, and industrial machinery. Presenter: D.M. GEISER (1); Co-Author(s): N. Tran-Dinh, A. Hocking, J.H. Juba, K. O'Donnell, N. Zhang, R.C. Summerbell, D.H. Dean, R.A. Samson. (1) Penn State University, University Park, PA, (2) CSIRO, North Ryde, NSW Australia, (3) NCAUR/ARS/USDA, Peoria, IL, (4) Centraalbureau voor Schimmelcultures, Utrecht, The Netherlands, (4) Ohio State University, Columbus, OH

Fungal Pathogens: Population Structure and Distributions

10:30 a.m. – 12:00 p.m. * Room 208AB

Mycological Society of America

Moderator: Gerard C. Adams, Michigan State University, East Lansing, MI

- 10:30 a.m. MO-37. *Cytospora* canker of *Alnus* in the Southern Rocky Mountains. Presenter: J.J. WORRALL (1); Co-Author(s): G.C. Adams (2). (1) USDA Forest Service, Gunnison, CO, (2) Michigan State University, East Lansing, MI
- 10:45 a.m. MO-38. Analysis of genetic diversity and evolutionary history of the M2 dsRNA of *Rhizoctonia solani* AG-3. Presenter: N.D. CHARLTON (1); Co-Author(s): I. Carbone (1), S.M. Tavantzis (2), and M.A. Cubeta (1). (1) North Carolina State University, Raleigh, NC, (2) University of Maine, Orono, ME
- 11:00 a.m. MO-39. The distribution and quantification of *Fusarium solani* f. sp. *cucurbitae* race 2, teleomorph *Nectria haematococca* mating

- population V, in a sewage system. Presenter: H.L. MEHL (1); Co-Author(s): L. Epstein (1). (1) University of California, Davis, CA
- 11:15 a.m. MO-40. Production of secondary metabolites by corn increases the frequency of colonization by *Fusarium* species. Presenter: M. Saunders (1); Co-Author(s): L.M. Kohn (1). (1) University of Toronto at Mississauga, North Mississauga, ON, Canada
- 11:30 a.m. MO-41. Investigation of sexuality and mating behavior on *Thanatephorus cucumeris* AG 1-IC. Presenter: T. TODA (1); Co-Author(s): P. Qu (2), K. Yamashita (3), M.A. Cubeta (1), M. Hyakumachi (3). (1) North Carolina State University, Raleigh, NC, (2) United Graduate School of Agricultural Science, Gifu University, Gifu, Japan, (3) Faculty of Applied Biological Science, Gifu University, Gifu, Japan
- 11:45 a.m. MO-42. Selection acting on infection specific genes in the common bean rust, *Uromyces appendiculatus*. Presenter: D.A. HENK (1); Co-Author(s): M. Pastor-Corrales (1), M.C. Aime (1). (1) USDA-ARS, Beltsville, MD

Fungi – Systematics/Evolution/Ecology

8:30 a.m. – 12:00 p.m. * Room 205AB

Section: Biology of Plant Pathogens

Moderators: Jaime Blair, The Pennsylvania State University, University Park, PA; Les Szabo, USDA-ARS Cereal Disease Lab, St. Paul, MN

- 8:30 a.m. AO-141. Invasive fungi: Why fungal databases are a key part of the solution. E. T. CLINE (1), E. B. McCray (1), D. F. Farr (1). (1) USDA ARS SBML Beltsville, MD, USA
- 8:45 a.m. AO-142. A genus-wide phylogeny for *Phytophthora* utilizing whole genome sequence data. J. E. BLAIR (1), S. Kang (1), D. M. Geiser (1), M. D. Coffey (2). (1) Penn State University; (2) University of California, Riverside
- 9:00 a.m. AO-143. Phylogenetics of “*Fusarium moniliforme*”: Old and new clades in the *Gibberella fujikuroi* species complex. M. M. JIMENEZ-GASCO (1), G. A. Kulda (1), D. M. Geiser (1). (1) Department of Plant Pathology, The Pennsylvania State University, University Park, PA
- 9:15 a.m. AO-144. Multilocus genealogies differentiate host-specialized species of *Rhynchosporium*. P. L. ZAFFARANO (1), B. A. McDonald (1), M. Zala (1), C. C. Linde (2). (1) Institute of Integrative Biology, Plant Pathology Group, ETH Zürich Zürich; (2) School of Botany and Zoology, Australian National University, Canberra, Australia
- 9:30 a.m. AO-145. Phylogenetic analysis of the *Puccinia coronata* complex. L. J. SZABO (2), Y. Anikster (1), T. Eilam (1). (1) The Institute of Cereal Crop Improvement, Tel Aviv University, Ramat Aviv, Israel; (2) USDA ARS Cereal Disease Lab, St. Paul, MN, USA
- 9:45 a.m. AO-146. Detection of *Phytophthora* species in a run-off water retention basin at a commercial nursery in plant hardiness zones 7b of Virginia in winter. S. R. GHIMIRE (4), P. A. Richardson (4), G. W. Moorman (3), J. D. Lea-Cox (2), D. S. Ross (1), C. Hong (4). (1) Dept. Biological Resources Engineering, University of Maryland, College Park, MD; (2) Dept. Natural Resource Sciences and Landscape Architecture, University of Maryland, College Park, MD; (3) Dept. Plant Pathology, The Pennsylvania State University, University Park, PA; (4) Hampton Roads AREC, Virginia Tech, Virginia Beach, VA
- 10:00 a.m. Break
- 10:30 a.m. AO-147. Identification and characterization of *Phytophthora capsici* on bean in Michigan. A. J. GEVENS (1), R. S. Donahoo (2), K. H. Lamour (2), M. K. Hausbeck (1). (1) Michigan State University, East Lansing, MI, USA; (2) University of Tennessee, Knoxville, TN, USA
- 10:45 a.m. AO-148. Identification and characterization of *Pythium* and *Phytophthora* spp. from snap bean pods in Oklahoma. J. D. DOMINIAC (1), J. P. Damicone (1). (1) Oklahoma State University, Stillwater, OK
- 11:00 a.m. AO-149. Mechanisms of accelerated germination of *Astragalus utahensis* with *Aspergillus* and *Alternaria* fungi. S. D. ELDREDGE (1). (1) Brigham Young University
- 11:15 a.m. AO-150. Effective protoplasting of *Neotyphodium* endophytes in forage grasses. J. N. COBB (1), B. D. Geary (1), A. J. Fisher (1), M. R. Stevens (1). (1) Brigham Young University, Provo, UT, USA
- 11:30 a.m. AO-151. Characterization of *Cercospora* mating type genes. M. GROENEWALD (1), J. Z. Groenewald (1), P. W. Crous (1). (1) Centraalbureau voor Schimmelcultures, Fungal Biodiversity Centre, Utrecht, The Netherlands
- 11:45 a.m. CO-25. Characterization of *Phytophthora infestans* isolates and disease resistance genes. Presenter: L.M. KAWCHUK, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB; Co-Author(s): H.W. Platt, Crops and Livestock Research Centre, Charlottetown, PE; B. Bizimungu, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB; Q. Chen, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB and M. Goettel, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB

MORNING TECHNICAL SESSIONS

Molecular/Cellular Plant–Microbe Interactions

8:30 a.m. – 12:00 p.m. * Room 206B

Section: Molecular/Cellular Plant–Microbe Interactions

Moderators: Suha Jabaji-Hare, McGill University, Macdonald Campus, Sainte-Anne-de-Bellevue, QC, Canada; Guo-Liang Wang, The Ohio State University, Columbus, OH

8:30 a.m. AO-152. Development and characterization of rice mutants altered in the rice blast resistance gene *Pi-ta*-mediated disease resistance pathway. Y. JIA (2), R. Fjellstrom (1), M. H. Jia (2), W. Yan (2), J. Rutger (2), A. McClung (2). (1) USDA-ARS Beaumont, TX, USA; (2) USDA-ARS Dale Bumpers National Rice Research Center, Stuttgart, AR

8:45 a.m. AO-153. RL-SAGE analysis of the rice defense transcriptome during rice and *Rhizoctonia solani* interaction. R. Venu (1), Y. Jia (2), M. Gowda (1), M. Jia (2), M. Bellizzi (1), P. Singh (2), N. Rutge (2), G. WANG (1). (1) Department of Plant Pathology, The Ohio State University, Columbus, OH, USA; (2) USDA-ARS DB National Rice Research Center, Stuttgart, AR, USA

9:00 a.m. AO-154. **Roundup:** Evolution of R genes: What have we learned?. J. MCDOWELL (1). (1) Virginia Tech University, Blacksburg, VA

9:30 a.m. AO-155. Microarray gene expression profiles of maize in response to drought stress and *Aspergillus* infection. M. Luo (2), D. Lee (2), B. GUO (1). (1) USDA-ARS, Tifton, GA; (2) University of Georgia, Tifton, GA

9:45 a.m. AO-156. Microarray analysis of genes expressed in *Rpp1*-mediated resistance to Asian soybean rust. K. T. SCHNEIDER (4), J. J. Choi (4), N. W. Alkharouf (1), N. L. Lum (2), D. J. Munroe (2), B. F. Matthews (3), R. D. Frederick (4). (1) Genome Sciences Centre, Vancouver, BC Canada; (2) NCI-LMT, Frederick, MD, USA; (3) USDA, Beltsville, MD, USA; (4) USDA, Ft. Detrick, MD, USA

10:00 a.m. Break

10:30 a.m. CO-19. Unraveling the secrets of secretomics in poplar leaf rusts (*Melampsora* spp.). Presenter: D.L. JOLY, Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, QC; Co-Author(s): N. Feau, Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, QC and R.C. Hamelin, Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, QC

10:45 a.m. CO-20. Host-pathogen interactions and immunolocalization of pathogenesis-related proteins in Douglas-fir seedlings infected by the laminated root rot fungus. Presenter: M.A. ISLAM, Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, BC; Co-Author(s): R.N. Sturrock, Natural Resources Canada, Canadian Forest Service,

Pacific Forestry Centre, Victoria, BC and A.K.M. Ekramoddoullah, Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, BC

11:00 a.m. CO-21. Microarray analysis of differentially expressed genes of *Rhizoctonia solani* AG-3 during the pathogenic interaction with potato. Presenter: D. RIVARD, Department of Plant Science, McGill University, Macdonald Campus, Sainte-Anne-de-Bellevue, QC; Co-Author(s): S. Jabaji-Hare, Department of Plant Science, McGill University, Macdonald Campus, Sainte-Anne-de-Bellevue, QC

11:15 a.m. CO-22. Recovery in solanaceous plants after Potato virus Y infection; Presenter: X. NIE, Potato Research Centre, Agriculture and Agri-Food Canada, Fredericton, NB; Co-Author(s):

11:30 a.m. CO-23. Toxicity of wheat non-specific Lipid Transfer Proteins to wheat and non-wheat fungal pathogens. Presenter: D.A. GAUDET, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB; Co-Author(s): J.-Y. Sun, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB; Z.-X. Lu, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB; M. Frick, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB; B. Puchalski, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB and A. Laroche, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB

11:45 a.m. CO-24. Gene expression of potato tuber during infection by *Streptomyces scabiei*. Presenter: C. GOYER, Potato Research Centre, Agriculture and Agri-Food Canada, Fredericton, Canada; Co-Author(s): J. Zeng, Potato Research Centre, Agriculture and Agri-Food Canada, Fredericton, NB

Phyllosphere/Rhizosphere Microbiology and Ecology

8:30 – 10:00 a.m. * Room 204AB

Section: Epidemiology/Ecology/Environmental Biology

Moderators: George Bird, Michigan State University, East Lansing, MI; Mary Karp, Cornell University, Ithaca NY

8:30 a.m. AO-157. Phenolic compounds and defense enzymes are associated with rusty root symptoms on American ginseng (*Panax quinquefolius* L.). M. M. RAHMAN (1), Z. K. Punja (1). (1) Simon Fraser University, Burnaby, BC, Canada

8:45 a.m. AO-158. Dynamics and diversity of rhizosphere oomycete communities. M. A. KARP (1), J. Arcate (1), E. B. Nelson (1). (1) Cornell University, Ithaca, NY, USA

9:00 a.m. AO-159. Seed-colonizing microbial communities suppressive to *Pythium damping-off*. M. Chen (1), E. B. NELSON (1). (1) Cornell University, Ithaca, NY, USA

9:15 a.m. AO-160. Interactions between *Enterobacter cloacae*

and *Pythium ultimum* in the spermosphere is influenced by temporal seed exudation dynamics. S. T. WINDSTAM (1), E. B. Nelson (1). (1) Cornell University

- 9:30 a.m. AO-161. Michigan nematode community structure standard. G. W. BIRD (1), J. Smith (1), M. Berney (1), L. Webster (1), R. Gore (1), J. Davenport (1). (1) Michigan State University, East Lansing, MI, USA
- 9:45 a.m. AO-162. Is the interaction of *Heterodera glycines* and *Fusarium solani* f. sp. *glycines* specific?. L. XING (1), A. Westphal (1). (1) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN

Postharvest Pathology and Mycotoxicology

10:30 a.m. – 12:00 p.m. * Room 204AB

Section: Biology of Plant Pathogens

Moderators: Chang-Lin Xiao, Washington State University, TFREC, Wenatchee, WA; Nicholas Garber, University of Arizona, Tucson, AZ

- 10:30 a.m. AO-173. The effect of fruit orientation of postharvest commodities following low dose ultraviolet light-C treatment on host induced resistance to decay. C. STEVENS (3), V. A. Khan (3), C. L. Wilson (4), J. Y. Lu (3), E. Chalutz (2), S. Droby (1). (1) Agricultural Research Organization Volcani Center, Bet Dagan, Israel; (2) Bi-National Agricultural Research and Development Fund, Bet Dagan, Israel; (3) Tuskegee University, Tuskegee University, AL; (4) USDA-ARS, Kearneysville, WV
- 10:45 a.m. AO-174. Characterization of fludioxonil- and pyrimethanil-resistant mutants of *Penicillium expansum* from apple. H. Li (1), C. L. XIAO (1). (1) Washington State Univ, TFREC, Wenatchee, WA
- 11:00 a.m. AO-175. Withdrawn: Correspondence between toxin profiles and molecular phylogenetic groups within *Fusarium*. N. C. ZITOMER (3), D. M. Geiser (3), K. O'Donnell (4), T. J. Ward (4), D. D. Archibald (2), D. Jones (1), M. M. Jimenez-Gasco (3), G. A. Kuldau (3). (1) Department of Chemistry, Michigan State University; (2) Department of Crop and Soil Sciences, The Pennsylvania State University, University Park, PA; (3) Department of Plant Pathology, The Pennsylvania State University, University Park, PA; (4) Microbial Genomics and Bioprocessing Research Unit, NCAUR, USDA ARS, Peoria, IL
- 11:15 a.m. AO-176. Outbreak of acute aflatoxicoses in Kenya, 2004: Etiology of contamination. C. PROBST (2), H. Njapau (1), P. J. Cotty (3). (1) Center for Food Safety and Applied Nutrition, Food and Drug Administration, College Park, MD, USA; (2) Department of Plant Sciences, The University of Arizona, Tucson, AZ, USA; (3) USDA-ARS, Department of Plant Sciences, The University of Arizona, Tucson, AZ, USA

11:30 a.m. AO- as. N. P. GARBER (1), P. J. Cotty (2). (1) Department of Plant Sciences, The University of Arizona, Tucson, AZ, USA; (2) USDA-ARS, Department of Plant Sciences, The University of Arizona, Tucson, AZ, USA

11:45 a.m. AO-178. Effects of dryness and interrupted wetness duration on conidial germination of *Sphaeropsis pyriputrescens*. Y. K. KIM (1), C. L. Xiao (1). (1) Washington State University, TFREC, Wenatchee, WA

Viruses – Genetics/Molecular Biology/Cell Biology

8:30 – 11:30 a.m. * Room 208AB

Section: Molecular/Cellular Plant–Microbe Interactions

Moderators: Lee Calvert, CIAT, Cali, Colombia; Rosemarie Hammond, USDA ARS MPPL, Beltsville, MD

- 8:30 a.m. AO-163. Exploring the role of *Tomato spotted wilt virus* and soilborne fungi in yellowing syndrome of peanut. A. C. KAYE (1), J. Abad (1), B. B. Shew (1), M. A. Cubeta (1), G. G. Kennedy (1), J. W. Moyer (1). (1) North Carolina State University, Raleigh, NC, USA
- 8:45 a.m. AO-164. Ectopic expression of single-chain antibodies and evaluation of resistance to *Cucumber mosaic virus*. R. W. HAMMOND (3), J. A. Aebig (1), H. Hsu (2). (1) NIAID, NIH, Rockville, MD 20852, USA; (2) USDA ARS FNPRU, Beltsville, MD, USA; (3) USDA ARS MPPL, Beltsville, MD, USA
- 9:00 a.m. AO-165. Light dependent host defense signaling against Turnip Crinkle Virus in Arabidopsis. A. Chandra-Shekhara (3), D. Navarre (4), A. Kachroo (3), S. Raina (1), R. Raina (1), D. Klessig (2), P. KACHROO (3). (1) Biology Department, Syracuse University, Syracuse, NY; (2) Boyce Thompson Institute for Plant Research, Ithaca, NY; (3) Department of Plant Pathology, University of Kentucky, Lexington, KY; (4) USDA-Agricultural Research Service, Washington State University, Prosser, WA
- 9:15 a.m. AO-166. Host factors recruited by plant viruses during the infection process. V. NICAISE (2), S. German-Retana (2), B. Doublet (2), T. Michon (2), G. Roudet-Tavert (2), J. Walter (2), C. Caranta (1), O. Le Gall (2). (1) INRA, Montfavet, France; (2) INRA, Villenave d'ornon, France
- 9:30 a.m. AO-167. Identification of a host factor that interacts with begomovirus movement proteins. Y. ZHOU (1), M. R. Rojas (1), R. L. Gilbertson (1). (1) Plant Pathology Department, University of California, Davis, CA, USA
- 9:45 a.m. AO-168. Molecular analysis of the genetics of resistance to *rice hoja blanca virus* and its vector *Tagosodes orizicolus*. L. A. CALVERT (1), I. Lozano (1), N. Villareal (1), L. Romero (1), M. Lorieuz (2), C. Martinez (1), A. Garavito (2). (1) CIAT, Cali, Colombia; (2) IRD-CIAT, Cali, Colombia
- 10:00 a.m. Break

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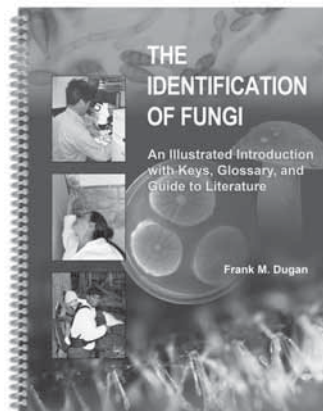


#4-06

MORNING TECHNICAL SESSIONS

- 10:30 a.m. AO-169. Analysis of function of the *Tobacco mosaic virus* movement protein using an inducible expression system in *Arabidopsis*. M. J. SOTO (1), L. Gutierrez (1), B. A. Kelly (1), R. N. Beachy (1). (1) Donald Danforth Plant Science Center, Saint Louis, MO, USA
- 10:45 a.m. AO-170. Development of a geminivirus-based gene silencing system and identification of a silencing suppressor from a geminivirus-associated satellite DNA. C. HAGEN (1), M. R. Rojas (1), R. L. Gilbertson (1). (1) University of California, Davis, CA, USA
- 11:00 a.m. AO-171. Targeting single nucleotide polymorphisms for reliable Potato virus Y characterisation using qualitative and/or quantitative innovative tools. M. Rolland (2), F. Croizat (3), P. Lefeuvre (1), C. Kerlan (3), E. JACQUOT (3). (1) CIRAD, Saint Pierre, La reunion; (2) FNPPPT, Paris, France; (3) INRA, Le Rheu, France
- 11:15 a.m. AO-172. Toward the establishment of infectious cDNA clones for grapevine *Rupestris stem pitting-associated virus*. B. MENG (1), W. Wang (1). (1) Department of Molecular and Cellular Biology, University of Guelph, Guelph, Ontario, Canada

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#6-06

AFTERNOON TECHNICAL SESSIONS

Listed in alphabetic order by title.

Ascomycete Systematics II

1:30 – 3:00 p.m. * Room 202

Mycological Society of America

Moderator: Jinx Campbell, University of Southern Mississippi, Ocean Springs, MS

- 1:30 p.m. MO-49. A new species of *Cladophialophora* (Hyphomycetes) from boreal moss gametophytes. Presenter: M.L. DAVEY (1); Co-Author(s): R.S. Currah (1). (1) University of Alberta, Edmonton, AB Canada
- 1:45 p.m. MO-50. A new species of *Leptographium* from arthropods collected in an aspen-dominated woodland in western Canada. Presenter: M.D. GREIF (1); Co-Author(s): C.F.C. Gibas (1), R.S. Currah (1). (1) University of Alberta, Edmonton, AB, Canada
- 2:00 p.m. MO-51. Clarification of the nomenclature and relationships of the genera *Cryptosporella*, *Ophiovalsa* and *Winterella* (Gnomoniaceae). Presenter: L.C. MEJIA (1); Co-Author(s): L.A. Castlebury (2), A.Y. Rossman (2), J.F. White, Jr. (1). (1) Rutgers University, New Brunswick, NJ, (2) USDA-ARS, Beltsville, MD
- 2:15 p.m. MO-52. Phylogenetic analyses of the ambrosia fungi isolated from bark and ambrosia beetles in northwestern Canada. Presenter: S. MASSOUMI ALAMOUTI (1); Co-Author(s): J.J. Kim (1), Y.W. Lim (1), A. Uzunovic (2), C. Breuil (1). (1) University of British Columbia, Vancouver, BC, Canada, (2) Forintek Canada Corp., Vancouver, BC, Canada
- 2:30 p.m. MO-53. Freshwater euascomycetes of Florida. Presenter: H.A. RAJA (1); Co-Author(s): C.A. Shearer (1). (1) University of Illinois, Urbana, IL
- 2:45 p.m. MO-54. Jahnulales revisited: relationships based on 18S and 28S rDNA. Presenter: J. Campbell (1); Co-Author(s): A. Ferrer (2), H.A. Raja (2), S. Sivichai (3), C.A. Shearer (2). (1) University of Southern Mississippi, Ocean Springs, MS, (2) University of Illinois, Urbana, IL, (3) BIOTEC, National Center for Genetic Engineering and Biotechnology, Pathumthani, Thailand

Bacteria – Genetics/Molecular Biology/Cell Biology

1:30 – 5:00 p.m. * Room 203

Section: Molecular/Cellular Plant-Microbe Interactions

Moderators: Ajith Anand, Samuel Roberts Noble Foundation, Ardmore, OK; Isaac Barash, Tel-Aviv University, Tel-Aviv, Israel

- 1:30 p.m. AO-179. Identification of genetic loci, including an *expI/exp R* like-locus, that regulate pigment production in *Brenneria rubrifaciens*. A. E. MCCLEAN (3), P. Sudarshana (1), D. A. Kluepfel (2). (1) U.C. Davis, Davis, CA; (2) USDA-ARS and U.C. Davis, Davis, CA; (3) USDA-ARS, Davis, CA

- 1:45 p.m. AO-180. Biofilm development, a major factor in the cause of Stewart's wilt disease by *Pantoea stewartii* subsp. *stewartii*. S. B. VON BODMAN (1), M. Koutsoudis (1), D. Tsalts (1), C. Herrera (1), A. Carlier (1). (1) University of Connecticut, Storrs, CT, USA
- 2:00 p.m. AO-181. The type III effectors HsvG and HsvB of tumorigenic *Pantoea agglomerans* determine host specificity and function as transcriptional activators. G. Nissan (2), S. Manulis-Sasson (1), D. Weinthal (1), H. Mor (2), G. Sessa (2), I. BARASH (2). (1) Dept. of Plant Pathology and Weed Research, ARO, Volcani Center, Bet dagan, Israel; (2) Dept. of Plant Sciences, Tel-Aviv University, Tel-Aviv, Israel
- 2:15 p.m. AO-182. A comprehensive genome-based diagnostics resource and pipeline for identification of threatening plant pathogens. C. BUELL (3), J. Leach (2), N. Tisserat (2), T. Powers (4), A. Levesque (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, CANADA; (2) Colorado State University, Fort Collins, CO, USA; (3) The Institute for Genomic Research, Rockville MD, USA; (4) University of Nebraska, Lincoln, NE, USA
- 2:30 p.m. AO-183. Thaxtomin biosynthesis in plant-pathogenic *Streptomyces* is induced by cellobiose, a plant cell wall component. E. G. JOHNSON (1), M. J. Wach (3), D. M. Gibson (2), R. Loria (1). (1) Department of Plant Pathology, Cornell University, Ithaca, NY, USA; (2) USDA Agricultural Research Service, US Plant, Soil, and Nutrition Laboratory, Ithaca, NY, USA; (3) USDA, APHIS, Riverdale, MD, USA
- 2:45 p.m. AO-184. Autoinducer-2 of the fire blight pathogen *Erwinia amylovora* and other plant-associated bacteria. M. MOHAMMADI (2), K. Geider (1). (1) BBA, Dossenheim, Germany; (2) BBA, Dossenheim, Germany & University of Tehran, Iran
- 3:00 p.m. Break
- 3:30 p.m. AO-185. The emergence of a plasmid-born PAI in populations of the tumorigenic *Pantoea agglomerans* pvs. *gypsophilae* and *betae*. D. M. WEINTHAL (2), I. Barash (1), L. Valinsky (3), M. Panijel (1), S. Manulis (2). (1) Dept. of Plant Sciences, Tel Aviv University, Tel Aviv, Israel; (2) Dept. of Plant Pathology and Weed Research, ARO, The Volcani Center, Bet Dagan, Israel; (3) Israeli Ministry of Health, Jerusalem, Israel
- 3:45 p.m. AO-186. Phytotoxins and suppression of resistance: New mechanisms of disease induction in the plant pathogen *Erwinia carotovora* subsp. *atroseptica*. M. RAVENSDALE (1), I. Toth (1), P. Birch (1). (1) Scottish Crop Research Institute, Dundee, Scotland, UK
- 4:00 p.m. AO-187. Random peptides selected from bacteriophage M13 libraries for affinity to the *Xylella fastidiosa* cell surface. P. A. Feldstein (2),

AFTERNOON TECHNICAL SESSIONS

- J. A. Lewis (2), G. BRUENING (2), E. Civerolo (1). (1) USDA, ARS, PWA, SJVAS Center, Parlier, CA; (2) University of California, Davis, CA
- 4:15 p.m. AO-188. Identification and characterization of a novel gene, BDR1, required for nonhost disease resistance using virus induced gene silencing. K. WANG (2), L. Kang (2), C. Ryu (1), K. S. Mysore (2). (1) Korea Research Institute of BioScience and Biotechnology, Yuseong, S. Korea; (2) Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK, USA
- 4:30 p.m. AO-189. Salicylic acid severely attenuates the bacterial attachment and virulence of *Agrobacterium tumefaciens* in plants. A. ANAND (1), K.S. Mysore (1). (1) Plant Biology Division, Samuel Roberts Noble Foundation, Ardmore, OK, USA
- 4:45 p.m. AO-127. Isolation, characterization, and detection of an exopolysaccharide produced by *Xylella fastidiosa*. M. ROPER (1), L. Greve (2), J. M. Labavitch (2), B. C. Kirkpatrick (1). (1) Department of Plant Pathology, University of California, Davis, CA; (2) Department of Plant Sciences, University of California, Davis, CA
- Chemical Control I**
 1:30 – 5:00 p.m. * Room 303B
Section: Plant Disease Management
Moderators: Alex Csinos, University of Georgia, Tifton, GA; David Thompson, Rutgers University, New Brunswick, NJ
- 1:30 p.m. AO-190. Biofungicides: Transitioning from research to EPA registration. M. P. BRAVERMAN (1), J. J. Baron (1), D. L. Kunkel (1), R. E. Holm (1). (1) IR-4 Project, Rutgers University, North Brunswick, NJ, USA
 AO-191. Moved to the Biological Control session on Monday afternoon at 4:30 p.m.
- 1:45 p.m. AO-192. Relative effect of chemical management tools on *Phytophthora* crown rot of pepper plants. M. E. MATHERON (1), M. Porchas (1). (1) University of Arizona, Yuma, AZ, USA
- 2:00 p.m. AO-193. Evaluating planting dates ASM and Imidacloprid for control of TSWV in tobacco. A. S. CSINOS (1), M. G. Stephenson (1), R. M. McPherson (1). (1) UGA Plant Pathology, Tifton, GA, USA
- 2:15 p.m. AO-194. Effect of copper fungicides on tart cherry photosynthetic parameters. B. R. GRUBER (2), E. L. Kruger (1), P. S. McManus (2). (1) Department of Forest Ecology and Management, University of Wisconsin-Madison, Madison, WI, USA; (2) Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, USA
- 2:30 p.m. AO-195. Evaluation of two disease models for timing of fungicide applications for control of *Botrytis* fruit rot of strawberry. N. A. PERES (1), T. E. Seijo (1), J. C. Mertely (1), C. Torres (1), S. J. Mackenzie (1). (1) University of Florida, GCREC, Wimauma, FL, USA
- 2:45 p.m. AO-196. Use of phosphorous acid to manage common root rot in processing pea. L. D. PORTER (1). (1) USDA-ARS, Prosser, WA, USA
- 3:00 p.m. Break
- 3:30 p.m. AO-197. IR-4 fungicide registration update. D. C. THOMPSON (1), D. L. Kunkel (1), W. P. Barney (1), D. H. Carpenter (1), V. R. Starner (1). (1) Rutgers University, New Brunswick, NJ, USA
- 3:45 p.m. AO-198. Control of *Phomopsis* and *Botrytis* shoot blight in grapes in the San Joaquin Valley of California. G. M. LEAVITT (2), P. S. Verdegaaal (1), T. M. Martin-Duvall (2). (1) University of California Cooperative Extension, Stockton, CA, USA; (2) University of California Cooperative Extension, Madera, CA, USA
- 4:00 p.m. AO-199. Novel methods for high throughput screening and efficacy testing of pesticides, fungicides and disinfectants – identifying anti-biofilm products. L. R. MARQUES (1), M. E. Olson (1), H. Ceri (2), M. W. Harding (1), N. D. Allan (1), M. L. Earle (1). (1) MBEC BioProducts, Inc., Calgary, AB, Canada; (2) University of Calgary, Calgary, AB, Canada
- 4:15 p.m. AO-200. Impact of phosphonate and contact fungicides on the quality of creeping bentgrass putting greens. L. P. TREDWAY (1), E. L. Butler (1), R. B. Franklin (1). (1) NC State University, Raleigh, NC, USA
- 4:30 p.m. AO-201. Etiology and management of rind breakdown of mandarins. J. H. CONNELL (3), H. Forster (1), G. Driever (2), D. F. Thompson (2), J. E. Adaskaveg (2). (1) Dept. of Plant Pathology, University of California, Davis, CA; (2) Dept. of Plant Pathology, University of California, Riverside, CA; (3) University of California Cooperative Extension, Oroville, CA
- 4:45 p.m. CO-32. Sensitivity of *Sclerotinia homoeocarpa* in Ontario to DMI fungicides 10 years after first use. Presenter: T. Hsiang, Department of Environmental Biology, University of Guelph, Guelph, ON; Co-Author(s): A. Liao, Department of Environmental Biology, University of Guelph, Guelph, ON
- Fungi – Genetics/Molecular Biology/Cell Biology III**
 1:30 – 3:00 p.m. * Room 303A
Section: Molecular/Cellular Plant-Microbe Interactions
Moderators: James Bradeen, University of Minnesota, St. Paul, MN; Timothy McNellis, The Pennsylvania State University, University Park, PA
- 1:30 p.m. AO-202. Disease-suppressing roles of light in pathogenic interactions between *Magnaporthe oryzae*–*Oryza sativa*. K. LEE (1), P. Singh (1), W. Chung (1), J. Ash (1), T. Kim (1), L. Hang (1), S. Park (1). (1) Cornell University, Ithaca, NY, USA
- 1:45 p.m. AO-203. Multi-genotype allelic mining at the *RB* late blight resistance locus reveals broad allele

- distribution and *in planta* rearrangement. J. M. BRADEEN (1), M. J. Sanchez (1), D. S. Mollov (1). (1) University of Minnesota, St. Paul, MN, USA
- 2:00 p.m. AO-204. Ust1, a transcription factor with a highly conserved APSES domain is a major regulator of morphogenesis and pathogenicity in *Ustilago maydis*. M. D. GARCIA-PEDRAJAS (1), S. E. Gold (2). (1) Estacion Experimental Zaidin, CSIC, Granada, Spain; (2) University of Georgia, Athens, GA, USA
- 2:15 p.m. AO-205. A role for the BONZAI1/COPINE1 protein in Arabidopsis disease resistance. T. W. MCNELLIS (2), T. Lee (2), J. Liu (2), J. P. Sinn (2), N. Jambunathan (1). (1) Noble Research Center, Biochemistry and Molecular Biology Department, Oklahoma State University, OK, USA; (2) Penn State University, Department of Plant Pathology, University Park, PA, USA
- 2:30 p.m. AO-206. Gene expression in ginseng roots during the interaction between *Fusarium equiseti* and the epidermis causing development of rusty root symptoms. R. S. GOSWAMI (1), Z. K. Punja (1). (1) Department of Biological Sciences, Simon Fraser University, Burnaby, British Columbia, Canada
- 2:45 p.m. AO-207. Functional genomics of the wheat response to the trichothecene mycotoxin deoxynivalenol. J. M. Brennan (1), K. I. Ansari (1), S. Walter (1), G. S. ERARD (1), D. Egan (1), F. M. Doohan (1). (1) University College Dublin

Fungal Systematics II

3:30 – 5:00 p.m. * Room 202

Mycological Society of America

Moderator: Karen W. Hughes, University of Tennessee, Knoxville, TN

- 3:30 p.m. MO-55. Myxomycetes associated with North American grasslands. Presenter: A.W. ROLLINS (1); Co-Author(s): C. Rojas (1), S.L. Stephenson (1). (1) University of Arkansas, Fayetteville, AR
- 3:45 p.m. MO-56. A synopsis of the diversity, host utilization and biogeography of New Zealand Laboulbeniales. Presenter: M.B. HUGHES (1); Co-Author(s): A. Weir(1). (1) State University of New York, Syracuse, NY
- 4:00 p.m. MO-57. Defining phylogenetic lineages in the Botryosphaeriaceae. Presenter: P.W. CROUS (1); Co-Author(s): B. Slippers (2), M.J. Wingfield (2), J. Rheeder (3), W.F.O. Marasas (3), A.J.L. Phillips (4), A. Alves (5), T. Burgess (6). (1) Centraalbureau voor Schimmelcultures, Utrecht, The Netherlands, (2) FABI, Univ. Pretoria, South Africa, (3) PROMEC, MRC, Tygerberg, South Africa, (4) Univ. Nova de Lisboa, Portugal, (5) Univ. de Aveiro, Portugal (6) Murdoch University, Perth, WA Australia
- 4:15 p.m. MO-58. Evolutionary relationships of fungal species in the genus *Colletotrichum* from diverse

- grass communities. Presenter: J.A. CROUCH (1); Co-Author(s): B.B. Clarke (1), B. I. Hillman (1). (1) Rutgers University, New Brunswick, NJ
- 4:30 p.m. MO-59. ITS polymorphisms distinguish *Phellinus sulphurascens* homokaryons and heterokaryons. Presenter: Y.W. LIM (1); Co-Author(s): R. Sturrock (2), I. Leal (2), K. Pellow (2), C. Breui l(1). (1) University of British Columbia, Vancouver, BC, Canada, (2) Canadian Forest Service, Victoria, BC, Canada
- 4:45 p.m. MO-60. The Hunt for Megacollybia: One name fits all? Presenter: K.W. HUGHES (1); Co-Author(s): J.L. Mata (2), J. Cifuentes (3), M.C. Aime (4), T. Henkel (5), A. Kovalenko (6), N. Psurtseva (6), R.H. Petersen (1). (1) University of Tennessee, Knoxville, TN, (2) University of South Alabama, Mobile, AL, (3) UNAM, Mexico City, Mexico, (4) USDA-ARS, Beltsville, MD, (5) Humboldt State University, Arcata, CA, (6) Komarov Botanical Institute, St. Petersburg, Russia

Nematodes – Genetics/Molecular Biology/Cell Biology

3:30 – 4:15 p.m. * Room 303A

Section: Molecular/Cellular Plant-Microbe Interactions

Moderators: Shunwen Lu, Cornell University, Ithaca, NY; Peter Moffett, Boyce Thompson Institute for Plant Research, Ithaca, NY

- 3:30 p.m. AO-219. A new class of CLAVATA3/ESR(CLE)-like peptides expressed in the esophageal gland cells of the potato cyst nematode *Globodera rostochiensis*. S. LU (1), X. Wang (1). (1) Cornell University, Ithaca, NY, USA
- 3:45 p.m. AO-220. Functional analysis of nematode secreted CLAVATA3/ESR (CLE)-like peptides of the genus *Heterodera*. J. Wang (3), A. Replogle (3), X. Wang (1), E. L. Davis (2), M. G. MITCHUM (3). (1) Cornell University, Ithaca, NY, USA; (2) North Carolina State University, Raleigh, NC, USA; (3) University of Missouri, Columbia, MO, USA
- 4:00 p.m. AO-221. A nematode avirulence determinant and a co-factor for a disease resistance protein converge on the Ran signaling pathway. P. MOFFETT (1), M. Sacco (1). (1) Boyce Thompson Institute for Plant Research, Ithaca, NY, USA

Plant Disease Management

1:30 – 5:00 p.m. * Room 301B

Section: Plant Disease Management

Moderators: Khalid Hameed, Jordan University of Science Technology, Irbid, Jordan; Erica Swenson, Brigham Young University, Provo, UT

- 1:30 p.m. CO-26. Effect of cassava root rot on consumer acceptability of cassava product. Presenter: S. AIGBE, Department of Crop Science, Ambrose Alli University, Ekpoma, Nigeria Co-Author(s): S.U. Remison, Department of Crop Science,

AFTERNOON TECHNICAL SESSIONS

- 1:45 p.m. Ambrose Alli University, Ekpoma, Nigeria and R. Bandyopadhyay, IITA, Ibadan, Nigeria
CO-27. Postharvest control of blue mold and gray mold in 'Empire' apples with reduced-risk fungicide, pyrimethanil. Presenter: D. ERRAMPALLI, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, Vineland Station, ON; Co-Author(s): L.I. Wainman, Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, Vineland Station, ON
- 2:00 p.m. CO-28. Crop nutrition and disease suppression achieved with lobster processing waste as a soil amendment in organic potato production. Presenter: R.D. PETERS, Crops and Livestock Research Centre, Agriculture and Agri-Food Canada, Charlottetown, PE; Co-Author(s): A.V. Sturz, Prince Edward Island Executive Council Office, Charlottetown, PE and J.A. MacLeod, Crops and Livestock Research Centre, Agriculture and Agri-Food Canada, Charlottetown, PE
- 2:15 p.m. CO-29. Development of a degree-day model for predicting apple leaf emergence during the primary scab period for timing of fungicide sprays. Presenter: O. CARISSE, Horticultural Research and Development Centre, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC; Co-Author(s): T. Jobin, Horticultural Research and Development Centre, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC
- 2:30 p.m. CO-30. Efficacy of phosphorous acid and metalaxyl-m against *Phytophthora erythroseptica*, the cause of pink rot of potatoes. Presenter: K.I. Al-MUGHRABI, Potato Development Centre, New Brunswick Department of Agriculture, Fisheries and Aquaculture, Wicklow, Canada; Co-Author(s): R.D. Peters, Crops and Livestock Research Centre, Agriculture and Agri-Food Canada, Charlottetown, PE
- 2:45 p.m. CO-31. Control of apple, cherry, and grape powdery mildew with commercial soap solutions; Presenter: P.L. SHOLBERG, Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada, Summerland, BC; Co-Author(s): J. Boulé, Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada, Summerland, BC
- 3:00 p.m. Break
- 3:30 p.m. AO-222. Factors affecting plant disease suppression by biological control: A meta-analysis. P. S. Ojiambo (2), H. SCHERM (1). (1) Department of Plant Pathology, University of Georgia, Athens, GA; (2) International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria
- 3:45 p.m. AO-223. Characterization of *Sclerotinia sclerotiorum* isolates used to screen for white mold resistance in US bean production areas. L. K. OTTO-HANSON (1), J. R. Steadman (1). (1) Department of Plant Pathology, University of Nebraska-Lincoln, USA
- 4:00 p.m. AO-225. Morphological and molecular studies on charcoal rot (*Macrophomina phaseolina*) in Jordan. M. S. Hawatema (1), K. M. HAMEED (1). (1) Jordan University Science Technology, Irbid, Jordan
- 4:15 p.m. AO-225. Genetic diversity of Bolivian *Peronospora farinosa* f. sp. *chenopodii* (downy mildew) and quinoa's resistance response. E. M. SWENSON (1), B. D. Geary (1), A. Bonifacio (2), G. Plata (2), P. J. Maughan (1), E. N. Jellen (1), C. E. Coleman (1), D. J. Fairbanks (1), M. R. Stevens (1). (1) Brigham Young University, Provo, UT, USA; (2) Proinpa
- 4:30 p.m. AO-226. PCR-SSCP analysis of different races, genotypes and varieties of *Phytophthora* species. C. HONG (1), P. A. Richardson (1), P. Kong (1). (1) Virginia Tech, Virginia Beach, VA
- 4:45 p.m. AO-227. Diversity of *Sclerotinia* isolates from chickpea from central California. E. Njambere (3), W. CHEN (1), C. Frate (2), S. Temple (2), F. Muehlbauer (1). (1) USDA-ARS, Pullman, WA, USA; (2) University of California, Davis, CA, USA; (3) Washington State University, Pullman, WA, USA

Population Genetics

1:30 – 4:45 p.m. – Room 301A

Section: Epidemiology / Ecology / Environmental Biology

Moderators: Liane Gale, University of Minnesota, St. Paul, MN; Michael Coffey, University of California, Riverside, CA

- 1:30 p.m. AO-208. Population shifts in *Fusarium graminearum sensu stricto* in the Upper Midwest. L. R. GALE (1), L. E. O'Leary (1), J. E. Ochocki (2), T. J. Ward (3), H. Kistler (2). (1) Department of Plant Pathology, University of Minnesota, St. Paul, MN, USA; (2) USDA, ARS, Cereal Disease Laboratory, St. Paul, MN, USA; (3) USDA, ARS, National Center for Agricultural Utilization Research Laboratory, Peoria, IL, USA
- 1:45 p.m. AO-209. Population biology of *Venturia inaequalis* causing apple scab epidemics in Pennsylvania: Implications in disease management. G. VIJI (1), J. W. Travis (1), M. M. Jimenez-Gasco (1). (1) Department of Plant Pathology, The Pennsylvania State University, University Park, PA
- 2:00 p.m. AO-210. New races of the cucurbit powdery mildew *Podosphaera xanthii* present in California. M. D. COFFEY (2), J. D. McCreight (1), T. Miller (2). (1) USDA ARS, Salinas; (2) University of California
- 2:15 p.m. AO-211. Insights on virulence evolution of the bean rust fungus *Uromyces appendiculatus* based on DNA profiles and rust resistance in wild populations. M. ACEVEDO (2), J. R. Steadman (2), J. C. Rosas (1), J. Venegas (1). (1) EAP/Zamorano, Honduras; (2) University of Nebraska-Lincoln

- 2:30 p.m. AO-212. Multilocus sequence analysis of *Phytophthora cinnamomi* from Fraser fir in North Carolina. M. D. GREENE (1), M. Benson (2), K. L. Ivors (1). (1) North Carolina State University, Dept. of Plant Pathology, Fletcher, NC; (2) North Carolina State University, Dept. of Plant Pathology, Raleigh, NC
- 2:45 p.m. AO-213. Population genetics of the wheat leaf rust fungus, *Puccinia triticina* in Central Asia. J. KOLMER (1), M. Grabowski (1). (1) USDA-ARS, University of Minnesota, St. Paul, MN, USA
- 3:00 p.m. Break
- 3:30 p.m. AO-214. Sexual recombination among *Colletotrichum gloeosporioides* isolates on strawberry. S. J. MACKENZIE (3), J. C. Mertely (3), D. E. Legard (1), L. W. Timmer (2), N. A. Peres (3). (1) California Strawberry Commission, Watsonville, CA, USA; (2) University of Florida, CREC, Lake Alfred, FL, USA; (3) University of Florida, GCREC, Wimauma, FL, USA
- 3:45 p.m. AO-215. Molecular and virulence differentiation between populations of *Puccinia striiformis* f. sp. *tritici* in the south-central United States. S. MARKELL (1), G. Milus (1). (1) University of Arkansas
- 4:00 p.m. AO-216. Significant difference in virulence between MAT1-1 and MAT1-2 isolates in the wheat pathogen *Mycosphaerella graminicola*. J. ZHAN (1), B. McDonald (2). (1) Scottish Crop Research Institute; (2) Swiss Federal Institute of Technology
- 4:15 p.m. AO-217. Heterozygous bases from sequenced isolates of *Phytophthora sojae* and *P. ramorum* provide useful single nucleotide polymorphism markers. R. S. DONAHOO (2), J. Martin (1), S. Tripathy (3), S. Naswa (2), O. P. Hurtado-González (2), K. H. Lamour (2). (1) Joint Genome Institute, Berkeley, CA, USA; (2) University of Tennessee, Knoxville, TN, USA; (3) Virginia Bioinformatics Institute, Blacksburg, VA, USA
- 4:30 p.m. AO-218. Molecular markers á la carte: Exploiting genomic databases for the generation of tools for understanding of *Phytophthora* spp. populations. D. P. GARNICA (2), A. M. Pinzón (1), L. M. Quesada (2), A. J. Bernal (2), S. Restrepo (2), E. Barreto (1). (1) Centro de Bioinformática-Instituto de Biotecnología (IBUN), Universidad Nacional de Colombia, Bogotá, Colombia; (2) Laboratorio de Micología y Fitopatología Uniandes (LAMFU), Universidad de los Andes, Bogotá, Colombia

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was ever achieved
without enthusiasm.”***

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MORNING SYMPOSIA

Listed in alphabetic order by title.

Career Counseling for the Budding Plant Pathologist

8:30 a.m. – 12:00 p.m. * Room 206A

Section: Professionalism/Service/Outreach

Organizer: Angela Records, Texas A&M University, College Station, TX

Moderator: Angela Records, Texas A&M University, College Station, TX

Sponsoring Committee: Graduate Student

Creativity, the ability to think critically, and a pair of “good hands” are among the essential characteristics of a capable research scientist. Enjoying a successful career in science, however, involves much more than research skill. Whether working in industry, in the academic setting, or in a government position, scientists are called upon to serve as mentors, teachers, managers, writers, and much more. This session will provide a venue for graduate students and young professionals to learn from a group of senior scientists with special insights on these aspects of a career in plant pathology.

- 8:30 a.m. S-135. The truth about jobs in academia, industry, government, etc. A. VIDAVER (1). (1) University of Nebraska, Lincoln, NE
- 9:00 a.m. S-136. Publishing: The foundation of a successful academic career. M.E. DAUB (1). (1) North Carolina State University, Raleigh, NC
- 9:30 a.m. S-137. The merits of training mentors. C. PFUND (1,2), C. Maidl Pribbenow (3), J. Branchaw (4), S. Miller Lauffer (1), J. Handelsman (1,3,5). (1) Wisconsin Program for Scientific Teaching, Department of Plant Pathology, University of Wisconsin, Madison, WI; (2) Delta Program in Research, Teaching and Learning, University of Wisconsin, Madison, WI; (3) Women in Science and Engineering Leadership Institute, University of Wisconsin, Madison, WI; (4) Center for Biology Education, University of Wisconsin, Madison, WI; (5) Howard Hughes Medical Institute Professor
- 10:00 a.m. Break
- 10:30 a.m. S-138. Renewed emphasis on teaching in academia: Will you be competitive in today’s job market? C.W. MIMS (1), S.K. Gremillion (1). (1) University of Georgia, Athens, GA
- 11:00 a.m. S-139. Managing your lab: Lessons from P.I.s. K. BARKER (1). (1) Seattle, WA
- 11:30 a.m. Discussion

Contributions of the Chemical Industry to Crop Protection

8:30 a.m. – 12:30 p.m. * Room 304AB

Section: Plant Disease Management

Organizer: Jennifer L. Riggs, Bayer CropScience, Research Triangle Park, NC

Moderators: Jennifer L. Riggs, Bayer CropScience, Research Triangle Park, NC; Michael Schwarz, BayerCropScience, Research Triangle Park, NC

Sponsoring Committee: Industry

A series of speakers from various areas in the chemical or crop industries will explore the contributions of agricultural pesticides to crop protection. Presentations encompassing the benefits of fungicides, both traditional and non-traditional, span a wide range of subject matter. The industry has been the leaders in combating the problems that are caused by development of fungicide resistant plant pathogens. Other areas that will be reviewed include the safe production, storage and transportation of agricultural commodities along with a review of the yield benefits and crop losses due to fungicide use. The crop industry is instrumental to the safe use of fungicides by a concerted effort to maximize the efficacious activity while minimizing the level of fungicides placed in the environment.

- 8:30 a.m. S-140. The benefits of fungicides in U.S. crop production. L. GIANESSI (1). (1) CropLife Foundation, Washington, DC
- 9:00 a.m. S-141. Seed treatments—A stewardship approach to applying crop protectants. M. SCHWARZ (1). (1) Bayer CropScience, Research Triangle Park, NC
- 9:30 a.m. S-142. The importance of resistance management: The industry perspective. G. OLAYA (1). (1) Syngenta Crop Protection, Vero Beach, FL
- 10:00 a.m. Break
- 10:30 a.m. S-143. The consultant’s view of the value of fungicides in agriculture. C. BECKER (1). (1) BAAR Scientific LLC, Romulus, NY
- 11:00 a.m. S-144. Stewardship—Throughout. B. OLSON (1). (1) Dow AgroSciences LLC, Indianapolis, IN
- 11:30 a.m. S-145. Why are we losing the battle against postharvest disease on fruits and vegetables? T. YOUNG (1). (1) Del Monte Fresh Produce Company, Coral Gables, FL
- 12:00 p.m. S-146. Fungicides in IPM: A catch-22 situation. V. MORTON (1). (1) Viva, Inc., Greensboro, NC

Illuminating the Unique Nature of Parasitic and Free-Living Nematode Genomes

8:30 a.m. – 12:00 p.m. * Room 301B

Section: Molecular/Cellular Plant-Microbe Interactions

Organizers: Brent Sipes, University of Hawaii, Honolulu, HI; Terry Niblack, University of Illinois, Urbana, IL

Moderators: Kris Lambert, University of Illinois, Urbana, IL; Brent Sipes, University of Hawaii, Honolulu, HI

Sponsoring Committee: Nematology

This symposium will spotlight and synthesize the uniqueness and innovation found in the genomes of parasitic and free-living nematodes. The symposium, targeted to a non-nematologist, non-molecular biologist audience, draws upon international expertise with speakers from leading institutions. Academic and industry pioneers will emphasize current technology and methodologies used to unravel the marvels and complexities associated with nematode genomes. The techniques that these renowned scientists employ for use with nematodes will prove valuable in exploring and understanding genomes of other pathogen groups.

- 8:30 a.m. S-147. WormBase: Meeting specific biological needs with general bioinformatics tools. E.M. SCHWARZ (1) and the Wormbase Consortium (1-4). (1) California Institute of Technology, Pasadena, CA; (2) Sanger Institute, Hinxton, UK; (3) Cold Spring Harbor Laboratory, NY; (4) Washington University, St. Louis, MO
- 9:00 a.m. S-148. Computing the *Meloidogyne hapla* proteome. D. BIRD (1). (1) North Carolina State University, Raleigh, NC
- 9:30 a.m. S-149. Nanotechnology and the genome of *Heterodera glycines*. K.N. LAMBERT (1), S. Bekal (1), T.L. Niblack (1), M.E. Hudson (1), L.L. Domier (1). (1) University of Illinois, Urbana, IL
- 10:00 a.m. Break
- 10:30 a.m. S-150. The complete genome sequence of *Meloidogyne hapla* (northern root-knot nematode), a Clade IV tylenchid plant parasitic nematode. C.H. OPPERMAN (1). (1) North Carolina State University, Raleigh, NC
- 11:00 a.m. S-151. Genomics analysis in the potato cyst nematode *Globodera pallida*. V. BLOK (1), S. Chapman (1), M. Armstrong (1), M. Phillips (1), C. Lilley (2), P. Urwin (2), A. Blanchard (3), E. Grenier (3), J.T. Jones (1). (1) Scottish Crop Research Institute, Invergowrie, Dundee, UK; (2) University of Leeds, Leeds, UK; (3) INRA UMR, Le Rheu, France
- 11:30 a.m. Audience and panel discussion

Long-Term Patterns of Spread and Intensification for Forest Pathogens

8:30 a.m. – 12:00 p.m. * Room 203

Section: Epidemiology/Ecology/Environmental Biology

Organizers: Paul Zambino, Moscow, ID; John Lundquist, USDA Forest Service, Ft. Collins, CO; Ned Klopfenstein, USDA Forest Service, Moscow, ID

Moderators: Paul Zambino, Moscow, ID; John Lundquist, USDA Forest Service, Ft. Collins, CO; Ned Klopfenstein, USDA Forest Service, Moscow, ID

Sponsoring Committees: Forest Pathology, Epidemiology

Landscape pathology is an emerging field that aims at integrating the concepts and tools of landscape ecology with forest pathology. This session will examine landscape-scale and long term patterns of spread and intensification of several forest pathosystems. These pathosystems typically have

long-lived hosts, persistent ecosystems, and heterogeneous geographical features, which strongly contrasts with cropping systems. Efforts to describe and understand the occurrence, distribution, and dynamics of exotic and native forest pathogens in diseased landscapes will be presented.

- 8:30 a.m. S-152. Application of GIS and geostatistics to epidemics in natural systems. F.W. NUTTER JR. (1). (1) Iowa State University, Ames, IA
- 9:00 a.m. S-153. Effects of landscape heterogeneity on the emerging forest disease sudden oak death. R.K. MEENTEMEYER (1), T.E. Condeso (2). (1) University of North Carolina, Charlotte, NC; (2) Sonoma State University, Rohnert Park, CA
- 9:30 a.m. S-154. Parameters in large-scale dissemination and landscape suitability in recent spread of white pine blister rust in North America. K.L. FRANK (1). (1) University of Delaware, Newark, DE
- 10:00 a.m. Break
- 10:30 a.m. S-155. Beech bark disease spread and intensification in eastern hardwood forests of North America. M. MACKENZIE (1). (1) USDA Forest Service, Morgantown, WV
- 11:00 a.m. S-156. Factors affecting the spread of Swiss needle cast of Douglas-fir in the Pacific Northwest. J. KERRIGAN (1), J.K. Stone (1). (1) Oregon State University, Corvallis, OR
- 11:30 a.m. S-157. The landscape legacy of dwarf mistletoe in lodgepole pine forests in Wyoming. J.E. LUNDQUIST (1). (1) USDA Forest Service, Anchorage, AK

Mycological Society of America: Karling Lecture

9:00 a.m. – 10:00 a.m. * Room 303AB

“Phylogeny and Coevolution of Parasitic Heterobasidiomycetous Fungi.”

Franz Oberwinkler, Universitaet Tuebingen, Tuebingen, Germany

Signals, Pools and Pathways to Host Resistance; SAR,

co-sponsored by APS & CPS

8:30 – 11:30 a.m. * Room 302AB

Section: Molecular/Cellular Plant-Microbe Interactions

Organizers: Christine Smart, Cornell University, Geneva, NY; Raymond Hammerschmidt, Michigan State University, East Lansing, MI

Moderators: Christine Smart, Cornell University, Geneva, NY; Raymond Hammerschmidt, Michigan State University, East Lansing, MI

Sponsoring Committees: Biochemistry, Physiology and Molecular Biology

It is now well-established that resistance to disease can be induced in plants by certain biological and chemical treatments. The phenomenon of induced resistance has been characterized into several distinct forms based on signaling pathways and patterns of expressed defenses. Research in this area has led to a better understanding of defense mechanisms and signaling processes involved in resistance

Author Open House

Tuesday 10:00 to 11:00 a.m.
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MORNING SYMPOSIA

expression. In this symposium, recent advances in systemic acquired resistance (SAR) will be discussed. The genes, gene products and pathways involved in SAR signaling and defense expression will be highlighted.

- 8:30 a.m. S-158. An historical perspective on the SAR phenomenon. R. HAMMERSCHMIDT (1). (1) Michigan State University, East Lansing, MI
- 9:00 a.m. S-159. Multiple roles of salicylic acid in defense. R.K. CAMERON (1). (1) McMaster University, Hamilton, ON, Canada
- 9:30 a.m. S-160. The roles of salicylic acid-binding protein 2 and methyl salicylate in systemic acquired resistance to TMV in tobacco. S.-W. Park (1), D. Kumar (1), A.C. Vlot (1), E. Kaimoyo (1), D.F. KLESSIG (1). (1) Boyce Thompson Institute, Ithaca, NY
- 10:00 a.m. Break
- 10:30 a.m. S-161. Crosstalk and the SAR pathway. J.-P. MÉTRAUX (1). (1) University of Fribourg, Fribourg, Switzerland
- 11:00 a.m. S-162. Functional dissection of soybean defense pathways and their regulation using metabolomics and RNAi gene silencing. T.L. GRAHAM (1), O. Yu (2), M.Y. Graham (1). (1) Ohio State University, Columbus, OH; (2) Danforth Plant Science Center, St. Louis, MO

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#7-06

AFTERNOON SYMPOSIA

Listed in alphabetic order by title.

Bacterial Symbionts of Fungi

1:30 – 4:30 p.m. * Room 204AB

Section/Sponsor: Mycological Society of America

Organizer/Moderator: Teresa Pawlowska, Cornell University, Ithaca, NY

Every eukaryote on the planet is engaged in a complex network of interactions with bacteria. Some of these interactions are very intimate and involve intracellular localization of bacterial symbionts. In fact, there are very few organisms that are free of bacterial endosymbiotic mutualists or parasites. Interestingly, fungi, with few notable exceptions, do not seem to carry bacterial endosymbionts. Are bacterial endosymbionts of fungi truly rare, or is this one of the most understudied areas of fungal biology? Are there any commonalities among the known cases of bacterial endosymbiosis with fungi? How informative are interactions between fungi and bacteria that co-occur in pathogenic biofilms or are involved in ectomycorrhizae? What can we learn from fungal mitochondria?

- 1:30 p.m. S-163. Chemical signaling between *Pseudomonas aeruginosa* and fungi. M.J. WARGO (1), D.A. Hogan (1). (1) Dartmouth Medical School, Hanover, NH
- 2:00 p.m. S-164. New aspects of the interactions between bacteria and ectomycorrhizal fungi. D.A. FREY-KLETT PASCALE (1). (1) INRA, Champenoux, France.
- 2:30 p.m. S-165. Arbuscular mycorrhizal fungi: a specialized niche for endosymbiotic bacteria. V. BIANCIOTTO (1). (1) Istituto per la Protezione delle Piante (Sezione di Torino) del CNR, Torino, Italy
- 3:00 p.m. Break
- 3:30 p.m. S-166. Pathogenic fungus harbours endosymbiotic bacteria for toxin production. C. HERTWECK (1). (1) Leibniz-Institute for Natural Products Research and Infection Biology - Hans-Knoell-Institute, Jena, Germany
- 4:00 p.m. S-167. Patterns of cytoplasmic inheritance in fungi. Z. YAN (1). (1) McMaster University, Hamilton, ON, Canada

Gene Clustering as a Mechanism for Microbial Innovation

1:30 – 4:30 p.m. * Room 205C

Section: Biology of Plant Pathogens

Organizer: Gary Payne, North Carolina State University, Raleigh, NC

Moderators: Gary Payne, North Carolina State University, Raleigh, NC; Charles Woloshuk, Purdue University, West Lafayette, IN

Sponsoring Committees: Mycotoxicology, Biochemistry, Physiology, Molecular Biology

Financial Sponsor: Dow AgroSciences

A common feature of fungal genomes is the presence of gene clusters for secondary metabolites. The objective of this symposium is to present a critical examination of the evolution and conservation of gene clusters in filamentous fungi. The “selfish operon” hypothesis has been proposed to explain the conservation of fungal gene clusters. This may not be an appropriate hypothesis as will be discussed by the speakers. The inclusion of experts on bacterial and fungal evolution will offer a balanced view of this topic and spur lively debate in this area.

- 1:30 p.m. S-168. Role of gene exchange in gene clustering. J. LAWRENCE (1). (1) University of Pittsburgh, Pittsburgh, PA
- 2:00 p.m. S-169. Gene clustering and genome evolution in fungi. A. ROKAS (1), M. Borowsky (1), J.E. Galagan (1). (1) The Broad Institute of MIT & Harvard, Cambridge, MA
- 2:30 p.m. S-170. Molecular evolutionary dynamics of recognition systems. G. MAY (1). (1) University of Minnesota, St. Paul, MN
- 3:00 p.m. Break
- 3:30 p.m. S-171. Tracking the origin and maintenance of the LOL secondary metabolite gene cluster across mutualistic grass-endophytes. H.H. WILKINSON (1). (1) Texas A&M University, College Station, TX
- 4:00 p.m. S-172. The roles of recombination and selection in the evolution of the aflatoxin gene cluster. I. CARBONE (1), J.L. Jakobek (1), J.H. Ramirez-Prado (1), B.W. Horn (2). (1) North Carolina State University, Raleigh, NC; (2) USDA-ARS, Dawson, GA

Molecular Signaling in Phyllosphere Interactions

1:30 – 4:30 p.m. * Room 304AB

Section: Molecular/Cellular Plant-Microbe Interactions

Organizers: George Sundin, Michigan State University, East Lansing, MI; Susanne von Bodman, University of Connecticut, Storrs, CT

Moderators: George Sundin, Michigan State University, East Lansing, MI; Susanne von Bodman, University of Connecticut, Storrs, CT

Sponsoring Committees: Phyllosphere Microbiology, Bacteriology

This symposium will focus on signaling between host and pathogen or signaling within pathogen populations and the subsequent regulation of processes resulting in compatible and incompatible disease interactions. The phyllosphere serves as the setting for the initiation of host-pathogen interactions in natural environments. Early events in disease interactions with a variety of bacterial and fungal pathogens occur in the phyllosphere. The upregulation of virulence or pathogenicity determinants may occur following perception of host proteins by pathogens. In contrast, host resistance responses can be initiated following surveillance for pathogen-associated molecular patterns. Finally, the utilization of density-dependent regulation of virulence determinants is a critical

AFTERNOON SYMPOSIA

component of signalling within many bacterial pathogen populations. Attendees of this session will learn of recent advances in host-pathogen interactions and will also gain an appreciation of the phyllosphere habitat and the significant events that occur in this milieu.

- 1:30 p.m. S-173. Biotrophy or not to be! The answer rust fungi have to give. R. VOEGELE (1). (1) University of Konstanz, Konstanz, Germany
- 2:00 p.m. S-174. Death don't have no mercy, and neither does calcium: A cyclic nucleotide gated Ca channel is upstream from nitric oxide generation in the hypersensitive response signal cascade. R. ALI (1), D. Tsaltas (1), F. Lemtiri-Chlieh (1), Q. Leng (1), S. von Bodman (1), G.A. Berkowitz (1). (1) University of Connecticut, Storrs, CT
- 2:30 p.m. S-175. The effects of salicylic acid and jasmonic acid mediated defense on the natural bacterial community of *Arabidopsis thaliana*. J. KNISKERN (1), M.B. Traw (2), J. Bergelson (1). (1) University of Chicago, Chicago, IL; (2) University of Pittsburgh, Pittsburgh, PA
- 3:00 p.m. Break
- 3:30 p.m. S-176. Enteric pathogen interactions in the phyllosphere and their role in the host environment. M.T. BRANDL (1). (1) USDA-ARS; Albany, CA
- 4:00 p.m. S-177. Quorum sensing signaling in epiphytic bacterial pathogens—The use of host-produced signals to disrupt colonization. M.A. SAVKA (1), S. von Bodman (2). (1) Rochester Institute of Technology; (2) University of Connecticut, Storrs, CT

Periodic Table of Plant Pathogens

1:30 – 5:00 p.m. * Room 205AB

Section: Epidemiology/Ecology/Environmental Biology

Organizers: Roger Magarey, North Carolina State University, Raleigh, NC; Erick De Wolf, Pennsylvania State University, State College, PA

Moderators: Roger Magarey, North Carolina State University, Raleigh, NC; Erick De Wolf, Pennsylvania State University, State College, PA

Sponsoring Committees: Epidemiology, Regulatory Plant Pathology

The aim of this session is to create a graphical device for summarizing epidemiological relationships amongst plant pathogens. Such a tool could be useful for teaching. A second objective is to develop standardized epidemiological parameters which may be helpful for the creation and implementation of generic models or for risk analysis in regulatory plant pathology. The session will include the review of the standardized parameters using grapes and wheat as example host systems, population of a matrix for selected plant pathogens and review of the summary graphical structure.

- 1:30 p.m. S-178. An introduction to the periodic table for plant pathogens. R. MAGAREY (1), E. De Wolf

(2), S. Savary (3), L. Willocquet (3). (1) USDA APHIS CPHST, Raleigh, NC; (2) Pennsylvania State University, State College, PA; (3) INRA, Bordeaux, France

- 2:15 p.m. S-179. Periodic elements of wheat and grapevine pathosystems. S. SAVARY (1), L. Willocquet (1), E. De Wolf (2), R. Magarey (3). (1) INRA, Bordeaux, France; (2) Pennsylvania State University, State College, PA; (3) APHIS-CPHST, Raleigh, NC
- 3:00 p.m. Break
- 3:30 p.m. S-180. Small group application of concepts. E. DE WOLF (1). (1) Pennsylvania State University, State College, PA
- 4:15 p.m. Reporting from groups
- 4:30 p.m. Future development of periodic table concept

Phytophthora ramorum: An Environmental Threat; A Regulatory Quandary

1:30 – 4:30 p.m. * Room 302AB

Section: Epidemiology/Ecology/Environmental Biology

Organizer: Christel Harden, Clemson University, Pendleton, SC

Moderator: Christel Harden, Clemson University, Pendleton, SC

Sponsoring Committees: Regulatory Plant Pathology

Phytophthora ramorum, often called “Sudden Oak Death,” poses a threat to the green industry and forest ecosystems of North America. Since 1995, oaks and tanoaks in California and Oregon have been dying due to infection with *P. ramorum*, a pathogen first identified in 1993 on ornamentals in Europe. While the extent of the host range is not completely understood, the pathogen is known to infect at least 68 species of trees and ornamentals. Shipments of infected nursery stock have disseminated *P. ramorum* through the United States. Export of nursery stock from California and Oregon has been restricted. In 2004, USDA published regulations limiting the movement of host and associated plants from infested counties. Due to the serious potential for spread of *P. ramorum* to landscapes and hardwood forests in uninfested parts of the United States and Canada, quarantines have been established to limit the pathogen's movement. While justified, such phytosanitary measures negatively affect the nursery industry by preventing the sale of ornamentals from western producers and impacting the availability of nursery stock to other areas of the continent. Because *P. ramorum* was identified relatively recently, there is limited scientific knowledge about its biology, transmission, epidemiology, and diagnostics, which makes development of an effective regulatory program difficult. This session will provide perspective about the issues and challenges of managing *Phytophthora ramorum*.

- 1:30 p.m. S-181. In search of *Phytophthora ramorum*: A perspective from the southeastern USA. S.F. JEFFERS (1). (1) Clemson University, Clemson SC
- 2:00 p.m. S-182. Regulatory and environmental implications of *Phytophthora ramorum* in eastern forests. S.W. OAK (1). (1) USDA Forest Service, Asheville, NC

- 2:30 p.m. S-183. Impact of *Phytophthora ramorum* upon regulatory activities in Western states. N. OSTERBAUER (1), C. Blomquist (2), J. Falacy (3). (1) Oregon Dept. of Agriculture, Salem, OR; (2) California Dept. of Food & Agriculture, Sacramento, CA; (3) Washington State Dept. of Agriculture, Olympia, WA
- 3:00 p.m. Break
- 3:30 p.m. S-184. Impact of *Phytophthora ramorum* upon regulatory activities in eastern states. C. RIHERD (1). (1) Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Gainesville, FL
- 4:00 p.m. S-185. Regulatory concerns surrounding *Phytophthora ramorum* in Canada. K. WONG (1). (1) Canadian Food Inspection Agency, Kelowna, BC, Canada

Research, Development, and Adoption of Biopesticides in the 21st Century, co-sponsored by APS & CPS

1:30 – 5:00 p.m. * Room 208AB

Section: Plant Disease Management

Organizer: Brian McSpadden Gardener, Ohio State University, Wooster, OH

Moderator: Brian McSpadden Gardener, Ohio State University, Wooster, OH

Sponsoring Committees: Biological Control, Industry, Integrated Pest Management

In recent years, there has been a surge in the interest in biopesticides. Efforts to deregister a number of chemical pesticides, government incentives to conserve soil resources, increased consumer interest in organic foods, and economic pressures to reduce petroleum-based farm inputs have all combined to make biopesticide applications more attractive to society. However, there still remain significant hurdles to future development and increased adoption. This symposium will engage leaders from academia, government, and industry

in a discussion about how to best facilitate future research and development efforts to meet the increasing demands for effective biopesticides.

- 1:30 p.m. S-186. Biopesticides: Visions vs. reality. W. GELERTNER (1). (1) PACE Consulting, San Diego, CA
- 2:00 p.m. S-187. Trends in the development of seed treatments: What place for biological inoculants? E. REINOT (1). (1) Becker Underwood, Ames, IA
- 2:15 p.m. S-188. Opportunities and challenges for microbial pesticides in the global market place. P. WARRIOR (1). (1) Valent BioSciences Corporation, Libertyville, IL
- 2:30 p.m. S-189. Biocontrol of forest weeds: Past successes, future targets, and hurdles. S. SHAMOUN (1). (1) Canadian Forest Service, Victoria, BC, Canada
- 2:45 p.m. S-190. EPA's role in biopesticide development. J. ANDERSON (1). (1) US EPA, Washington, DC
- 3:00 p.m. Break
- 3:30 p.m. S-191. European regulatory hurdles and prospects for new biocontrol product development. S. KIEWNICK (1). (1) University of Bonn, Bonn, Germany
- 3:45 p.m. S-192. What the Cooperative State Research, Extension & Education Service can do to facilitate research on biopesticides. J. L. SHERWOOD (1). (1) University of Georgia, Athens, GA
- 4:00 p.m. S-193. From lab bench to marketplace: How far should university researchers go? R. BÉLANGER (1). (1) University of Laval, Québec, QC, Canada
- 4:15 p.m. S-194. Facilitating commercialization: Helping both start-ups and established industry. P. MARRONE (1). (1) AgraQuest Inc., Davis, CA
- 4:30 pm. Panel discussion on stimulating biopesticide development and adoption

NETWORKING EVENTS

Department Heads' Breakfast

7:00 – 9:00 a.m. * Courville – Hilton

Heads of plant pathology or related departments are invited to get together and discuss issues affecting universities around the country. *Ticket required.*

MSA Business Meeting with Breakfast

7:00 – 9:00 a.m. * Room 200B

Join fellow members of MSA to learn about what the society has accomplished over the past year and the direction and future of MSA. *Preregistration is required.*

CPS Business Meeting with Luncheon

12:00 – 1:30 p.m. * Room 200A

Join fellow members of CPS to learn what the society has accomplished over the past year and the direction and future of CPS. Complimentary for CPS members. *Preregistration is required.*

APS Business Meeting

12:30 – 1:30 p.m. * Room 200B

Join fellow members of APS to learn what the society has accomplished over the past year and the direction and future of APS. Beverages will be available; however, please purchase your lunch prior to the meeting. Cash concessions will be available in the exhibit hall, as well as near the meeting room.

APS Awards & Honors Ceremony

6:30 – 7:30 p.m. * Room 206AB

This special ceremony honors APS members who have made significant contributions to the science and practice of plant pathology through their talent and vision. This year's event will start off by highlighting the up and coming stars of our society, that is, the recipients of the APS Foundation I.E. Melhus Student Speaker Symposium presenters, the International Travel awardee and the Student Travel awardees. Then, the prestigious awardees of the 2006 APS Fellow, the Ruth Allen Award, William Boright Hewitt and Maybelle Ellen Ball Hewitt Award, Lee M. Hutchins Award, Excellence

in Extension Award, Excellence in Teaching Award, Excellence in Industry Award, International Service Award, and the Syngenta Award will be recognized. This year, we will also present the highest honor our society bestows, the APS Award of Distinction.

CPS Awards & Honors Banquet

6:30 – 11:00 p.m. * Room 200A

Celebrate the ending of a great annual meeting and the accomplishments of your colleagues! This "sit down" banquet event is included in your registration fee.

MSA Social and Auction

6:30 – 11:00 p.m. * Room 200B

Join us as we celebrate the beginning of our 75th year. This annual event is just the place to meet your favorite mycological colleagues and to examine and purchase valuable out-of-print Mycological classics, amazing vintage and artistic photos, and myriad fungal-themed memorabilia. A substantial Québec-themed buffet with local brews will be available. This event is included in your registration fee.

APS Presidential Ceremony

7:30-7:45 p.m. * Room 206AB

Immediately following the Awards & Honors Ceremony, the APS Presidential Ceremony will recognize this year's APS Outstanding Volunteer. Then APS Past President Jim MacDonald will receive the Past President's Scroll for his four years of incredible service to APS in the presidential lineage. Bringing closure to this event will be the passing of the presidential gavel from John Andrews to Jan Leach.

APS Party: Québec City – Joie de vivre!

7:45 – 11:00 p.m. * Room 200C

Celebrate another great annual meeting at the Joie de vivre! This event, which follows the Presidential Ceremony, features traditional Québec City fare, local entertainment, and networking with fellow APS attendees. This event is included in your registration fee.

JOINT MEETING DAILY SCHEDULE

Wednesday, August 2

7:30 – 10:30 a.m.	APS Office of International Programs Breakfast Meeting	Villeray – Hilton
7:30 a.m. – 1:00 p.m.	APS Council & New Council Orientation	Beaumont/Belaire – Hilton
8:00 – 11:00 a.m.	Registration	Level 4
8:30 – 10:15 a.m.	Diseases – Ornamentals	204AB
8:30 – 11:30 a.m.	Evolution of virulence in Gram-positive and fastidious bacteria	303A
8:30 a.m. – 12:00 p.m.	Chemical Control II	202
8:30 a.m. – 12:00 p.m.	First International Symposium on Cercospora Leaf Spot of Sugar Beet	205AB
8:30 a.m. – 12:00 p.m.	Evolution in the Current Taxonomy of the Straminipiles: Phytophthora, Pythium and Beyond	302AB
8:30 a.m. – 12:00 p.m.	Exploiting Microbial Diversity for Biologically Control Plant Diseases: Myxobacteria and Lysobacter spp.	301B
8:30 a.m. – 12:00 p.m.	Population and Species Divergence in Fungi	304AB
8:30 a.m. – 12:00 p.m.	Teaching Non-Traditional Mycology/Plant Pathology Courses for Undergraduates	203
8:30 a.m. – 12:00 p.m.	Viruses as Minimalist Pathogens: Multiplicity of Protein Functions in Pathogenesis	301A
8:30 a.m. – 12:30 p.m.	Detection of Invasive Pathogens in Forest and Ornamental Landscapes	303B
9:00 – 11:00 a.m.	APS PRESS Bookstore	400AB
12:00 p.m. – 3:00 p.m.	CPS Executive Meeting	Beauport – Hilton
1:30 p.m. – 4:45 p.m.	First International Symposium on Cercospora Leaf Spot of Sugar Beet (continued)	205AB



APS-OIP 5K Fun Run/2.5K Walk
for International Outreach
and Collaboration

July 30, 2006

Québec City, Canada

OIP Fun Run Racers and Sponsors Make a Difference!

The APS Office of International Programs (OIP) would like to thank all of the racers and sponsors of the 2006 5K Fun Run/2.5K Walk for International Outreach and Collaboration. Proceeds from this event will help enhance APS's international activities and make a positive difference for plant pathology worldwide. Special thanks to the Club de course a pied de l'Université Laval for handling the event coordination.

The Québec City OIP Fun Run was
MAGNIFIQUE!

TECHNICAL SESSIONS

Listed in alphabetic order by title.

Chemical Control II

8:30 a.m. – 12: 00 p.m. * Room 202

Section: Plant Disease Management

Moderators: Julius Fajardo, Chemtura Corporation, Middlebury, CT; Katherine Stevenson, University of Georgia, Tifton, GA

- 8:30 a.m. AO-228. Advances in fungicide development outrace declining triazole sensitivity in *Gibberella zeae*. M. B. KLIX (1), M. Beyer (1), J. Verreet (1). (1) Institute of Phytopathology, Christian Albrechts University, Kiel, Germany
- 8:45 a.m. AO-229. *Pythium* species associated with corn seedling diseases in the USA, pathogenicity and sensitivity to mefenoxam and azoxystrobin. G. OLAYA (1), T. Heidel (1), G. Abad (2), J. Abad (2), C. Watrin (3). (2) PPIL North Carolina State University; (2) Syngenta Crop Protection, Vero Beach, FL; (1) Syngenta Crop Protection, Greensboro, NC
- 9:00 a.m. AO-230. Fungicide programs for managing cucurbit powdery mildew and fungicide resistance in *Podosphaera xanthii*. M. T. MCGRATH (1), J. F. Davey (1). (1) Cornell University, Riverhead, NY, USA
- 9:15 a.m. AO-231. Sensitivity of *Phytophthora citricola* and *P. cactorum* isolates from European beech to mefenoxam and phosphorous acid. J. E. WEILAND (1), G. W. Hudler (1). (1) Cornell University, Ithaca, NY, USA
- 9:30 a.m. AO-232. Fludioxonil-resistant isolates of *Penicillium digitatum* show diverse fitness and no relationship to osmotic stress regulation. L. KANETIS (2), H. Forster (1), J. E. Adaskaveg (2). (1) Department of Plant Pathology, University of California, Davis; (2) Department of Plant Pathology, University of California, Riverside
- 9:45 a.m. AO-233. Performance of DMI fungicides for nut scab control in pecan orchards where reduced DMI sensitivity has been documented. K. L. STEVENSON (1), T. B. Brenneman (1), P. F. Bertrand (1), J. H. Brock (1). (1) Department of Plant Pathology, University of Georgia, Tifton, GA, USA
- 10:00 a.m. Break
- 10:30 a.m. AO-234. Survey of *Monilinia fructicola* populations with reduced sensitivity to DMIs in Georgia and implications for brown rot control recommendations. P. M. BRANNEN (2), G. Schnabel (1). (1) Clemson University, Clemson, SC, USA; (2) University of Georgia, Athens, GA, USA
- 10:45 a.m. AO-235. Determining the basis of pyraclostrobin activity against *Pythium* root dysfunction. J. P. KERNS (1), L. P. Tredway (1). (1) NCSU Plant Pathology
- 11:00 a.m. AO-236. Thiophanate-methyl and propiconazole

in vitro sensitivity of *Sclerotinia homoeocarpa* isolates collected from putting greens and fairways. P. KOCH (1), Y. Jo (1), G. Jung (1). (1) UW-Madison, Dept. of Plant Pathology, Madison, WI, USA

- 11:15 a.m. AO-237. Triflumizole (Procure): Control of diseases in tree nut, fruit, vegetable, and vine crops. J. FAJARDO (1). (1) Chemtura Corporation
- 11:30 a.m. AO-238. Biological and physico-chemical properties of mandipropamid, a new fungicide for the control of Oomycete pathogens. F. HUGGENBERGER (1), P. J. Kuhn (2). (1) Syngenta Crop Protection AG, Basel, Switzerland; (2) Syngenta Crop Protection Inc., Vero Beach, FL, USA
- 11:45 a.m. AO-239. Impact of nozzle type on dollar spot control. J. E. KAMINSKI (4), M. A. Fidanza (2), M. Agnew (3), J. Gregos (1). (1) GEC Turf Co., Moon Township, PA, USA; (2) Pennsylvania State University, Reading, PA, USA; (3) Syngenta Professional Products, Kennett Square, PA, USA; (4) University of Connecticut, Storrs, CT, USA

Diseases - Ornementals

8:30 – 10:15 a.m. * Room 204AB

Section: Diseases of Plants

Moderators: Rufina Hernandez-Martinez, University of California, Riverside, CA; Anna Kalinina, Agric & Agri-Food Canada, London, ON, Canada

- 8:30 a.m. AO-240. Density of *Phytophthora ramorum* chlamydospores in soil necessary to cause infection. G. C. COLBURN (1), N. Shishkoff (1). (1) USDA-ARS Foreign Disease Weed Science Research Unit, Fort Detrick, MD
- 8:45 a.m. AO-241. Leaf scorch in ornamental purple-leaf plum (*Prunus cerasifera*) in southern California caused by *Xylella fastidiosa*. R. HERNANDEZ-MARTINEZ (2), H. S. Costa (1), D. A. Cooksey (2), F. P. Wong (2). (1) Department of Entomology, University of California, Riverside, CA; (2) Department of Plant Pathology, University of California, Riverside, CA
- 9:00 a.m. AO-242. Association of a previously undescribed filamentous virus with yellow mosaic disease of rose. B. E. LOCKHART (1), N. E. Olszewski (1). (1) University of Minnesota, St. Paul, MN
- 9:15 a.m. AO-243. Biorational and synthetic fungicides compared for control of three diseases of flowering dogwood from 2003 to 2005. A. K. HAGAN (1). (1) Auburn University, Auburn, AL, USA
- 9:30 a.m. CO-33. Ornamental *Prunus* spp. as a potential host of Plum pox potyvirus. Presenter: A. KALININA, Department of Biology, University of Western Ontario, London, ON; Co-Author(s): M. Ravelonandro, UMR Génomique, Développement et Pouvoir Pathogène, INRA-Bordeaux, France; P. Briard, UMR Génomique,

9:45 a.m. CO-34. Symptomless expression of Citrus exocortis viroid in ornamental plant species, Impatiens and Verbena, may be a potential threat to potato and tomato crops. Presenter: R.P. SINGH, Potato Research Centre, Agriculture and Agri-Food Canada, Fredericton, NB; Co-Author(s): V.K. Bara, Plant Virology Unit, Division of Plant Pathology, Indian Agricultural Research Institute, New Delhi, India

10:00 a.m. CO-35. Alternaria stem spot - a new emerging fungal disease on Berberis spp. Presenter: S. REZAEI, Department of Plant Protection, College of Agriculture and Natural Resources, Science and Research Campus, Islamic Azad University, Tehran, Iran; Co-Author(s): S. Mirabadi, Science and Research Campus, Islamic Azad University, Tehran, Iran and A.R. Golnaraghi, Department of Plant Protection, College of Agriculture and Natural Resources, Science and Research Campus, Islamic Azad University, Tehran, Iran

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WEDNESDAY

#15-06

SYMPOSIA

Listed in alphabetic order by title.

1st International Symposium on Cercospora Leaf Spot of Sugar Beet, Part I

8:30 a.m. – 4:45 p.m.* Room 205AB

Section: Diseases of Plants

Sponsoring Committees: Mycology, Industry

Organizers: Robert T. Lartey, USDA-ARS, Sidney, MT; John J. Weiland, USDA-ARS, Fargo, ND, Lee Panella, USDA-ARS, Fort Collins, CO; Pedro W. Crous, Wageningen University, Wageningen, Netherlands; Carol E. Windels, University of Minnesota, Crookston, MN

Moderators: Stephen B. Goodwin, USDA-ARS, West Lafayette, IN; J. Hans M. Schneider, IRSA, Bergen op Zoom, Netherlands

Cercospora leaf spot (CLS) of sugar beet is a very serious and destructive fungal disease that occurs wherever the crop is grown world wide. Control of CLS by fungicides incurs considerable cost to producers and when not adequately controlled, CLS results in highly significant economic loss to the growers. Research on CLS is being conducted in diverse geographic regions but has not been presented or discussed through an international symposium. The objective of the Symposium is to provide a forum to all researchers involved with CLS to exchange available information on *C. beticola* and CLS. The symposium will cover all aspects of CLS including: Historical Perspective, *Cercospora* Taxonomy, Biology of CLS, Genetics, Pathogenesis, Toxins, Molecular Biology and Biotechnology of CLS, and Disease Management Techniques. It is envisioned that the symposium proceedings will be published by the American Phytopathological Society Press. The publication will provide much needed coordinated information, not only to the current scientific community, but also to future scientists who will be involved with CLS of sugar beet research.

- 8:30 a.m. S-195. *Cercospora* speciation and host specificity. J.Z. Groenewald (1), M. Groenewald (1), U. Braun (2), P.W. CROUS (3). (1) Centraalbureau voor Schimmelcultures, Utrecht, Netherlands; (2) Martin-Luther-Universität, Halle, Germany; (3) Wageningen University, Wageningen, Netherlands
- 8:45 a.m. S-196. Mating type genes in *Cercospora*. Does sex occur in apparently asexual species? M. GROENEWALD (1), J.Z. Groenewald (1), P.W. Crous (2). (1) Centraalbureau voor Schimmelcultures, Utrecht, Netherlands; (2) Wageningen University, Wageningen, Netherlands
- 9:00 a.m. S-197. Cercosporin production in *Cercospora* and related anamorphs of *Mycosphaerella*. S.B. GOODWIN (1), L.D. Dunkle (1). (1) USDA-ARS, West Lafayette, IN
- 9:15 a.m. S-198. Vegetative compatibility groups in *Cercospora beticola*. M. MORETTI (1), M. Saracchi (1), G. Farina (1). (1) Università degli Studi di Milano, Milano, Italy
- 9:30 a.m. S-199. New insights in the epidemiology of *Cercospora beticola*. J.H.M. SCHNEIDER (1), J.

- Vereijssen (1). (1) Institute of Sugar Beet Research, Bergen op Zoom, Netherlands
- 9:45 a.m. S-200. Biological relations of *Cercospora beticola* with host plants and fungal antagonists. R.T. LARTEY (1), S. Ghoshroy (2), T.C. Caesar-TonThat (1), R.G. Evans (1), A.W. Lenssen (1). (1) USDA-ARS, Sidney, MT; (2) New Mexico State University, Las Cruces, NM
- 10:00 a.m. Break
- 10:30 a.m. S-201. Survival, spore trapping, dispersal, and primary infection site for *Cercospora beticola* in sugarbeet. M.F.R. KHAN (1,2), J. Khan (1). (1) North Dakota State University, Fargo, ND; (2) University of Minnesota, Fargo, ND
- 10:45 a.m. S-202. *Cercospora beticola* ecology and the epidemiology of *Cercospora* leaf spot. G.D. FRANC (1). (1) University of Wyoming, Laramie, WY
- 11:00 a.m. S-203. New procedure for prediction of incidence and losses caused by *Cercospora beticola* in sugar beets. P.F.J. WOLF (1), J.-A. Verreet (2). (1) Technical University Munich, Freising-Weihenstephan, Germany; (2) Christian-Albrechts University, Kiel, Germany
- 11:15 a.m. S-204. Beticolins: Chemistry and biological activities. M.-L. MILAT (1), T. Prangé (2), J.-P. Blein (1). (1) INRA, ENESAD, Université de Bourgogne, Dijon, France; (2) Laboratoire de Cristallographie et de RMN Biologiques, Paris, France
- 11:30 a.m. S-205. Strategies for the development of resistance to cercosporin, a toxin produced by *Cercospora* species. M.E. DAUB (1), S. Herrero (1). (1) North Carolina State University, Raleigh, NC
- 11:45 a.m. S-206. Cercosporin biosynthesis and its role in fungal virulence. K.-R. CHUNG (1), J.J. Weiland (2). (1) University of Florida, Lake Alfred, FL; (2) USDA-ARS, Fargo, ND
- 12:00 p.m. Break

Part II

- 1:30 p.m. S-250. Breeding for resistance to *Cercospora* leaf spot: U.S. perspective. L. Panella (1), L.E. HANSON (1). (1) USDA-ARS, Fort Collins, CO
- 1:45 p.m. S-251. Conventional and novel approaches in *Cercospora* resistance breeding. B. HOLTSCULTE (1), D. Stahl (2). (1) KWS SAAT AG, Einbeck, Germany; (2) PLANTA GmbH, Einbeck, Germany
- 2:00 p.m. S-252. Breeding sugar beet hybrids for North American growing areas requiring *Cercospora* leaf spot tolerance. M.M. REKOSKE (1), J. Miller (1), A. Quinn (1). (1) Betaseed, Inc., Shakopee, MN
- 2:15 p.m. S-253. What we know about the genetics of fungicide resistance in *Cercospora* and related *Mycosphaerella*. L.E. HANSON (1). (1) USDA-ARS, Fort Collins, CO
- 2:30 p.m. S-254. Sensitivity of *Cercospora beticola* to foliar fungicides in the northcentral USA. G. SECOR (1), V. Rivera (1), N. Gudmestad (1). (1) North

- 2:45 p.m. S-255. Control of *Cercospora* leaf spot of sugarbeets using fungicides and disease-tolerant cultivars. P.M. IOANNIDIS (1), G. Karaoglanidis (2). (1) Hellenic Sugar Industry S.A., Thessaloniki, Greece; (2) Crop Protection Lab, Platy Imathias, Greece
- 3:00 p.m. Break
- 3:30 p.m. S-256. Quaternary concept of integrated pest management, developed for the control of *Cercospora beticola* in sugar beets. P.F.J. WOLF (1), J.-A. Verreet (2). (1) Technical University Munich, Freising-Weihenstephan, Germany; (2) Christian-Albrechts-University, Kiel, Germany
- 3:45 p.m. S-257. Validation and implementation of the IPM Sugar Beet Model into practice. J.A. VERREET(1), P.F.J. Wolf (2). (1) Christian-Albrechts-University, Kiel, Germany; (2) Technical University Munich, Freising-Weihenstephan Germany
- 4:00 p.m. S-258. *Cercospora* leaf spot prediction models in North America. C.E. WINDELS (1). (1) University of Minnesota, Crookston, MN
- 4:15 p.m. S-259. Integrated management of *Cercospora* leaf spot. B.J. JACOBSEN (1). (1) Montana State University, Bozeman, MT
- 4:30 p.m. S-260. Improving the *Cercospora* leaf spot management model for sugarbeet in North Dakota and Minnesota. M.F.R. KHAN (1,2), J. Khan (1). (1) North Dakota State University, Fargo; (2) University of Minnesota, Fargo, ND

Detection of Invasive Pathogens in Forest and Ornamental Landscapes

8:30 a.m. – 12:30 p.m. * Room 303B

Section: Epidemiology/Ecology/Environmental Biology

Organizer: Jennifer Juzwik, USDA Forest Service, St. Paul, MN

Moderators: Jennifer Juzwik, USDA Forest Service, St. Paul, MN, and Rob Favrin, Canadian Food Inspection Agency, Ottawa, ON, Canada

Sponsoring Committees: Forest Pathology, Epidemiology, Diseases of Ornamental Plants, Regulatory Plant Pathology, Graduate Student

The cost of managing exotic invasive species increases exponentially across the continuum of prediction and prevention, early detection and rapid response, management and mitigation, and rehabilitation and restoration. Besides the associated lower cost, early detection of an invasive plant pathogen affords greater opportunity for eradication or geographic containment of a recently established species. Improved and integrated technologies for various steps in early detection and rapid response activities are needed to stem the tide of exotic invasions. This is particularly challenging for detection at the landscape to macroscale. This symposium will address the current and cutting edge knowledge from delimiting and prioritizing areas for early detection surveys to linkages between an early detection event and eliciting an early response to eradicate or contain the associated disease.

- 8:30 a.m. S-207. Delimiting and prioritizing areas for early detection surveys in forest or ornamental landscapes. R. VENETTE (1). (1) USDA Forest Service, St. Paul, MN
- 9:00 a.m. S-208. Statistical methodologies for early detection surveys in forest and ornamental landscapes. W. TURECHEK (1). (1) USDA-ARS, Beltsville, MD
- 9:30 a.m. S-209. Application of spatial modeling for early detection of sudden oak death in forest landscapes. R. MEENTEMEYER (1). (1) University of North Carolina, Charlotte, NC
- 10:00 a.m. Break
- 10:30 a.m. S-210. Aerial and ground surveys in detection of invasive pathogens in forest landscapes. A. HOPKIN (1). (1) Natural Resources Canada, Sault Ste Marie, ON, Canada
- 11:00 a.m. S-211. Use of classical and molecular technologies in processing samples from early detection surveys. J. WILLIAMS-WOODWARD (1). (1) University of Georgia, Athens, GA
- 11:30 a.m. S-212. Linkages between early detection and early response to invasive pathogens. T.R. GOTTWALD (1). (1) USDA-ARS, Ft. Pierce, FL
- 12:00 p.m. Panel discussion

Evolution in the Current Taxonomy of the Straminipiles: *Phytophthora*, *Pythium* and Beyond

8:30 a.m. – 12:00 p.m. * Room 302AB

Section: Biology of Plant Pathogens

Organizers: Gloria Abad, North Carolina State University, Raleigh, NC; Kelly Ivors, North Carolina State University, Fletcher, NC

Moderators: Gloria Abad, North Carolina State University, Raleigh, NC; Kelly Ivors, North Carolina State University, Fletcher, NC

Sponsoring Committee: Mycology

The oomycetes, including genera such as *Phytophthora*, *Pythium*, and *Aphanomyces*, represent a unique group of plant and animal pathogens taxonomically placed within the new kingdom Straminipila (Straminipiles). This kingdom also includes among other groups, the diatoms, brown algae and golden brown algae. At present, the genus *Phytophthora* consists of more than 80 species, representing some of the world's most destructive plant pathogens. Several novel species of *Phytophthora* have been described in the past few years due to increased survey efforts and the application of molecular phylogenetic tools. The proliferation of newly described species within this genus is indicative of our limited understanding of the diversity and dynamics of *Phytophthora* spp. in various ecosystems. The genus *Pythium* consists of more than 150 species and represents an ecologically and physiologically exceptional group of straminipiles, with world-wide distribution and high levels of niche diversity unsurpassed by any other straminipile or fungus. A significant range of variation in pathogenicity is observed in plant-associated species with high, moderate, and low levels of aggressiveness. Interest in systematics of *Phytophthora*, *Pythium* and other related oomycetes (i.e. Peronosporaceae) has rapidly

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expanded in the last five years. This symposium will include presentations of important contributions to the systematics of *Phytophthora*, *Pythium* and other related genera based on ecology, morphology and molecular data.

- 8:30 a.m. S-213. The pros and cons of ITS-based phylogenetic analysis for the genus *Phytophthora*: Current status and future vision. D.E.L. COOKE (1). (1) Scottish Crop Research Institute, Dundee, UK
- 9:00 a.m. S-214. The utility of mitochondrial DNA for making phylogenetic inferences in the Straminipiles. F.N. MARTIN (1). (1) USDA-ARS, Salinas, CA
- 9:30 a.m. S-215. DNA barcoding and microcoding for the phylogeny and identification of *Pythium* and *Phytophthora* species. C.A. LEVESQUE (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, Canada
- 10:00 a.m. Break
- 10:30 a.m. S-216. Molecular phylogeny of downy mildews: Recent advances, reclassifications, and future challenges. H. VOGLMAYR (1). (1) University of Vienna, Wien, Austria
- 11:00 a.m. S-217. Drawing a line in the sand: Exploring species boundaries with *Phytophthora capsici* and *P. tropicalis*. K.H. LAMOUR (1). (1) University of Tennessee, Knoxville, TN
- 11:30 a.m. S-218. Integration of morphological and molecular characterization for enhancing the identification of *Phytophthora* and *Pythium*. G. ABAD (1). (1) North Carolina State University, Raleigh, NC

Evolution of Virulence in Gram-Positive and Fastidious Bacteria

8:30 – 11:30 a.m. * 303A

Section: Biology of Plant Pathogens

Organizer: Rosemary Loria, Cornell University, Ithaca, NY

Moderator: Rosemary Loria, Cornell University, Ithaca, NY

Sponsoring Committee: Bacteriology

This symposium explores the evolution and diversity of pathogenicity strategies of Gram-positive and fastidious bacteria. Extensive progress is being made in the analysis of pathobiology at the genomic and population levels. Genome sequences of several Gram-positive plant pathogenic bacteria and phytoplasmas have recently become available. From the sequences, it is already clear that there are both conserved and novel virulence loci. There is emerging evidence for common pathogenicity strategies in animal and plant pathogens.

- 8:30 a.m. S-219. The genome of the potato ring rot pathogen, *Clavibacter michiganensis* subsp. *sepedonicus* (*Cms*) suggests recent niche adaptation. S.D. BENTLEY (1), C.A. Ishimaru (2). (1) Wellcome Trust Sanger Institute, Hinxton, UK; (2) University of Minnesota, St. Paul, MN
- 9:00 a.m. S-220. Pathogenicity strategies in the gall-forming bacterium *Rhodococcus fascians*. I. Francis (1), I.

Pertry (1), S. Depuydt (1), E. Stes (1), M. Holsters (1), D. VEREECKE (1). (1) University of Ghent, Ghent, BE

- 9:30 a.m. S-221. *Streptomyces scabies*: What makes a good streptomycete go bad? M. JOSHI (1), E. Johnson (1), R. Seipke (1), S. Moll (1), S. Bentley (2), R. Loria (1). (1) Cornell University, Ithaca, NY; (2) Wellcome Trust Sanger Institute, Hinxton, UK
- 10:00 a.m. Break
- 10:30 a.m. S-222. Exploring the foodborne pathogen *Listeria monocytogenes* as a model organism to probe the molecular evolution and population structure of environmental pathogens. K. NIGHTINGALE (1), R. Nielsen (1), M. Wiedmann (1). (1) Cornell University, Ithaca, NY
- 11:00 a.m. S-223. Living with genome instability: The adaptation of phytoplasmas to diverse environments of their insect and plant hosts. S.A. HOGENHOUT (1). (1) Ohio State University, Wooster, OH

Exploiting Microbial Diversity for New Agents to Biologically Control Plant Diseases: *Myxobacteria* and *Lysobacter* spp.

8:30 a.m. – 12:00 p.m. * Room 301B

Section: Plant Disease Management

Organizer: Carolee Bull, USDA-ARS, Salinas, CA

Moderator: Kendall Martin, William Patterson University, Wayne, NJ

Sponsoring Committees: Biological Control, Bacteriology

We will compare and contrast the biology, taxonomy and biological control potential of *myxobacteria* and *Lysobacter*. These bacteria are unique in their social and predatory lifestyles and represent novel approaches to biological control.

- 8:30 a.m. S-224. Setting the stage: Taxonomy of myxobacteria and other gliding bacteria. E. LANG (1), H. Reichenbach (2), C. Spröer (1), E. Stackebrandt (1). (1) DSMZ GmbH, Braunschweig, Germany; (2) GBF, Braunschweig, Germany
- 9:00 a.m. S-225. Development and secondary metabolite production by myxobacteria. M. SINGER (1), C.W. Shebelut (1), V.D. Pham (1). (1) University of California, Davis, CA
- 9:30 a.m. S-226. Exploiting myxobacterial ecology to control plant diseases. C.T. BULL (1), K.J. Martin (2), M.H. Singer (3). (1) USDA-ARS, Salinas, CA; (2) William Patterson University, Wayne, NJ; (3) University of California, Davis, CA
- 10:00 a.m. Break
- 10:30 a.m. S-227. Ecology and biological control of plant pathogens by *Lysobacter enzymogenes*. G.Y. YUEN (1), D.Y. Kobayashi (2), E.P. Caswell-Chen (3). (1) University of Nebraska, Lincoln, NE; (2) Rutgers University, New Brunswick, NJ; (3) University of California, Davis, CA
- 11:00 a.m. S-228. Molecular mechanisms of interactions

- between *Lysobacter enzymogenes* and plant pathogens. D.Y. KOBAYASHI (1), G.Y. Yuen (2). (1) Rutgers University, New Brunswick, NJ; (2) University of Nebraska, Lincoln, NE
- 11:30 a.m. Discussion. K. MARTIN (1). (1) William Patterson University, Wayne, NJ

Population and Species Divergence in Fungi

8:30 a.m. – 12:00 p.m. * Room 304AB

Section/Sponsor: Mycological Society of America

Organizer/Moderator: Linda Kohn, University of Toronto, Mississauga, ON, Canada

This symposium is focused on the mechanisms of population divergence and speciation in fungi. Talks will explore the impacts of domestication, including deployment of plant varieties or fungicides on fungal population structure and speciation. Experimental systems will be presented that dissect the roles of adaptation and drift on populations and the mechanisms of reproductive isolation such as negative epistasis and reinforcement on speciation.

- 8:30 a.m. S-238. Population divergence in *Phytophthora ramorum*. N.J. GRUNWALD (1). (1) USDA ARS, Corvallis, OR
- 9:00 a.m. S-239. Population structure of *Ustilago maydis* virus H1 across the Americas. P.D. VOTH (1). (1) University of Minnesota, St. Paul, MN
- 9:30 a.m. S-240. The effects of divergent selection on the compatibility among experimental populations of *Neurospora*. J. DETTMAN (1). (1) University of Toronto, Mississauga, ON, Canada
- 10:00 a.m. Break
- 10:30 a.m. S-241. Genetic structure of the species complex *Botrytis cinerea*. E. FOURNIER (1). (1) INRA Unité PMDV, Versailles, France
- 11:00 a.m. S-242. Tales of the Gold Rush: gene flow with South America in a newly discovered population of *Sclerotinia sclerotiorum* associated with California lettuce crops. G. MALVAREZ (1). (1) University of Toronto, Mississauga, ON, Canada
- 11:30 a.m. S-243. Gene flow and reproductive mode in *Rhizoctonia* from native Amazonian soils and adjacent agricultural soils. P. CERESINI (1). (1) Institute of Integrative Biology, Zurich, Switzerland

Teaching Non-Traditional Mycology/Plant Pathology Courses for Undergraduates

8:30 a.m. – 12:00 p.m. * Room 203

Section: Professionalism/Service/Outreach

Organizer: George Hudler, Cornell University, Ithaca, NY

Moderator: Charles Mims, University of Georgia, Athens, GA

Sponsoring Committees: Teaching, Mycology

The success of several mycology/plant pathology courses for non-science majors has generated considerable interest from mycologists and plant pathologists at other institutions both in Canada and the U.S. In this symposium eight teachers of such

courses will share their experiences in starting and continuing their programs, leaving plenty of time for discussion.

- 8:30 a.m. S-229. Introduction. C. MIMS (1). (1) University of Georgia, Athens, GA
- 8:45 a.m. S-230. Expecting the unexpected. G. HUDLER (1). (1) Cornell University, Ithaca, NY
- 9:00 a.m. S-231. Fungi: Friends and foes. C. MIMS (1). (1) University of Georgia, Athens, GA
- 9:15 a.m. S-232. Plants, plagues, and people. S.B. SELKE (1). (1) University of Florida, Gainesville, FL
- 9:30 a.m. S-233. Active learning in plants, parasites, and people. A. MACGUIDWIN (1). (1) University of Wisconsin, Madison, WI
- 9:45 a.m. S-234. Plant pathology in a Jesuit education. G. SCHUMANN (1). (1) Marquette University, Milwaukee, WI
- 10:00 a.m. Break
- 10:30 a.m. S-235. Fungal biotechnology and biochemistry. D. GILCHRIST (1). (1) University of California, Davis, CA
- 10:45 a.m. S-236. Mushrooms and undergraduates in the classroom together. D. PORTER (1). (1) University of Georgia, Athens, GA
- 11:00 a.m. S-237. Science and society: Incorporating science education into a broader undergraduate teaching program. D. RIZZO (1). (1) University of California, Davis, CA
- 11:15 a.m. Discussion

Viruses as Minimalist Pathogens: Multiplicity of Protein Functions in Pathogenesis

8:30 a.m. – 12:00 p.m. * Room 301A

Section: Molecular/Cellular Plant-Microbe Interactions

Organizers: Rosemarie Hammond, USDA ARS, Beltsville, MD; D'Ann Rochon, Agriculture and Agri-Food Canada, Summerland, BC, Canada

Moderators: Rosemarie Hammond, USDA ARS, Beltsville, MD; D'Ann Rochon, Agriculture and Agri-Food Canada, Summerland, BC, Canada

Sponsoring Committee: Virology

Financial Sponsors: APHIS Virus Working Group, Samuel Roberts Noble Foundation

Because plant viruses have very small genomes, the proteins they encode have evolved to have multiple functions, eg. in addition to encapsidation, the capsid protein may be involved in cell-to-cell or long distance movement and vector transmission. In addition, seemingly unrelated proteins from different viruses may perform similar functions, eg. suppression of gene silencing and movement. This symposium will focus on presenting an overview of viral protein function with the goal of improving our understanding of viral pathogenesis.

- 8:30 a.m. S-244. The multifunctional role of plant virus coat proteins. T. SIT (1). (1) North Carolina State University, Raleigh, NC

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- 9:00 a.m. S-245. An overview of virus transport and the multifaceted contributions by the *Tombusvirus* P19. H.B. SCHOLTHOF (1). (1) Texas A&M University, College Station, TX
- 9:30 a.m. S-246. Replication proteins of positive-strand RNA plant viruses. K.A. WHITE (1). (1) York University, Toronto, ON, Canada
- 10:00 a.m. Break
- 10:30 a.m. S-247. Suppressors of RNA silencing encoded by viruses and the influence of environmental factors on their role in virus infections. T.J. MORRIS (1), F. Qu (1). (1) University of Nebraska, Lincoln, NE
- 11:00 a.m. S-248. Virus proteins regulating transmission specificity by arthropods. S.M. GRAY (1). (1) USDA-ARS, Ithaca, NY
- 11:30 a.m. S-249. Vector transmission by fungi and protists and the virus uncoating mechanism. D. ROCHON (1). (1) Agriculture and Agri-Food Canada, Summerland, BC, Canada

2006 APS Foundation Student Travel Awards



Congratulations to the recipients of the 2006 APS Foundation Student Travel Awards! The APS Foundation is pleased to provide APS Annual Meeting travel awards of \$500 to the following 31 individuals. Special thanks to the members of the APS Graduate Student Committee, chaired by **Angela Records**, for their assistance in reviewing travel award applications.

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Kristen McGovern, *University of Maine*

The C. Lee Campbell Award
Yeon Yee Oh, *North Carolina State University*

The Gustaaf A. and Ineke de Zoeten Award
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Sushma Jossey, *University of Illinois, Urbana-Champaign*
Charles Hagen, *University of California, Davis*

The Elsie J. and Robert Aycock Award and APS Council Award
Damon Smith, *North Carolina State University*

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Miguel Vega-Sanchez, *Ohio State University*

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Katrina Duttweiler, *Iowa State University*

The Forest Pathology Award and The APS Council Award
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Angela Nelson, *Cornell University*

The Harry E. Wheeler Award and The APS Council Award
Alan Chambers, *Brigham Young University*

The Zahir Eyal Award and The Roger C. Pearson Award
Anjali More, *University of Arkansas*

The John F. Fulkerson Award and The Larry W. Moore Award
Christopher Wallis, *Ohio State University*

The Richard L. Gabrielson Award and The Stuart D. Lyda Award
Alexandre Mello, *Oklahoma State University*

The Janell Stevens Johnk Award and The Dennis H. Hall Award
Cassandra Swett, *University of Hawaii at Manoa*

The Malcolm and Catherine Quigley Award and The Kenneth and Betty Barker Award
Maryann Borsick, *Cornell University*

APS POSTERS

Biology of Plant Pathogens

Bacteria – Systematics/Evolution/Ecology

- AP-244. A novel function of stomata in innate immunity against plant and human pathogenic bacteria. M. MELOTTO (1), W. Underwood (1), S. He (1). (1) Michigan State University, Plant Research Lab, East Lansing, MI, USA
- AP-245. A putative detoxification efflux pump from *Leifsonia xyli* subsp. *xyli* is up regulated in the presence of albicidin. R. M. Barata (1), L. E. CAMARGO (1). (1) Escola Superior de Agricultura Luiz de Queiroz, Setor de Fitopatologia, Piracicaba, SP, Brazil
- AP-246. Assessment of a specific primer for *Erwinia tracheiphila*, causal agent of cucurbit bacterial wilt. X. Wen (2), M. GLEASON (2), J. C. Batzer (2), G. A. Beattie (2), G. Lewis (1). (1) Carleton College, Northfield, MN, USA; (2) Iowa State University, Ames, IA, USA
- AP-247. Characterization of strains carrying *avrBs2*, their effector gene mutations, and association with aggressiveness in the field. M. L. KATAWCZIK (1), D. F. Ritchie (1). (1) North Carolina State University, Raleigh, NC, USA
- AP-248. Characterization of the bacterial leaf spot pathogen *Pseudomonas syringae* pv. *maculicola* from field outbreaks in South Carolina. P. WECHTER (3), A. P. Keinath (1), P. Smith (2). (1) Coastal Research & Education Center, Charleston, SC, USA; (2) Edisto Research and Education Center, Blackville, SC, USA; (3) USDA-ARS US Vegetable Laboratory, Charleston, SC, USA
- AP-249. Comparison of xylem colonization by *Clavibacter michiganensis* subsp. *michiganensis* and *Agrobacterium vitis* using microfluidics. T. V. TAYLOR (1), C. D. Smart (1), T. J. Burr (1), H. C. Hoch (1). (1) Department of Plant Pathology, Cornell University, Geneva, NY
- AP-250. Effect of potato suberin on pathogenic *Streptomyces scabiei* strain EF-35. M. FOREST (1), A. Lauzier (1), G. Grondin (1), C. Beaulieu (1). (1) Université de Sherbrooke, Sherbrooke, Québec, Canada
- AP-251. Genetic diversity and characterization of *Xanthomonas oryzae* pathovar *oryzae* strains from Korea. B. LEE (2), Y. Park (2), E. Song (2), J. Kim (2), H. Cho (2), T. Noh (1). (1) Honam Agricultural Research Institute, Iksan, 570-080, Rep. of Korea; (2) National Institute of Agricultural and Biotechnology, RDA, 441-707, Suwon, Rep. of Korea
- AP-252. Genetic relatedness among *Acidovorax avenae* subspecies *avenae*, *citrulli*, and *cattleyae*. E. POSTNIKOVA (1), A. Vidaver (2), I. Agarkova (2), A. Sechler (1), N. Schaad (1). (1) FDWSRU, ARS, USDA, Ft. Detrick, MD; (2) University of Nebraska, Lincoln, NE
- AP-253. GFP technology for ecological studies of *Pseudozyma flocculosa* in tritrophic interactions. B. Neveu (1), G. CLÉMENT-MATHIEU (1), C. Labbé (1), R. Bélanger (1). (1) Laval University, Quebec, Canada
- AP-254. Molecular and pathogenic characterization highlight substantial differences between Asian and African strains of *Xanthomonas oryzae* pathovars. C. GONZALEZ (2), B. Szurek (3), M. C. Duque (1), C. Manceau (4), T. Mathieu (3), S. Yacouba (5), V. Verdier (3). (1) CIAT, Biotechnology Research Unit, AA6713, Cali, Colombia; (2) UMR 5096 CNRS-UP-IRD, 66860 Perpignan, France; (3) UMR 5096 CNRS-UP-IRD, Centre IRD, 34394 Montpellier, France; (4) UMR de Pathologie Végétale, INRA, Station de Pathologie Végétale, 49071 Beaucazoué Cedex, France; (5) WARDA-The Africa Rice Center, Cotonou, Bénin
- AP-255. *Pantoea stewartii* subsp. *stewartii* is a motile bacterium, with motility serving a key role in Stewart's wilt disease development. C. HERRERA (1), M. Koutsoudis (1), S. B. Von Bodman (1). (1) University of Connecticut, Storrs, CT, USA
- AP-256. Phenotypical characteristics of Korean strains of *Xanthomonas smithii* subsp. *citri* from citrus bacterial canker. S. LEE (3), J. Lee (3), S. Kim (3), S. Heu (3), D. Ra (3), Y. Kim (3), J. Hyun (4), Y. Han (2), E. Park (1). (1) Department of Agricultural Biotechnology, Seoul National University, Seoul, Korea; (2) Epinet Co., Ltd., Suwon, Korea; (3) Plant Pathology Division, National Institute of Agricultural Science and Technology, RDA, Suwon, Korea; (4) Subtropical Environment Division, National Institute of Subtropical Agriculture, RDA, Jeju, Korea
- AP-257. Role of brassinosteroids in autoregulation of nodulation. T. A. O'ROURKE (3), B. J. Ferguson (2), J. B. Reid (1), E. Foo (1). (1) UTAS, Hobart, Tasmania, Australia; (2) UTAS, Hobart, Tasmania, Australia; Current ARC Centre of Excellence for Integrative Legume Research, UQ, Queensland, Australia; (3) UTAS, Hobart, Tasmania, Australia; Currently UWA, Perth, WA Australia
- AP-258. Site-directed mutagenesis of *acvB* gene in a Pierce's disease strain of *Xylella fastidiosa*. R. HERNANDEZ-MARTINEZ (1), K. C. Dumenyo (2), D. A. Cooksey (1). (1) Department of Plant Pathology, University of California, Riverside 92521; (2) Tennessee State University, Inst. of Agricultural & Environmental Research, Nashville, TN
- AP-259. The PPI website: Information hub for genome viewing and analysis, Hop nomenclature, and ongoing annotation of three *Pseudomonas syringae* genomes. M. LINDEBERG (1), C. Collmer (2), A. Collmer (1). (1) Cornell University, Ithaca, NY, USA; (2) Wells College, Aurora, NY, USA
- AP-260. Variation of *pspB* (PD1208) locus among closely related *Xylella fastidiosa* strains. J. CHEN (1), R. Groves (1), E. Civerolo (1). (1) USDA-ARS, Parlier, CA, USA

Fungi – Systematics/Evolution/Ecology

- AP-261. A new genus of a dematiaceous anamorphic fungus from the Brazilian tropical rain forest. J. L. BEZERRA (1). (1) CEPLAC, Itabuna, Bahia, Brazil
- AP-262. A proteome-level analysis of the phytopathogenic fungus *Sclerotinia sclerotiorum*. B. YAJIMA (1), N. Kav (1). (1) University of Alberta, Edmonton, Alberta, Canada
- AP-263. Assessment of an RFLP-based technique for identifying members of the sooty blotch and flyspeck complex on apples. K. B. DUTTWEILER (1), G. Sun (2), J. C. Batzer (1), M. L. Gleason (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA, 50011; (2) Northwest A&F University, Yangling, Shaanxi Province, P.R. China
- AP-264. Banana leaves as a substitute for carnation leaves in characterizing *Fusarium* spp.. S. S. NAVI (2), A. G. Girish (1), R. P. Thakur (1), X. B. Yang (2). (1) ICRISAT, Patancheru, P.O., A.P. 502 324, India; (2) Plant Pathology Dept., Iowa State University, Ames, IA, USA
- AP-265. Comparative analysis of the mitochondrial genome organization in *Phytophthora* species and related Straminopiles. J. B. RISTAINO (1), B. Liu (1), I. Carbone (1), M. Campbell (2). (1) North Carolina State University, Raleigh, NC; (2) The Institute for Genomics Research, Rockville, MD
- AP-266. Comparative pathogenicity of *Verticillium dahliae* populations from crops and weeds on chile and cotton. J. L. CARPENTER (1). (1) NMSU, Las Curces, NM, US
- AP-267. Comparison of diversity in the sooty blotch and flyspeck apple disease complex in Germany and the U.S.A. based on parsimony analysis of ribosomal DNA. J. C. BATZER (1), T. Feldmann (2), M. Gleason (1), B. Oertel (2). (1) Iowa State University, Ames, IA, USA; (2) Universitat Bonn, Bonn Germany
- AP-268. WITHDRAWN. Comparison of inoculated plant tissues as substrates for sclerotium formation by *Sclerotinia sclerotiorum* and *Sclerotium rolfsii*. R. G. PRATT (1). (1) USDA, ARS, Mississippi State, MS, USA
- AP-269. *Diaporthe phaseolorum* variability and its distribution in soybean fields in Iowa. X. LU (1), A. E. Robertson (1), F. W. Nutter (1). (1) Iowa State University, Ames, IA, USA
- AP-270. Effect of apple juice on *in vitro* morphology of four newly discovered fungi in the sooty blotch and flyspeck complex. F. Le Corrond (1), J. BATZER (2), M. Gleason (2). (1) ESMISAB, University of Western Brittany, Plouzané, France; (2) Iowa State University, Ames, IA, USA
- AP-271. Estimating diversity of *Phytophthora* in forest soils and streams in Southwest Oregon and Northwest California. P. W. REESER (1), E. M. Hansen (1), C. Hesse (1), D. M. Rizzo (2), W. C. Sutton (1). (1) Oregon State University; (2) University of California-Davis
- AP-272. Expansion of the sooty blotch and flyspeck complex on apples in the eastern U.S. based on analysis of ribosomal DNA and fungal morphology. M. DÍAZ (2), J. Batzer (1), M. Gleason (1). (1) Iowa State University, Ames, IA, USA; (2) School of Agronomy, University of Costa Rica, San José, Costa Rica
- AP-273. Field release of *Gibberella zeae* genetically modified to lack ascospores. A. E. DESJARDINS (3), R. D. Plattner (3), G. E. Shaner (1), D. W. Brown (3), G. C. Buechley (1), R. H. Proctor (3), G. B. Turgeon (2). (1) Botany and Plant Pathology Department, Purdue University, West Lafayette, IN, USA; (2) Plant Pathology Department, Cornell University, Ithaca, NY, USA; (3) USDA ARS NCAUR, Peoria, IL, USA
- AP-274. First report of sooty blotch and flyspeck fungi on plum in the U.S.A.. J. Latinovic (2), J. C. BATZER (1), M. Gleason (1), K. Duttweiler (1). (1) Iowa State University, Ames, IA, USA; (2) University of Montenegro, Podgorica, Serbia and Montenegro
- AP-275. Flyspeck signs on apple are caused by several species of fungi. J. C. BATZER (2), P. Crous (1), M. Gleason (2), M. Diaz (3), A. Dombroski (2). (1) Centraalbureau voor Schimmelculture, Fungal Biodiversity Centre, Uppsalalaan 8, CT Utrecht, The Netherlands; (2) Iowa State University, Ames, IA, USA; (3) School of Agronomy, University of Costa Rica, San Jose, Costa Rica
- AP-276. Gene duplication in fungal pathogenesis. A. J. POWELL (2), G. C. Conant (3), I. Carbone (1), A. M. Evangelisti (4), D. E. Brown (1), R. A. Dean (1). (1) CIFR, North Carolina State University, Raleigh, NC, USA; (2) CIFR, Duke and North Carolina State Universities, Raleigh, NC, USA; (3) Trinity College, Dublin, Ireland; (4) University of New Mexico, Albuquerque, NM, USA
- AP-277. Genetic structure of populations of the tobacco blue mold pathogen, *Peronospora tabacina* in North and Central America and the Caribbean. M. BLANCO (1), J. Ristaino (1), I. Carbone (1), K. Ivors (1). (1) North Carolina State University
- AP-278. Genetic variation of two populations of *Gaeumannomyces graminis* var. *avenae* isolated from turfgrass. H. M. FOULY (1), F. Siew (1), R. T. Kane (1), H. T. Wilkinson (1). (1) University of Illinois, Urbana, IL
- AP-279. Hybridization and recombination in exotic and endemic *Sclerotinia* species in Alaska. L. M. WINTON (2), R. H. Leiner (1), A. L. Krohn (2). (1) Department of Plant, Animal, and Soil Sciences, University of Alaska Fairbanks, Fairbanks, AK; (2) USDA Agricultural Research Service, Subarctic Agricultural Research Unit, Fairbanks, AK
- AP-280. Isolation and characterization of recombinant antibodies specific to a cell wall degrading enzyme secreted by *Sclerotinia sclerotiorum*. B. YANG (1), N. Kav (1). (1) University of Alberta, Edmonton, Alberta, Canada

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- AP-281. Molecular and pathogenic variability in colombian isolates of *Phytophthora sojae*. A. Tapiero (1), D. Garnica (2), A. Gordillo (1), A. Bernal (2), S. RESTREPO (2). (1) Corpoica, Bogotá, Colombia; (2) Universidad de los Andes, Bogotá, Colombia
- AP-282. Mushroom cultivation: Its ecological and economical values. M. CHEN (1), S. Y. Wong (1). (1) University and Jepson Herbaria, UC Berkeley
- AP-283. Overwintering of *Sclerotium rolfsii* and *Sclerotium rolfsii* var. *delphinii* in North Dakota, Iowa, North Carolina, and Georgia. Z. XU (1), M. Gleason (1), D. Mueller (1), C. A. Bradley (3), J. Buck (4), M. Benson (2). (1) Iowa State University, Ames, IA, USA; (2) North Carolina State University, Raleigh, NC, USA; (3) North Dakota State University, ND, USA; (4) The University of Georgia, Griffin, GA, USA
- AP-284. Pathogenic and molecular characterization of *Phomopsis longicolla*, the fungus that causes soybean seed decay. S. LI (1), G. L. Hartman (2). (1) USDA-ARS, Crop Genetics and Production Research Unit, Stoneville, MS 38776; (2) USDA-ARS, University of Illinois, Urbana, IL
- AP-285. *Phytophthora foliorum* sp. nov., a new species causing leaf blight of azalea. S. L. THOMAS (1), C. L. Blomquist (1), R. S. Donahoo (2), K. H. Lamour (2). (1) California Department of Food and Agriculture, Sacramento, CA; (2) Department of Entomology and Plant Pathology, University of Tennessee, Knoxville, TN
- AP-286. *Phytophthora siskiyouensis*, a new species from soil and water in Southwest Oregon. P. W. REESER (1), W. C. Sutton (1), E. M. Hansen (1). (1) Oregon State University
- AP-287. Polyphasic taxonomic analysis of *Phytophthora capsici*. E. LUZ (1), A. Cerqueira (1), J. Bowers (2), J. De Souza (1). (1) CEPLAC; (2) Maryland Department of Agriculture
- AP-288. *Puccinia jaceae* var. *solstitialis* emergence and survival on yellow starthistle in California. A. J. FISHER (1). (1) USDA-ARS, Albany, CA, USA
- AP-289. Quantitative evolution of pathogen aggressiveness under two-cultivar mixtures. J. ZHAN (1), B. Marshall (1), A. Newton (1). (1) Scottish Crop Research Institute
- AP-290. Revised description of *Cercospora cornicola*. K. N. CONNER (1), G. Morgan-Jones (1), K. L. Bowen (1). (1) Dept. Entomol & Plant Pathology, Auburn University, AL, USA
- AP-291. Species causing wheat Septoria diseases in various regions of Russia. A. A. SANINA (1), P. V. Elena (1), X. Chen (2). (1) All-Russian Research Institute of Phytopathology, Moscow, Russia; (2) USDA-ARS, Washington State University, Pullman, WA
- AP-292. Species of *Phytophthora* and *Pythium* identified in a long term collection from North Carolina. Z. A. ABAD (3), J. A. Abad (1), T. Creswell (2). (1) Dept. of Plant Pathology, North Carolina State University, Raleigh, USA; (2) Plant Disease and Insect Clinic, Dept. of Plant Pathology, North Carolina State University, Raleigh, USA; (3) Plant Pathogen Identification Laboratory, Dept. of Plant Pathology, North Carolina State University, Raleigh, USA
- AP-293. The RNA polymerase II gene (*RPB2*) in *Phaeosphaeria nodorum*. A. Malkus (2), P. Chang (1), E. Arseniuk (2), P. UENG (3). (1) Department of Plant Pathology, National Chung Hsing University, Taichung 402, Taiwan; (2) Department of Plant Pathology, Plant Breeding and Acclimatization Institute, Radzikow, Poland; (3) Molecular Plant Pathology Laboratory, U.S. Department of Agriculture, ARS, Beltsville, MD, USA
- AP-294. Two different natural hybrids of *Phytophthora cactorum* occupy two different ecological niches. W. A. MAN IN T VELD (2), A. W. De Cock (1), R. C. Summerbell (1). (1) Centraal Bureau voor Schimmelcultures, Utrecht, the Netherlands; (2) Plant Protection Service, Wageningen, the Netherlands

Nematodes – Systematics/Evolution/Ecology

- AP-295. Determination of lethal temperature for *Meloidogyne incognita*. K. WANG (1), R. McSorley (1). (1) University of Florida, Gainesville, FL, USA
- AP-296. Impact of *Pratylenchus penetrans* (Nematoda) on *Heterodera* spp. resistant cultivar performance. C. L. BATES (1), J. F. Davenport (1), G. W. Bird (1). (1) Michigan State University, East Lansing, MI, USA
- AP-297. Nematotoxicity of alkaloids from endophyte-infected tall fescue. A. A. BACETTY (1), M. E. Snook (1), C. W. Bacon (1). (1) USDA, ARS, Russell Research Center, Athens, GA, USA
- AP-298. The potato pathotype of, *Nacobbus aberrans*, the false root-knot nematode: A risk assessment on non-potato root crops for consumption. L. G. BROWN (1), L. C. Millar (1), G. R. Parra (1). (1) USDA APHIS PPQ CPHST-PERA, Raleigh, NC
- AP-299. The wheat gall nematode, *Anguina tritici*: A qualitative pest risk assessment for this nematode in U.S. wheat for export. L. C. Millar (1), L. G. BROWN (1), B. Randall-Schadel (1), S. C. Redlin (1). (1) USDA APHIS PPQ CPHST-PERAL, Raleigh, NC

Phytoplasmas/Spiroplasmas/Fastidious Prokaryotes

- AP-300. Assessment of genetic diversity in *Spiroplasma citri* by RAPD, rep-PCR and bacteriophage primers. A. F. MELLO (2), R. K. Yokomi (3), U. Melcher (1), J. Chen (3), J. Fletcher (2). (1) Oklahoma State University, Dept of Biochemistry and Molecular Biology, Stillwater, OK, USA; (2) Oklahoma State University, Dept of Entomology & Plant Pathology, Stillwater, OK, USA; (3) USDA-ARS, Parlier, CA, USA
- AP-301. Characterization of a putative Two-Partner-Secretion pathway protein in *Xylella fastidiosa*. T. M. VOEGEL (2), B. C. Kirkpatrick (1). (1) Dept. of Plant Pathology, University of California, Davis, CA; (2) University of Freiburg, Center for Applied Biosciences, Freiburg, Germany

- AP-302. Characterization, phylogeny and in planta expression of a lipase gene from Malaysian periwinkle yellows (MPY) phytoplasma, member of subgroup16SrI-B. R. Jomantiene (1), A. NATILLA (2), R. Hammond (2), R. E. Davis (2). (1) Institute of Botany, Vilnius, Lithuania; (2) USDA-Agricultural Research Service, Beltsville, MD, USA
- AP-303. Detection of *Candidatus Liberibacter asiaticus* from citrus Huanglongbing samples in China by nested conventional and real-time PCR. J. CHEN (2), X. Deng (1), G. Zhou (1), Z. Feng (1), J. Xu (1), Q. Liu (1), E. Civerolo (2). (1) South China Agr. University, Guangzhou, China; (2) USDA-ARS, Parlier, CA, USA
- AP-304. Evaluation of genomic variation in *Spiroplasma kunkelii*. P. D. CARPANE (2), U. Melcher (2), I. G. Laguna (1), M. Gimenez (1), W. Dolezal (3), J. Fletcher (2). (1) INTA - IFFIVE (Argentina); (2) Oklahoma State University; (3) Pioneer Hi-Bred International
- AP-305. Identification of phytoplasma in *Fraxinus* sp. using optical techniques. J. J. FILGUEIRA (1), L. Franco-Lara (1), K. Avila (1), A. M. Orostegui (1). (1) Nuevo Granada Military University, Bogota Colombia
- AP-306. Molecular characterization of watercress yellows phytoplasma and its transmission by *Macrostelus* sp. in Hawaii. W. B. Borth (2), R. P. Almeida (1), S. K. Fukuda (2), R. T. Hamasaki (2), K. Choy (2), J. S. HU (2). (1) University of California, Berkeley, CA 94720; (2) University of Hawaii, Honolulu, HI
- AP-307. Multigenic sequence comparison of *Xylella fastidiosa* pear leaf scorch strains from Taiwan to strains from Americas. J. CHEN (2), C. Su (1), C. Chang (3). (1) Taiwan Agr. Chem. and Toxic Sub. Res. Inst., Wu Fung, Taiwan; (2) USDA-ARS, Parlier, CA, USA; (3) University of Georgia, Griffin, GA, USA
- AP-308. Sequence and annotation of the Western X-disease phytoplasma. L. W. Liefing (1), M. T. Britton (3), D. R. Cook (2), B. C. KIRKPATRICK (2). (1) Biosecurity New Zealand, MAF, Auckland, New Zealand; (2) Department of Plant Pathology, University of California, Davis, CA 95616; (3) Department of Plant Sciences, University of California, Davis, CA 95616
- Postharvest Pathology and Mycotoxicology**
- AP-309. A preharvest application of pyraclostrobin and boscalid for the control of postharvest gray mold and blue mold in apple. C. L. XIAO (1), R. J. Boal (1). (1) Washington State University, TFREC, Wenatchee, WA
- AP-310. Assessing the colonization potential of *Aspergillus flavus* strains on corn under field conditions using a pin bar inoculation technique. H. K. ABBAS (1), R. M. Zablotowicz (2), H. Bruns (1). (1) USDA-ARS, Crop Genetic & Production Research Unit; (2) USDA-ARS, Southern Weed Science Research Unit
- AP-311. Biocontrol activity of recombinant *Pichia pastoris* constitutively expressing pea defensin against blue mold of apple. W. J. JANISIEWICZ (1), I. B. Pereira (3), M. S. Almeida (3), D. P. Roberts (2), M. Wisniewski (1), E. Kurtenbach (3). (1) USDA-ARS, Appalachian Fruit Research Station, Kearneysville, WV, USA; (2) USDA-ARS, SASL, Beltsville, MD; (3) Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
- AP-312. Biocontrol of *Listeria monocytogenes* on fresh-cut honeydew melons using a bacterial antagonist and bacteriophage. Y. Hong (2), B. Leverentz (5), W. S. CONWAY (5), W. J. Janisiewicz (4), M. Abadias (1), M. J. Camp (3). (1) IRTA, 25198 Lleida, Catalonia, Spain; (2) NHRI, RDA, Suwon, Korea; (3) SDA-ARS, BCS, Beltsville, MD 20705; (4) USDA-ARS, AFRS, Kearneysville, WV 25430; (5) USDA-ARS, PQSL, Beltsville, MD, USA
- AP-313. Biofumigation potential of *Muscodor albus* volatiles in the storage of potato tubers. R. Corcuff (2), J. Mercier (1), X. Marquet (2), J. ARUL (2). (1) AgraQuest, Inc., Davis, CA 95616, USA; (2) Department of Food Science and Nutrition & Horticultural Research Centre, Université Laval, Québec, QC, G1K 7P4, Canada
- AP-314. Characterization of polyketide synthase genes from *Fusarium verticillioides*. R. H. PROCTOR (1), R. A. Butchko (1), D. W. Brown (1), M. Busman (1), R. D. Plattner (1). (1) USDA-ARS-NCAUR, Peoria, IL, USA
- AP-315. Chlorine dioxide gas controls postharvest pathogens of tomato by mass transfer from a source to the fruit. J. A. BARTZ (2), M. J. Mahovic (2), J. Tenney (1). (1) ICA TriNova LLC., Marietta, GA; (2) University of Florida
- AP-316. Control of building mold colonization of drywall with volatiles from *Muscodor albus*. J. MERCIER (1), J. I. Jimenez (1). (1) AgraQuest Inc., Davis, CA, USA
- AP-317. Effect of planting date on aflatoxin and fumonisin contamination in commercial corn hybrids in Arkansas. H. K. ABBAS (2), W. T. Shier (4), B. J. Johnson (1), R. D. Cartwright (3), Y. Dong (4). (1) USDA-ARS, CG&PRU, Stoneville, MS, USA; (2) USDA-ARS, Crop Genetics and Production Research Unit, Stoneville, MS, USA; (3) University of Arkansas Division of Agriculture, Fayetteville, AR, USA; (4) University of Minnesota, Minneapolis, MN, USA
- AP-318. Integration under commercial conditions of antifungal treatments and CA-storage to control gray mold and maintain quality of 'Wonderful' pomegranates. L. PALOU (1), C. H. Crisosto (2), D. Garner (2). (1) Departament de Postcollita, Institut Valencià d'Investigacions Agràries (IVIA), Montcada, València, Spain; (2) Department of Plant Science, University of California, Davis, Kearney Agricultural Center, Parlier, CA
- AP-319. Profiles of the mycotoxigenic fungi and mycotoxins in fresh and ensiled maize silage from commercial

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- dairies in Pennsylvania. G. A. KULDAU (2), M. A. Mansfield (2), D. D. Archibald (1), A. Jones (3). (1) Department of Crop and Soil Sciences, The Pennsylvania State University, University Park, PA, USA; (2) Department of Plant Pathology, The Pennsylvania State University, University Park, PA, USA; (3) Departments of Biochemistry and Molecular Biology and Chemistry, Michigan State University, East Lansing, MI, USA
- AP-320. Virulence factors associated with *Penicillium expansum* and *P. solitum* during decay of apple fruit. J. L. MCEVOY (1), W. S. Conway (1), W. J. Janisiewicz (2). (1) ARS, Beltsville, MD, USA; (2) ARS, Kearneysville, WV, USA
- Viruses – Systematics/Evolution/Ecology**
- AP-321. A novel *Vitivirus* infects *Mentha* spp.. I. E. Tzanetakis (1), K. E. Keller (2), J. D. Postman (3), R. R. MARTIN (2). (1) Oregon State University, Corvallis, OR, USA; (2) USDA-ARS HCRL, Corvallis, OR, USA; (3) USDA-ARS NCGR, Corvallis, OR, USA
- AP-322. Cowpea viruses: Effect of single and mixed infections on symptomatology and virus concentration. M. A. TAIWO (1), K. Apampa (1), I. Y. Nsa (1), J. Hughes (2). (1) Dept. of Botany & Microbiology, University of Lagos, Akoka, Lagos, Nigeria; (2) International Institute of Tropical Agriculture, (IITA), Ibadan, Nigeria
- AP-323. Geographic distribution and molecular variation of beet pseudo yellows crinivirus isolates in Costa Rican cucurbits. P. Ramirez (3), E. Hernandez (3), F. Mora (3), R. Abraitis (1), R. W. HAMMOND (2). (1) Institute of Biotechnology, Vilnius, Lithuania; (2) USDA ARS MPPL, Beltsville, MD 20705, USA; (3) University of Costa Rica, San Jose, Costa Rica
- AP-324. Host resistance to *Mirafiori lettuce big-vein virus* and virus sequence diversity in the western United States. W. M. WINTERMANTEL (1), R. J. Hayes (1). (1) USDA-ARS, Salinas, CA, USA
- AP-325. Incidence and diversity of *Citrus tristeza virus* in Hawaii. M. Melzer (4), W. Borth (4), F. Zee (1), S. Garnsey (3), M. Hilf (2), J. S. HU (4). (1) USDA-ARS PBARC, Hilo HI 96720; (2) USDA-ARS US Horticultural Research Laboratory, Fort Pierce, FL 34945; (3) University of Florida, Lake Alfred, FL 33850; (4) University of Hawaii, Honolulu, HI 96822
- AP-326. Incidence of *barley yellow mosaic virus* on varying rates of *Polymixa graminis* infected soils in 3 different barley cultivars. J. HYUN (1), Y. Hong (3), D. Park (3), J. Park (1), M. Kim (1), J. Choi (1), J. Kim (1), K. Jung (1), K. Lee (2). (1) Honam Agricultural Research Institute, RDA, Iksan, Korea; (2) National Kyungpook University, Taegu, Korea; (3) Yeongnam Agricultural Research Institute, NICS, RDA, Milyang, 627-803, Korea
- AP-327. Isolation and characterization of Korean-Naju strains of barley mild mosaic virus. G. JONSON (1), J. Park (1), M. Kim (1), J. Hyun (1), J. Kim (1), K. Jung (1). (1) Honam Agricultural Research Institute, NICS, RDA, Iksan, 570-080, Korea
- AP-328. Molecular and biological characterization of a novel ilarvirus in bacopa. C. J. MAROON-LANGO (3), J. Aebig (2), J. Hammond (1), H. Hsu (1). (1) Floral and Nursery Plants Research Unit, USDA-ARS, U.S. National Arboretum, Beltsville, MD; (2) NIH/NIAID/MVDU, 5640 Fisher's Lane, Rockville, MD; (3) USDA, APHIS, PPQ, PHP, Plant Germplasm Quarantine Program, Beltsville, MD
- AP-329. Partial genomic sequence and characterization of a novel carlavirus isolated from *Phlox divaricata*. J. HAMMOND (1), M. D. Reinsel (1). (1) USDA-ARS, USNA, FNPRU, Beltsville, MD, USA
- AP-330. Phylogenetic analysis of the N gene links Georgia strains of *Iris yellow spot virus* to strains from Peru. C. NISCHWITZ (4), S. W. Mullis (4), A. S. Csinos (4), D. B. Langston (4), A. N. Sparks (3), R. L. Torrance (2), Z. C. Rafael Mallaupoma (1), E. H. Inguil Rojas (1), R. D. Gitaitis (4). (1) National Onion Labs, Lima, Peru; (2) Tattnall Cooperative Extension Service, Reidsville, GA 30453; (3) University of Georgia, Dept. of Entomology, Cooperative Extension Service, Tifton, GA 31794, USA; (4) University of Georgia, Coastal Plain Experiment Station, Dept. of Plant Pathology, Tifton, GA, USA
- AP-331. Phylogenetic analysis of two *Sweetpotato chlorotic stunt virus* (SPCSV) (genus *Crinivirus*) isolates from North Carolina. J. A. ABAD (1), E. J. Parks (1), J. L. Speck (1), S. L. New (1), J. W. Moyer (1). (1) North Carolina State University, Raleigh, NC
- AP-332. Sequence variability within the ORF AC1 of begomovirus isolates infecting sweetpotato in Kenya. D. W. MIANO (1), D. R. Labonte (1), C. A. Clark (2), R. A. Valverde (2). (1) Dept. Horticulture, Louisiana State University Agricultural Center, Baton Rouge, LA, 70803, USA; (2) Dept. Plant Pathology & Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA, USA
- AP-333. Simultaneous detection of CGMMV and WMV from watermelon using TaqMan real-time RT-PCR. J. PARK (4), M. Kim (4), H. Kim (3), S. Kim (4), S. Ko (1), H. Choi (4), S. Lee (4), K. Lee (2). (1) Cucumber Crops Experiment Station, Jeonnam Agricultural Research and Extension Services, Naju, Korea; (2) Department of Agricultural Biology, Kyungpook National University, Daegu, Korea; (3) Planning and Coordination Division, National Horticultural Research Institute, RDA, Suwon, Korea; (4) Plant Pathology Division, National Institute of Agricultural Science and Technology, RDA, Suwon, Korea
- AP-334. Single and mixed infections of *Grapevine leafroll-associated viruses* in Washington State vineyards. R. A. NAIDU (1), M. J. Soule (1), S. Jarugula (1). (1) Dept. of Plant Pathology, Washington

State University, Irrigated Agriculture Research & Extension Center, Prosser, WA, USA

- AP-335. *Strawberry latent ringspot virus*: The go-between of picorna-like plant virus families. I. E. Tzanetakis (1), R. C. Gergerich (3), J. D. Postman (2), R. R. MARTIN (1). (1) Oregon State University, Corvallis, OR, USA; (2) USDA-ARS NCGR, Corvallis, OR, USA; (3) University of Arkansas, Fayetteville, AR, USA

Diseases of Plants

Crop Loss Assessment

- AP-336. Disease epidemiology on cereal crops in the European region of Russia. S. S. SANIN (1), L. N. Nazarova (1), T. Z. Ibragimov (1), U. A. Strizhekozin (1), X. Chen (2). (1) All Russian Research Institute of Phytopathology, Moscow, Russia; (2) USDA-ARS, Washington State University, Pullman, WA
- AP-337. Evaluation of aggressiveness in mycelial compatibility groups of *Sclerotinia minor*. J. E. HOLLOWELL (1), B. B. Shew (1). (1) NC State University, Raleigh, NC, USA
- AP-338. Repeatability and comparison of image analysis and visual assessment for disease assessment of citrus canker. C. H. BOCK (1), P. E. Parker (2), A. Z. Cook (2), T. R. Gottwald (3). (1) University of Florida, 2001 S. Rock Rd., Ft. Pierce, FL 34945; (2) USDA-APHIS-PDDML, 22675 N. Moorefield Rd., Edinburg, TX 78539; (3) USHRL-ARS-USDA, 2001 S. Rock Rd., Ft. Pierce, FL, USA
- AP-339. Species associations and the severity of damage caused by multiple organisms introduced for biological control of *Chondrilla juncea*. D. M. CAMPANELLA (1), C. C. Mundt (1), P. B. McEvoy (1). (1) Oregon State University, Corvallis, OR, USA

Disease Detection and Diagnosis

- AP-340. A comparison of detection methods for foliar nematodes in herbaceous ornamental crops. J. L. MCCUISTON (1), E. L. Davis (1), C. Y. Warfield (1). (1) Department of Plant Pathology, North Carolina State University, Raleigh, NC
- AP-341. A new natural host of Lisianthus necrosis virus. Y. CHEN (2), F. Jan (1), C. Chen (3), H. Hsu (4). (1) Assistant Professor, Dept. Plant Pathology, National Chung Hsing University, Taichung, TAIWAN; (2) Associate Professor, Dept. Plant Pathology, National Chung Hsing University, Taichung, TAIWAN; (3) Senior Researcher, Taichung District Agricultural Improvement Station; (4) Senior Microbiologist, USDA-ARS, Beltsville, MD, USA
- AP-342. Withdrawn
- AP-343. A quantitative PCR assay for detection of *Xanthomonas fragariae*. C. Hsu (1), J. McCallister (2), J. S. Hartung (2), W. W. TURECHEK (2). (1) UC Davis, Davis, CA; (2) USDA-ARS Fruit

Laboratory, Beltsville, MD

- AP-344. A sensitive simultaneous detection of two orchid viruses by DNA microchip array. C. CHANG (1), M. Lin (1), H. Hsu (2). (1) Department of Plant Pathology, Taiwan Agricultural Research Institute, Taiwan; (2) Floral and Nursery Plants Research Unit, United States Department of Agriculture, Beltsville, MD, USA
- AP-345. Assessment of multiple displacement amplification for increasing PCR sensitivity. E. SCHUENZEL (2), A. Sechler (2), T. Zhao (1), N. Schaad (2). (1) Chinese Academy Agric. Sci, Beijing, China; (2) FDWSRU, ARS, USDA, Ft. Detrick, MD
- AP-346. Bioassay hosts for visual assessment of soil infestations with *Pratylenchus penetrans*. B. K. GUGINO (1), G. S. Abawi (1), J. W. Ludwig (1). (1) Cornell University, NYSAES, Geneva, NY
- AP-347. *Ceratocystis fimbriata* on giant taro in Hawaii. D. Y. OGATA (1), R. S. Uchida (1). (1) University of Hawaii, Honolulu, HI, USA
- AP-348. DDIS: A web-based distance diagnostic system for plant diseases and pests. T. M. MOMOL (4), J. Xin (1), F. S. Zazueta (1), S. Zhang (1), R. F. Mizell (3), A. C. Hodges (5), H. W. Beck (1), S. A. Miller (2), W. Klassen (6). (1) Ag. and Bio. Engineering Department, University of Florida-IFAS, Gainesville, FL; (2) Department of Plant Pathology, The Ohio State University, OARDC, Wooster, OH; (3) NFREC, Entomology Department, University of Florida-IFAS, Quincy, FL; (4) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL; (5) SPDN, Entomology Department, University of Florida-IFAS, Gainesville, FL; (6) TREC, Entomology Department, University of Florida-IFAS, Homestead, FL
- AP-349. Detection and characterization of phytoplasmas associated to pepper and tomato diseases in Mexico. M. SANTOS-CERVANTES (1), A. Chavez-Medina (1), B. Pérez-Salazar (2), J. Mendez-Lozano (1), N. Leyva-Lopez (1), A. Fierro-Coronado (1). (1) CIIDIR-IPN-SINALOA, Guasave, Sinaloa, México; (2) Universidad de Occidente Campus Los Mochis, Los Mochis, Sinaloa, México
- AP-350. Detection and characterization of phytoplasmas in apple orchards from Coahuila, México. N. LEYVA-LOPEZ (1), M. Santos-Cervantes (1), A. Chavez-Medina (1), R. Ruelas-Ayala (1), J. Mendez-Lozano (1). (1) CIIDIR-IPN-Sinaloa, Guasave, Sinaloa, México
- AP-351. Detection and characterization of *Xanthomonas campestris* pv. *vesicatoria* in tomato crops from Illinois, U.S., and Sinaloa, Mexico. M. SANTOS-CERVANTES (1), F. Rivera-Soto (1), J. Mendez-Lozano (1), M. Babadoost (2), N. Leyva-Lopez (1). (1) CIIDIR-IPN-Sinaloa, Guasave, Sinaloa, México; (2) Department of Crop Sciences, University of Illinois, Urbana, IL
- AP-352. Detection and quantification of *Phytophthora capsici* oospores in soil with real-time quantitative

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- polymerase chain reaction. C. PAVON (1), M. Babadoost (1), K. N. Lambert (1). (1) Department of Crop Sciences, University of Illinois, Urbana, IL 61801
- AP-353. Detection of *F. oxysporum* f. sp. *lactucae* in lettuce roots and seed using a two-step PCR-based method. G. C. MBOFUNG (1), B. M. Pryor (1). (1) University of Arizona, Tucson, AZ, USA
- AP-354. Detection of *Phakopsora pachyrhizi* DNA in rain using qPCR and a portable rain collector. C. W. BARNES (2), L. J. Szabo (2), J. L. Johnson (1), K. P. Nguyen (1), C. M. Floyd (3), J. E. Kurle (3). (1) USDA-ARS, St. Paul, MN, USA; (2) USDA-ARS, St. Paul, MN, USA, University of Minnesota, St. Paul, MN, USA; (3) University of Minnesota, St. Paul, MN, USA
- AP-355. Detection of *Xanthomonas axonopodis* pv. *dieffenbachiae* in anthurium and other aroids. T. S. VOWELL (2), B. Schoedel (1), A. De Silva (2), A. M. Alvarez (2). (1) Agdia, Inc, Elkhart, IN 46514; (2) Department of Plant and Environmental Protection Sciences, University of Hawaii, Honolulu, HI, USA
- AP-356. Detection of *Xylella fastidiosa* in Oklahoma. J. D. DOMINIAC (1), B. R. Olson (1). (1) Oklahoma State University, Stillwater, OK, USA
- AP-357. Detection of the soybean pathogens *Phialophora gregata* and *Fusarium solani* f. sp. *glycines* in soil using PCR. A. Impullitti (1), D. K. MALVICK (1). (1) University of Minnesota, St. Paul, MN, USA
- AP-358. Development of molecular protocols for the detection and identification of *Potato virus A* in potato foliage and tubers. H. XU (1), J. Nee (1). (1) Canadian Food Inspection Agency, Charlottetown Laboratory, Charlottetown, PE, Canada, C1A 5T1
- AP-359. Development of the Caribbean Invasive Species Surveillance and Information Program (CISSIP). W. Klassen (6), C. G. Davis (3), W. F. Brown (2), M. R. Roberts (5), B. Lauckner (1), T. M. MOMOL (4). (1) CARDI, St Augustine, Trinidad and Tobago, West Indies; (2) Department of Animal Sciences, University of Florida-IFAS, Gainesville, FL; (3) Food and Resource Economics Department, University of Florida-IFAS, Gainesville, FL; (4) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL; (5) NFREC, University of Florida-IFAS, Quincy, FL; (6) TREC, Entomology Department, University of Florida-IFAS, Homestead, FL, USA
- AP-360. Development of the International Plant Diagnostic Network (IPDN): A multinational collaboration. S. A. MILLER (4), T. M. Momol (7), S. A. Tolin (9), R. L. Gilbertson (6), F. Beed (3), D. Silue (1), M. A. Arevalo-Guerra (2), D. P. Maxwell (8), K. F. Cardwell (5). (1) AVRDC Regional Center for Africa, Arusha, Tanzania; (2) Agroexpertos, Guatemala City, Guatemala; (3) International Institute for Tropical Agriculture, Cotonou, Benin; (4) The Ohio State University OARDC, Wooster, OH, USA; (5) USDA CSREES PAS, Washington, DC, USA; (6) University of California, Davis, CA, USA; (7) University of Florida, IFAS-NFREC, Quincy, FL, USA; (8) University of Wisconsin, Madison, WI, USA; (9) VPI & State University, Blacksburg, VA, USA
- AP-361. *Fusarium solani* causing root rot in blueberry. E. R. WRIGHT (2), B. A. Perez (1), M. Fernando (2), D. Marta (2). (1) INTA-IMYZA, Buenos Aires, Argentina; (2) University of Buenos Aires, Buenos Aires, Argentina
- AP-362. Identification and detection of *Pseudomonas corrugata* and *Pseudomonas mediterranea* by multiplex-PCR and real-time PCR. S. Yilmaz (1), H. BASIM (1). (1) University of Akdeniz, Dept. of Plant Protection, 07070, Antalya-Turkey
- AP-363. Identification and differentiation of *Erwinia chrysanthemi* subpopulations from pineapple using a monoclonal antibody. W. S. KANESHIRO (1), G. Marrero (1), J. M. Berestecky (2), A. S. De Silva (1), A. M. Alvarez (1). (1) Department of Plant and Environmental Protection Sciences; (2) Kapiolani Community College, Honolulu, HI, 96816
- AP-364. Identification of variants of the High Plains virus in Kansas. D. L. SEIFERS (1). (1) Kansas State University, Hays, KS, USA
- AP-365. Macroarray detection of plant RNA viruses using randomly amplified cDNAs from infected plants. B. Agindotan (1), K. L. PERRY (1). (1) Cornell University, Ithaca, NY, USA
- AP-366. Methods for surveying plants in natural settings for viruses. U. MELCHER (1), V. Grover (1), V. Muthukumar (1), F. Zhang (1), O. Blinkova (1). (1) Oklahoma State University, Stillwater, OK, USA
- AP-367. Microarray technology for rapid identification of quarantine bacteria in plants. C. PELLUDAT (1), B. Duffy (1), J. E. Frey (1). (1) Research Station Agroscope Changins-Waedenswil ACW, Waedenswil, Switzerland
- AP-368. Modeling of cereal rust epidemics in Russia: Concept of modeling, accumulation of inoculum in disease foci. S. S. SANIN (1), T. Z. Ibragimov (1), F. A. Babina (1), X. Chen (2). (1) All Russian Research Institute of Phytopathology, Moscow, Russia; (2) USDA-ARS, Washington State University, Pullman, WA, USA
- AP-369. Applications of multiplex Taq-Man PCR for sensitive and accurate quantification of bio-threat crop pathogens; *Xylella fastidiosa* and *Candidatus Liberibacter*. H. LIN (2), H. Doddapaneni (3), J. Yao (1), E. L. Civerolo (2). (1) Citrus Research Board, California; (2) USDA-ARS; (3) University of California, Davis, USA
- AP-370. Occurrence and distribution of soybean sudden death syndrome in Minnesota. J. E. KURLE (1), S. Lewandowski (1), D. K. Malvick (1). (1) Dept. of Plant Pathology, University of Minnesota
- AP-371. *Pantoea ananas* a new pathogen of agave in Mexico. L. FUCIKOVSKY (1), S. Aranda (1). (1) Colegio de Postgraduados, Texcoco, Mexico, Mexico

- AP-372. PCR detection of pathogenic *Rhodococcus fascians* and *Agrobacterium tumefaciens* from herbaceous perennials. M. L. MILLER (1), K. Collins (1), J. Kraus (1), M. L. Putnam (1). (1) Oregon State University, Corvallis, OR, USA
- AP-373. *Phytophthora ramorum* and other species of *Phytophthora* detected in field soil and water at retail nurseries in the southeastern USA. Y. A. WAMISHE (1), S. N. Jeffers (1), J. Hwang (1). (1) Clemson University, Clemson, SC, USA
- AP-374. Preliminary characterization of *Cycad leaf necrosis virus*, the first badnavirus identified in cycads. B. LOCKHART (2), J. L. Fetzer (1), N. E. Olszewski (2). (1) New York Botanical Garden, Bronx, NY 10458, USA; (2) University of Minnesota, St. Paul, MN 55108, USA
- AP-375. Presence of Tomato yellow leaf curl virus infecting tomato in Sinaloa, Mexico. C. GAMEZ-JIMENEZ (1), P. Alvarez-Ruiz (2), R. D. Ruelas-Ayala (2), N. E. Leyva-Lopez (2), J. Mendez-Lozano (2). (1) CIIDIR-IPN U. Sinaloa; (2) CIIDIR-IPN U. Sinaloa, Guasave, Sinaloa, Mexico
- AP-376. Quantification of *Pythium* species in soils from dryland cereal-based cropping systems using real-time PCR. K. L. SCHROEDER (1), T. C. Paulitz (1). (1) USDA-ARS, Root Disease and Biological Control Research Unit, Pullman, WA, USA
- AP-377. Quantitative detection of Chrysanthemum stunt viroid using real-time RT-PCR. J. PARK (4), J. Jung (3), B. Lee (2), E. Lee (4), M. Kim (4), H. Kim (1), B. Chung (3), K. Lee (5). (1) Planning and Coordination Division, National Horticultural Research Institute, RDA, Suwon, Korea; (2) Chungcheong Nam-Do Agricultural Research and Extension Services, Yesan, Korea; (3) Horticultural Environment Division, National Horticultural Research Institute, RDA, Suwon, Korea; (4) Plant Pathology Division, National Institute of Agricultural Science and Technology, RDA, Suwon, Korea; (5) Department of Agricultural Biology, Kyungpook National University, Daegu, Korea
- AP-378. Real-time PCR detection of *Brenneria rubrifaciens*, the causal agent of Deep Bark Canker of Walnut. A. E. MCCLEAN (3), P. Sudarshana (1), D. A. Kluepfel (2). (1) U.C. Davis, Davis, CA, USA; (2) USDA-ARS and U.C. Davis, Davis, CA, USA; (3) USDA-ARS, Davis, CA, USA
- AP-379. Real-time PCR to study the distribution of two major rust species in Eastern North America. B. Boyle (1), J. Grondin (3), N. FEAU (3), L. Innes (2), R. C. Hamelin (3). (1) Centre de Recherche en Biologie Forestière, Pavillon Charles-Eugène Marchand, Université Laval, Quebec, (QC), G1K 7P4, Canada; (2) Ministère des ressources naturelles, de la Faune et des Parcs, 2700, rue Einstein, Quebec, (QC), G1P 3W8, Canada; (3) Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, 1055 rue du PEPS, Quebec, (QC), G1V4C7, Canada
- AP-380. Remote detection and quantification of wheat infected with *Wheat streak mosaic virus* in the Texas panhandle. D. C. JONES (1), C. M. Rush (1). (1) Texas Agric. Exp. Stn., Bushland, TX, USA
- AP-381. Serological and molecular tools for the detection of Iris yellow spot virus in bulb and onion seed crops. H. R. PAPPU (2), M. Rosales (1), K. Druffel (2), L. Du Toit (2). (1) INIA; (2) Washington State University, USA
- AP-382. Survey for Cymbidium mosaic and Odontoglossum ring spot viruses in domestic and international orchids. R. T. MCMILLAN (3), A. Palmateer (1), W. A. Vendrame (2). (1) Assistant Extension Scientist, University of Florida, Homestead, FL, USA; (2) Assistant Professor, University of Florida, Homestead, FL, USA; (3) Director of Research and Development, Kerry's Bromeliad Nursery, Inc., Homestead, FL, USA
- AP-383. The development of a species-specific detection assay for *Phytophthora capsici*. J. SONG (5), Y. Lee (1), S. Ka (2), S. Li (3), G. L. Hartman (4), H. Kim (1). (1) Department of Agricultural Biology, Chungnam National University, Daejeon, Korea; (2) Sun Genetics, Inc., Daejeon, Korea; (3) USDA-ARS, Stoneville, MS, USA; (4) USDA/ARS and University of Illinois, Urbana-Champaign, IL, USA; (5) University of Illinois, Urbana-Champaign, IL, USA
- AP-384. The National Plant Diagnostic Network (NPDN) training and education program for First Detectors. A. HODGES (6), T. Momol (4), G. Wisler (6), M. McKellar (1), R. Hoenisch (5), S. Perry (2), N. Zidack (3). (1) Cornell University, Ithaca, NY; (2) Michigan State University, East Lansing, MI; (3) Montana State University, Bozeman, MT; (4) NFREC, University of Florida-IFAS, Quincy, FL; (5) University of California-Davis, Davis, CA; (6) University of Florida-IFAS, Gainesville, FL
- AP-385. The role of nursery practices in the survival and production spread of organisms associated with Big-vein Disease in lettuce in Western Australia. L. D. MACCARONE (2), R. A. Jones (1), L. J. Latham (1), K. Sivasithamparam (2), M. Barbetti (2). (1) Department of Agriculture, Western Australia; (2) University of Western Australia
- AP-386. Tomato chlorosis virus is associated to tomato diseases in Sinaloa, Mexico. P. ALVAREZ-RUIZ (1), C. Gamez-Jimenez (1), N. E. Leyva-López (1), J. Mendez-Lozano (1). (1) CIIDIR-IPN U. Sinaloa; Guasave, Sinaloa; Mexico
- AP-387. Validation of molecular markers for *Phytophthora ramorum* detection and identification using a standardized library of isolates. F. N. MARTIN (8), M. Coffey (3), P. Berger (5), R. Hamelin (2), P. Tooley (6), M. Garbelotto (7), K. Hughes (1), T. Kubisiak (4). (1) Central Science Lab, York, UK; (2) NRC Canada Forest Service, Ste-Foy, QC, Canada; (3) Plant Pathology Dept., University of California, Riverside, CA; (4) USDA Forest Service, Saucier, MS; (5) USDA-APHIS-PPQ-CPHST, Raleigh, NC;

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(6) USDA-ARS, Ft. Detrick, MD; (7) University of California, Berkeley, CA; (8) USDA-ARS, Salinas, CA, USA

Diseases – Cereals, Field, and Fiber Crops

- AP-388. A new *Colletotrichum trifolii* race identified in Ohio. J. J. ARISS (1), L. H. Rhodes (1). (1) The Ohio State University, USA
- AP-389. Absorption of aqueous inorganic and organic silicon compounds by wheat and their effect on powdery mildew. C. CÔTÉ-BEAULIEU (2), M. Guével (2), J. G. Menzies (3), S. D. Kinrade (1), R. R. Bélanger (2). (1) Dept of Chemistry, Lakehead Univ, Thunder Bay, ON P7B 5E1, Canada; (2) Université Laval, Québec, Québec, Canada; (3) Agriculture and Agri-Food Canada, Winnipeg, MB R3T 2M9, Canada
- AP-390. Base leaf spot and a black rot of agave caused by *Thielaviopsis paradoxa*. J. MARTINEZ-RAMIREZ (1), P. Posos-Ponce (1), J. Robles-Gomez (1), K. Beas-Ruvalcaba (1), L. Fucikovsky-Zak (2). (1) Departamento de Produccion Agricola, CUCBA, Universidad de Guadalajara; (2) Instituto de Fitosanidad, Colegio de Postgraduados
- AP-391. Characterization of *Fusarium oxysporum* causing rapid wilt of birdsfoot trefoil in New York and Vermont. M. J. WUNSCH (1), G. C. Bergstrom (1). (1) Department of Plant Pathology, Cornell University, Ithaca, NY, USA
- AP-392. Colonization by *Fusarium* and *Alternaria* spp. of sorghum grain of near isogenic lines varying in plant color and pericarp color. D. L. FUNNELL (1), J. F. Pedersen (1). (1) USDA-ARS, Grain, Forage and Bioenergy Research, Lincoln, NE, USA
- AP-393. Decreased pathogen colonization and increased fructan accumulation is associated with resistance to speckled snow mold in winter wheat. Z. Nishio (2), N. Iriki (3), M. Kuroki (3), K. Saito (3), M. Ito (3), T. Tabiki (3), T. D. MURRAY (1). (1) Dept. of Plant Pathology, Washington State University, Pullman, WA, USA; (2) Dept. of Plant Pathology, Washington State University, Pullman, WA, USA, and Natl. Ag. Res. Ctr. Hokkaido, Japan; (3) Natl. Ag. Res. Ctr. Hokkaido, Japan
- AP-394. Detection of begomovirus in different varieties of soybean in Sinaloa, Mexico. J. MENDEZ-LOZANO (1), L. L. Perea-Araujo (1), A. Mauricio-Castillo (2), R. D. Ruelas-Ayala (1), P. Valenzuela-García (1), N. E. Leyva-Lopez (1), G. R. Arguello-Astorga (2). (1) CIIDIR-IPN U. Sinaloa, Guasave, Sinaloa, Mexico; (2) IPICYT San Luis Potosi, S.L.P., Mexico
- AP-395. Development of a novel inoculation method to evaluate resistance to *Sclerotinia sclerotiorum* in soybean. M. BASTIEN (2), G. Giroux (2), T. Huynh (2), S. Rioux (1), F. Belzile (2). (1) Cérom, Complexe Scientifique Sainte-Foy, Québec, Canada; (2) Laval University, Québec City, Québec, Canada
- AP-396. Early infection of soybean roots by *Fusarium solani* f. sp. *glycines* X. Gao (1), G. Hartman (1), T. NIBLACK (1). (1) Department of Crop Sciences, University of Illinois at Urbana and Champaign, Urbana, IL, USA
- AP-397. Effect of stink bug feeding and fungicide application on green stem disorder of soybean. C. B. HILL (2), A. Pabon (2), H. A. Hobbs (2), G. L. Hartman (1). (1) USDA/ARS and University of Illinois, Urbana-Champaign, IL, USA; (2) University of Illinois, Urbana-Champaign, IL, USA
- AP-398. Effects of elevated carbon dioxide and ozone levels on diseases of soybeans grown in a free air concentration enrichment (FACE) system. D. M. EASTBURN (1). (1) University of Illinois, Urbana, IL, USA
- AP-399. Evaluation of peanut genotypes with leafspot resistance to different fungicide treatments. D. W. GORBET (1), B. L. Tillman (1), A. K. Culbreath (2), J. W. Todd (2). (1) University of Florida; (2) University of Georgia
- AP-400. *Fusarium verticillioides* dissemination among corn ears of field-grown plants. I. E. YATES (2), D. Sparks (1). (1) Department of Horticulture, University of Georgia, Athens, GA; (2) RRC/ARS/USDA, Athens, GA, USA
- AP-401. Impact of application interval on the control of foliar and soil-borne diseases of peanut in a rain-fed production system in Alabama. H. L. CAMPBELL (1), A. K. Hagan (1), K. L. Bowen (1), L. W. Wells (3), M. D. Pegues (2). (1) Dept. of Entomology and Plant Pathology, Auburn University, AL 36849; (2) Gulf Coast Research and Extension Center, Fairhope, AL 36532; (3) Wiregrass Research and Extension Center, Headland, AL 36345
- AP-402. Inheritance of resistance to race TTKS of *Puccinia graminis* f. sp. *tritici* in spring wheat. Y. JIN (1). (1) USDA-ARS Cereal Disease Laboratory, St. Paul, MN, USA
- AP-403. Is fusaric acid a wilt toxin in maize?. C. W. BACON (1), D. M. Hinton (1). (1) USDA, ARS, Russell Research Center, Athens, GA, USA
- AP-404. Pathogenic specificity of *Magnaporthe grisea* isolated from several weeds. S. HAN (1), B. Kim (1), J. Roh (1), I. Oh (1), Y. Lee (2). (1) Environment & Biotechnology Division, National Institute of Crop Science, RDA, 441-857 Suwon, Republic of Korea; (2) School of Agricultural Biotechnology, Seoul National University, Seoul 151-742, Republic of Korea
- AP-405. Pathogenicity of bean pathogenic *Pythium* spp. on major crops in a bean based cropping system. V. G. GICHURU (1), R. Buruchara (3), P. Okori (1), F. Opio (2), M. Ugen (2). (1) Department of Crop Science, Makerere University, Kampala; (2) Namulonge Agricultural Research Institute, Kampala; (3) Centro Internacional de Agricultura Tropical (CIAT)
- AP-406. Phenotypic evaluation and deoxynivalenol quantification of *Fusarium graminearum* infected *Hordeum vulgare*. J. M. GEDDES (3), F. Eudes (2),

- J. Tucker (1), B. Legge (1). (1) AAFC-Brandon, MB; (2) AAFC-Lethbridge, AB; (3) Agriculture and Agri-Food Canada-Lethbridge, AB
- AP-407. Production of huitlacoche (*Ustilago maydis*) on male sterile corn hybrids. V. CASTAÑEDA-DE LEÓN (3), H. Leal-Lara (3), J. Chávez-Medina (2), J. K. Pataky (1). (1) University of Illinois, Urbana, IL; (2) Departamento de Agropecuario, CIIDIR-IPN, Unidad Sinaloa, Guasave, Mexico; (3) Universidad Nacional Autónoma de México, Mexico City, Mexico
- AP-408. Proposed major powdery mildew genes in Eastern and Southern wheat germplasm; the past ten years. J. S. ENGLE (1), D. S. Marshall (1), L. Whitcher (1). (1) USDA/ARS
- AP-409. Responses of host to root-rot pathogens of cotton. A. ABD-ELMAGID (1), A. Amein (2), M. Hassan (2), H. El-Aref (2). (1) Assiut University, Egypt 71526. Current address, WA Uni, School of Plant Biology, Faculty of Natural and Agricultural Sciences; (2) Assiut University, Faculty of Agriculture, Egypt
- AP-410. Seasonal variation in the association between within-field inoculum and Fusarium head blight development in winter wheat. P. A. PAUL (1), L. V. Madden (1), P. E. Lipps (1). (1) Dept. of Plant Pathology, The Ohio State University/OARDC, Wooster, OH, USA
- AP-411. Systemic infection of corn by *Aspergillus parasiticus* in the field. G. L. WINDHAM (1), W. P. Williams (1). (1) USDA-ARS, Mississippi State, MS, USA
- AP-412. The role of disease resistance in alfalfa persistence. J. J. ARISS (1), L. H. Rhodes (1), R. Sulc (1). (1) The Ohio State University
- AP-413. Utilization of a detached leaf method for cereal rust disease studies. E. W. JACKSON (2), J. Chong (1), J. B. Avant (2), J. M. Bonman (2). (1) Agriculture & Agri-Food Canada Cereal Research Centre, Winnipeg, Manitoba, Canada; (2) USDA-ARS, Aberdeen, ID, USA
- AP-414. Variability of *Fusarium culmorum* – agent of head blight. I. J. Samokhina (1), E. D. KOVALENKO (1), J. A. Srizhekozin (1). (1) All Russian Research Institute of Phytopathology, Moscow, Russia
- AP-415. Variation for *Phymatotrichopsis omnivora* tolerance in alfalfa (*Medicago sativa* L.). H. LEE (2), S. Marek (1), C. Young (2), M. Sledge (2). (1) Oklahoma State University, Stillwater, OK; (2) The Samuel Roberts Noble Foundation, Ardmore, OK
- AP-416. Virulence and molecular characterization of a world-wide collection of *Puccinia triticina* from durum wheat compared with US bread wheat races. M. E. ORDONEZ (1), J. A. Kolmer (1). (1) USDA-ARS Cereal Disease Laboratory, St. Paul, MN, USA
- AP-417. Wheat root rot caused *Fusarium* spp. in Russia. T. M. KOLOMIETS (1), L. F. Pankratova (1). (1) All Russian Research Institute of Phytopathology, Moscow, Russia
- AP-418. Wild crucifers as potential source of resistance to alternaria blight in *Brassica*, oilseeds. HARSH (2), S. Kaur (1), S. Banga (1), S. S. Banga (1). (1) Dept. of PBGB, Punjab Agricultural University, India; (2) Dept. of PBGB, PAU, Punjab, India; Current UWA, Perth, Australia
- AP-419. Within-field diversity of *Phytophthora sojae* in Iowa. S. M. CERRA (1), A. E. Robertson (1), F. W. Nutter (1). (1) Iowa State University, Ames, IA, USA
- Diseases – Fruits and Nuts**
- AP-420. Are all flowers equal? The effects of blossom age and apple cultivar on *Erwinia amylovora* populations over time. M. M. DEWDNEY (1), R. C. Seem (1), H. S. Aldwinckle (1). (1) NYSAES Cornell University, Geneva, NY, USA
- AP-421. Botryosphaeria canker disease of grapevines caused by *Botryosphaeria rhodina* and *B. obtusa* in Mexico. J. R. ÚRBEZ-TORRES (3), G. M. Leavitt (4), J. C. Guerrero (2), J. Guevara Lugo (1), W. D. Gubler (3). (1) Campo Experimental Costa de Ensenada (INIFAP). Ensenada 22800, Baja California, Mexico; (2) Departamento de Agricultura, Universidad de Sonora, Hermosillo 83000, Sonora, Mexico; (3) Department of Plant Pathology, University of California, Davis, CA 95616; (4) University of California Cooperative Extension, 328 Madera Ave., Madera, CA, USA
- AP-422. Cladosporium rot, an emergent disease on wine grape cv. Cabernet Sauvignon in Chile. E. X. BRICENO (1), B. A. Latorre (1). (1) Pontificia Universidad Católica de Chile
- AP-423. *Colletotrichum acutatum* on cherry and apple buds. A. STENSVAND (2), J. Børve (1). (1) Norwegian Institute for Agricultural and Environmental Research, Lofthus, Norway; (2) Norwegian Institute for Agricultural and Environmental Research, Ås, Norway
- AP-424. Evaluating hot-water treatment as means for eradicating *Xanthomonas fragariae* in strawberry nursery stock. K. Herder (1), W. W. TURECHEK (1). (1) USDA-ARS Fruit Laboratory, Beltsville, MD
- AP-425. *Fusarium* sp. characterization causing mango malformation in Michoacan Mexico. G. RODRIGUEZ-ALVARADO (1), S. P. Fernández-Pavía (1), R. C. Ploetz (2). (1) IIAF-UMSNH, Morelia, Michoacan; (2) University of Florida, Homestead, FL, USA
- AP-426. Genetic transformation of *Prunus domestica* using hygromycin resistance as selection for plum pox virus research. S. Sibbald (1), X. WANG (2), Y. Wen (3), L. Tian (1), S. E. Kohalmi (4). (1) Agriculture & Agri-Food Canada. London, Ontario, Canada; (2) Agriculture & Agri-Food Canada. London, Ontario, Canada; University of Western Ontario, London, Ontario, Canada; (3) Shenyang University, Shenyang, Liaoning, China; (4) University of Western Ontario, London, Ontario, Canada
- AP-427. Identification of mechanisms mediating cold therapy of *Xylella fastidiosa*-infected grapevines.

APS POSTERS

- M. M. MEYER (1), B. C. Kirkpatrick (1). (1) University of California, Davis
- AP-428. Impact of *Meloidogyne partityla* on Mouse-ear and nickel deficiency of pecan in Georgia. A. P. NYCZEPIR (1), B. W. Wood (1), C. C. Reilly (1). (1) USDA-ARS, SE Fruit and Tree Nut Research Laboratory, Byron, GA, USA
- AP-429. Mango fruit rot caused by *Choanephora cucurbitarum* in México. P. POSOS-PONCE (1), J. Martinez-Ramirez (1), K. Beas-Ruvalcaba (1), J. Robles-Gomez (1), L. Fucikovsky-Zak (2). (1) Departamento de Produccion Agricola CUCBA Universidad de Guadalajara; (2) Instituto de Fitosanidad, Colegio de Postgraduados, Montecillos, Edo. de México, México.
- AP-430. *Phytophthora nicotianae* growth in viroid-infected and non-infected citrus baits. T. P. Thomas (2), J. V. Dagraca (2), A. Bhattacharya (1), M. SKARIA (2). (1) Department of Chemistry, TAMU, Kingsville; (2) Texas A&M University-Kingsville Citrus Center, 312 N. International Blvd, Weslaco, TX 78606
- AP-431. WITHDRAWN. Powdery mildew control on apple and rose using milk fat and soybean oil emulsions. A. AH CHEE (1), K. V. Wurms (1). (1) HortResearch
- AP-432. Reducing primary scab incidence by physical sanitation treatments in Hungarian organic apple orchards. I. J. HOLB (1). (1) Department of Plant Protection, University of Debrecen, Centre of Agricultural Sciences, Debrecen, Hungary
- AP-433. Reduction of summer rots in vinifera grapes by cane pruning old vineyards in North Carolina. O. ANAS (1), T. B. Sutton (1). (1) Department of Plant Pathology, NC State University, Raleigh, NC 27695
- AP-434. Searching for Plum Pox Virus: A five year survey of stone fruit in New York State. K. L. SNOVER-CLIFT (1), P. A. Clement (1), R. Jablonski (2). (1) Cornell University; (2) NYS Department of Agriculture & Markets
- AP-435. The effect of warming winter temperatures on the severity of Pierce's disease in the southeastern United States. O. ANAS (1), P. M. Brannen (2), T. B. Sutton (1). (1) Department of Plant Pathology, North Carolina State University, Raleigh, NC 27695; (2) Plant Pathology Department, University of Georgia, 2106 Miller Plant Saience Bldg., Athens, GA, USA
- AP-436. Using real-time PCR to survey azoxystrobin-resistant *Alternaria* spp. from almond and pistachio orchards in California. Y. LUO (1), Z. Ma (2), H. Reyes (1), D. Morgan (1), T. J. Michailides (1). (1) Department of Plant Pathology, University of California-Davis, Kearney Agricultural Center, Parlier, CA 93648; (2) Institute of Biotechnology, College of Agriculture and Biotechnology, Zhejiang University, Hangzhou 320029, China
- AP-437. Vineyard shading increases severity of grapevine powdery mildew. C. N. AUSTIN (2), A. N. Lakso (1), R. C. Seem (2), D. A. Riegel (2), D. M. Gadoury (2), W. F. Wilcox (2). (1) Department of Horticultural Science, NYSAES, Cornell University, Geneva, NY, USA; (2) Department of Plant Pathology, NYSAES, Cornell University, Geneva, NY, USA
- ### Diseases - Ornementals
- AP-438. Chlorine management of *Pythium* zoospores measured by oxidation reduction potential. J. M. LANG (1), N. Tisserat (1), S. E. Newman (1). (1) Colorado State University, Fort Collins, CO, USA
- AP-439. Correlation of lesion size with percent lesion coverage on camellia and rhododendron leaves inoculated with *Phytophthora ramorum*. S. A. TJOSVOLD (1), D. L. Chambers (1). (1) University of California Cooperative Extension
- AP-440. Delay of expression of powdery mildew on zinnia grown hydroponically in Hoagland's solution fortified with silicon. J. C. LOCKE (1), M. Omer (1), A. K. Widrig (1), C. R. Krause (1). (1) USDA-ARS, ATRU, Toledo, OH, USA
- AP-441. Effect of flooding on root and foliar disease severity on *Rhododendron* caused by *Phytophthora ramorum*. N. J. GRUNWALD (1), M. Kitner (2), R. G. Linderman (1). (1) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR; (2) Oregon State University, Corvallis, OR, USA
- AP-442. Flowering dogwood cultivar resistance to *Cercospora* leaf spot. K. N. CONNER (1), K. L. Bowen (1). (1) Dept. Entomol & Plant Pathology, Auburn University, AL, USA
- AP-443. Isolation and characterization of a new potyvirus causing chlorotic spots on moth orchids (*Phalaenopsis* spp.). C. Chen (2), Y. Zheng (1), Y. Chen (1), F. JAN (1). (1) Department of Plant Pathology, National Chung Hsing University, Taichung 402, TAIWAN; (2) Taichung District Agricultural Improvement Station, Changhua 515, TAIWAN
- AP-444. Isolation, identification and characterization of a tospovirus causing chlorotic necrosis and ringspots on moth orchids (*Phalaenopsis* spp.). Y. ZHENG (1), C. Chen (2), S. Yeh (1), F. Jan (1). (1) Department of Plant Pathology, National Chung Hsing University, Taichung 402, TAIWAN; (2) Taichung District Agricultural Improvement Station, Changhua 515, TAIWAN
- AP-445. Searching for *Phytophthora ramorum*. Two years of surveying New York State and Northeastern nurseries for the Sudden Oak Death Pathogen. K. L. SNOVER-CLIFT (1), P. A. Clement (1), M. E. McKellar (1). (1) Cornell University
- AP-446. Soil-borne diseases of dogwood and their control. E. C. NNODU (1), M. T. Mmbaga (1). (1) Tennessee State University, Nursery Res. Center, McMinnville, TN 37110, USA
- AP-447. Sweet gum dieback in southern California caused by *Xylella fastidiosa*. R. HERNANDEZ-MARTINEZ (2), H. S. Costa (1), D. A. Cooksey (2), F. P. Wong

- (2). (1) Department of Entomology, University of California, Riverside 92521; (2) Department of Plant Pathology, University of California, Riverside, CA, USA
- AP-448. Use of leaf temperature to assess the response of geranium plants following exposure to soil pathogens. M. OMER (1), J. Frantz (1), J. Locke (1), C. Krause (2). (1) USDA-ARS, ATRU, Greenhouse Production Research Group, Toledo, OH 43606; (2) USDA-ARS, ATRU, Wooster, OH, USA
- Diseases - Turfgrasses**
- AP-449. Baseline sensitivity distribution of *Colletotrichum cereale* (turfgrass anthracnose) to fludioxonil. S. A. MAZUREK (1), F. P. Wong (1). (1) University of California, Riverside, CA, USA
- AP-450. Characterization of genes involved in natural defence mechanisms induced by different elicitors in creeping bentgrass (*Agrostis stolonifera* L.). G. GREGOIRE (1), R. Belanger (1), F. Belzile (2), B. Huang (3), Y. Desjardins (1). (1) Centre de Recherche en Horticulture, Université Laval, Québec, Qc, Canada; (2) Département de phytologie, Université Laval, Québec, Qc, Canada; (3) Department of Plant Biology & Pathology, 301 Foran Hall/Cook Campus, 59 Dudley Rd., New Brunswick, NJ 08902
- AP-451. Effect of snow removal on gray snow mold development at high altitude golf courses in Colorado. T. BLUNT (1), T. Koski (2), N. Tisserat (1). (1) Dept. Bioagricultural Sciences and Pest Management, Colorado State University, Ft. Collins, CO; (2) Dept. Horticulture and Landscape Architecture, Colorado State University, Ft. Collins, CO, USA
- AP-452. Environmental monitoring and exploratory development of a predictive model for dead spot of creeping bentgrass. J. E. KAMINSKI (2), P. H. Dernoeden (3), M. A. Fidanza (1). (1) Pennsylvania State University, Reading, PA, USA; (2) University of Connecticut, Storrs, CT, USA; (3) University of Maryland, College Park, MD, USA
- AP-453. Frequency of occurrence of *Ophiosphaerella korrae* on Tifway bermudagrass roots in Mississippi. H. PERRY (1), M. Tomaso-Peterson (1). (1) Mississippi State University, Mississippi State, MS
- AP-454. Genetic diversity among *Labyrinthula terrestris* isolates, the causal agent of rapid blight disease on turfgrass. K. D. Craven (1), P. D. PETERSON (2), T. K. Mitchell (1), S. Martin (2). (1) Department of Plant Pathology, North Carolina State University, Raleigh, NC, USA; (2) Pee Dee Research and Education Center, Clemson University, Florence, SC, USA
- AP-455. *In vitro* sensitivity of *Waitea circinata* var *circinata* to benzimidazole, carboxin, dicarboximide, QoI and SI-fungicides. J. C. Rios (1), K. A. de la Cerda (1), F. P. WONG (1). (1) University of California, Riverside, CA, USA
- AP-456. Irrigation water composition affects rapid blight of cool-season turfgrass. J. J. Camberato (1), P. D. PETERSON (2), S. Martin (2). (1) Department of Agronomy, Purdue University, West Lafayette, IN, USA; (2) Pee Dee Research and Education Center, Clemson University, Florence, SC, USA
- AP-457. Occurrence and control of Large Patch (*Rhizoctonia solani* AG 2-2 LP) in seashore paspalum (*Paspalum vaginatum* Swartz) in South Carolina. A. L. CANEGALLO (3), B. Martin (3), J. J. Camberato (1), S. N. Jeffers (2). (1) Department of Agronomy, Purdue University, West Lafayette, IN, USA; (2) Entomology, Soils and Plant Sciences Department, Clemson University, Clemson, SC, USA; (3) Entomology, Soils and Plant Sciences Department, Clemson University, Pee Dee Research and Education Center, Florence, SC, USA
- AP-458. Potential mycoherbicide, *Sclerotium* sp. isolate BWC 03-7, and weeding efficacy on canadian fleabane (*Conyza canadensis*) control. Y. HONG (1). (1) Research institute subsidiary of Techno Green, Yongin, 641-41, Korea
- AP-459. Powdery mildew resistance in Texas bluegrass. S. P. Metz (1), K. L. ONG (2), J. C. Read (1). (1) Texas A&M - Dallas Center, Dallas, TX; (2) Texas Cooperative Extension, Texas A&M, Dallas, TX
- AP-460. Relationship of gray snow mold development in Kentucky bluegrass to persistence of chlorothalonil under snow cover. T. D. BLUNT (1), J. P. Hill (1), G. Brunk (1), T. Koski (1), N. Tisserat (1). (1) Colorado State University, Fort Collins, CO, USA
- AP-461. The distribution of dematiaceous leaf spot pathogens colonizing naturally-infected bermudagrass tissues. M. TOMASO-PETERSON (1), H. Perry (1). (1) Mississippi State University, Mississippi State, MS
- AP-462. Variation in sensitivity to pentachloronitrobenzene of *Typhula* spp. causing snow mold on turfgrass and wheat. T. D. MURRAY (2), W. J. Johnston (1), H. Sheng (2). (1) Dept. of Crop and Soil Sciences, Washington State University, Pullman, WA, USA; (2) Dept. of Plant Pathology, Washington State University, Pullman, WA, USA
- AP-463. Vegetative compatibility among Florida dollar spot isolates. O. F. RUIZ (1), C. M. Stiles (1), P. F. Harmon (1). (1) University of Florida, Gainesville, FL, USA
- AP-464. Viability of dormant bermudagrass in spring dead spot patches caused by *Ophiosphaerella herpotricha* during winter months. N. WALKER (1). (1) Oklahoma State University, Stillwater, OK, USA
- Diseases - Vegetables**
- AP-465. A survey of pre- and post-harvest fungal diseases of carrot roots (*Daucus carota* L.) in Michigan. C. Saude (1), J. W. COUNTS (1), M. K. Hausbeck (1). (1) Department of Plant Pathology, Michigan State University, East Lansing, MI

APS POSTERS

- AP-466. Biofilms are involved in vascular clogging and seed infection by *Curtobacterium flaccumfaciens* pv. *flaccumfaciens* in bean vascular wilt. M. W. HARDING (1), L. R. Marques (1), R. J. Howard (2), M. E. Olson (1). (1) MBEC BioProducts, Calgary, AB, Canada; (2) Alberta Agriculture Food and Rural Development - CDCS, Brooks, AB, Canada
- AP-467. Characterization of *Phytophthora infestans* isolates from tomato in Florida. D. C. Schultz (1), S. Tejada (1), F. G. Perez (2), K. L. Deahl (2), P. D. ROBERTS (1). (1) SouthWest Florida Research and Education Center, University of Florida-IFAS, Immokalee, FL 34142; (2) USDA-ARS, Beltsville, MD, USA
- AP-468. Detecting and quantifying pathogens causing potato tuber decay using real-time quantitative PCR, to predict storage potential. Z. KANAAN-ATALLAH (1), W. R. Stevenson (1). (1) Dept. Plant Pathology, University of Wisconsin, Madison, WI, USA
- AP-469. Detection and identification of viruses affecting squash and pumpkin in Illinois. S. JOSSEY (1), M. Babadoost (1). (1) Department of Crop Sciences, University of Illinois, Urbana, IL
- AP-470. Ecology and control strategy of garlic white rot caused by two species of *Sclerotium* in Korea. Y. KIM (3), M. Kwon (3), H. Shim (3), W. Yeh (3), W. Cho (3), S. Lee (3), S. Hong (3), S. Lee (4), Y. Lee (1), C. Lee (2), S. Lee (3). (1) Jeonnam Agricultural Research & Extension Service, Naju, Korea; (2) Onion Research Institute, Gyeongnam Agricultural Research and Extension Services, Changnyeong, Korea; (3) Plant Pathology Div., National Institute of Agricultural Science and Technology, RDA, Suwon, Korea; (4) Subtropical Environmental Div., National Institute of Subtropical Agriculture, Jeju, Korea
- AP-471. Effects of irrigation interval and bed width on lettuce drop caused by *Sclerotinia minor* and *S. sclerotiorum*. B. M. WU (1), K. V. Subbarao (1). (1) Department of Plant Pathology, University of California, Davis c/o: Salinas, CA, USA
- AP-472. Evaluating inoculation techniques for gummy stem blight disease of cantaloupe. R. SALDANA (1), A. Garza (2), A. L. Davelos Baines (2), M. E. Miller (1), C. R. Little (2). (1) Texas Agricultural Experiment Station, Weslaco, TX, USA; (2) The University of Texas - Pan American, Edinburg, TX, USA
- AP-473. First report of leaf spot of onion caused by *Pleospora eturmiuna* in Puerto Rico. J. Fernandez (1), L. I. RIVERA-VARGAS (1). (1) University of Puerto Rico - Mayaguez Campus
- AP-474. *Fusarium avenaceum*, a new fungal head rot of cabbage in New York. H. R. DILLARD (1), A. C. Cobb (1). (1) Cornell University, NYSAES, Dept. Plant Pathology, Geneva, NY, USA
- AP-475. Genetic and molecular characterization of *Verticillium dahliae* from spinach and screening for disease resistance. M. I. VILLARROEL (1), L. J. Du Toit (2), J. C. Correll (1). (1) University of Arkansas, Fayetteville, AR, USA; (2) Washington State University, Mount Vernon, WA, USA
- AP-476. Hyphal growth comparison among Korean isolates of *Phytophthora infestans* from potato affected by several fungicides. Y. YOON (1), J. Kim (1), Y. Lee (1), J. Cheon (1). (1) National Institute of Highland Agriculture R.D.A Hoenggye, Doam, Pyeongchang, Gangwon province, Korea
- AP-477. Impact of diurnal periodicity, temperature, and light on sporulation of *Bremia lactucae*. B. NORDSKOG (1), D. M. Gadoury (2), R. C. Seem (2), A. Hermansen (1). (1) Bioforsk - Norwegian Institute for Agricultural and Environmental Research; (2) Department of Plant Pathology, Cornell University, New York State Agricultural Experiment Station
- AP-478. Influence of cultural practices and the environment on pod rot incidence in green beans in the mid-south. J. H. TAYLOR (1), C. S. Rothrock (1). (1) Dept. of Plant Pathology, University of Arkansas, Fayetteville, AR, USA
- AP-479. Management of gummy stem blight of cantaloupe in south Texas. M. E. MILLER (1), R. R. Saldana (1), B. D. Bruton (2). (1) Texas A&M University; (2) USDA-ARS
- AP-480. Race 3, a new race of *Fusarium oxysporum* f. sp. *niveum*, the watermelon Fusarium wilt pathogen. X. ZHOU (2), K. L. Everts (3), B. D. Bruton (1). (1) USDA-ARS, Lane, OK, USA; (2) University of Maryland, Salisbury, MD, USA; (3) University of Maryland, Salisbury, MD, USA; University of Delaware, Georgetown, DE, USA
- AP-481. Response of cowpea cultivars to *Rhizoctonia solani* at four planting dates in Charleston, SC. J. A. THIES (1), P. A. Berland (3), R. L. Fery (2). (1) U.S. Vegetable Laboratory, USDA, ARS, Charleston, SC, USA; (2) USDA, ARS, Charleston, SC, USA; (3) Upper Iowa River Watershed Project, Postville, IA, USA
- AP-482. Role of *Fusarium* species as causal agents of rusty root of ginseng demonstrated by molecular detection methods. R. S. GOSWAMI (1), T. Barasubiye (2), C. Levesque (2), A. Wan (1), K. A. Seifert (2), Z. K. Punja (1). (1) Department of Biological Sciences, Simon Fraser University, Burnaby, British Columbia, Canada; (2) ECORC, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
- AP-483. Soilborne *Aspergillus niger* propagules as a source for onion seedling infection. A. SEYB (1), J. W. Lorbeer (1). (1) Cornell University, Ithaca, NY, USA
- AP-484. The etiology of pepper anthracnose. T. L. HARP (2), K. Pernezny (4), L. E. Datnoff (3), S. A. Miller (1), M. L. Lewis Ivey (1). (1) Ohio State University, Ohio Agricultural Research and Development Center, Wooster, OH, USA; (2) Syngenta Crop Protection, Vero Beach Research Center, Vero Beach, FL, USA; (3) University of Florida,

Department of Plant Pathology, Gainesville, FL, USA; (4) University of Florida, Everglades Research and Education Center, Belle Glade, FL, USA

- AP-485. Weeds as reservoirs of *Xanthomonas campestris* pv. *campestris* in New York. H. W. LANGE (1), G. C. Meeks (2), T. J. Glover (2), C. D. Smart (1). (1) Cornell University, Geneva, NY, USA; (2) Hobart and William Smith Colleges, Geneva, NY, USA

Forest Pathology

- AP-486. Assessing susceptibility of red oak (*Quercus rubra*) to *Phytophthora* infection. Y. BALCI (2), S. Balci (2), W. L. MacDonald (2), K. W. Gottschalk (1). (1) USDA, Morgantown, WV, USA; (2) West Virginia University, Morgantown, WV, USA
- AP-487. Detection frequency of *Phytophthora citricola* and *P. cactorum* from European beech trees in New York. J. E. WEILAND (1), A. H. Nelson (1), G. W. Hudler (1). (1) Cornell University, Ithaca, NY, USA
- AP-488. Discovery of forest stands, seed lots, and seedlings of *Pinus resinosa* free of *Diplodia* spp.. G. C. ADAMS (1), M. Catal (1). (1) Michigan State University, East Lansing, MI, USA
- AP-489. Effect of pretreating lodgepole pine with methyl jasmonate on pathogenicity and damage caused by the MPB MPB-fungal associate *O. clavigerum*. S. Diguistini (1), J. Bohlmann (1), C. BREUIL (1). (1) University of British Columbia, Vancouver, BC, Canada
- AP-490. Environmental parameters for Sudden Oak Death risk along an elevational transect in the southeastern U.S.. P. SPAIN (1), W. J. Otrrosina (1). (1) USDA Forest Service
- AP-491. Evidence of dormancy and soil-mediated suppression of *Phytophthora ramorum* in a California redwood-tanoak forest. E. J. Fichtner (1), S. C. Lynch (1), D. M. RIZZO (1). (1) UC Davis, Davis, CA, USA
- AP-492. Low risk of oak wilt pathogen spread by sap beetles during summer and fall. J. JUZWIK (2), M. Hayslett (3), J. F. Kyhl (2), A. K. Ambourn (1). (1) USDA Forest Service, Fairbanks, AK, USA; (2) USDA Forest Service, St. Paul, MN, USA; (3) University of Minnesota, St. Paul, MN, USA
- AP-493. Molecular tools to determine the mode of spread of the root pathogen *Armillaria* in commercial pine forests. S. L. Dodd (1), F. A. SHAH (1), I. A. Hood (2). (1) Crop and Food Research, Private Bag 4704, Christchurch, New Zealand; (2) Ensis, Private Bag 3020, Rotorua, New Zealand
- AP-494. Natural infection of tanoak seedling roots by *Phytophthora ramorum*. J. L. PARKE (1), J. Bienapfl (2), E. Oh (1), D. Rizzo (2), E. Hansen (1), G. Buckles (1), C. Lee (3), Y. Valachovic (3). (1) Oregon State University, Corvallis, OR; (2) University of California, Davis, CA; (3) University of California-Davis Extension, Eureka, CA
- AP-495. Occurrence and pathogenicity of *Phytophthora cinnamomi* in the eastern United States. Y. BALCI (2), S. Balci (2), W. L. MacDonald (2), K. W. Gottschalk (1). (1) USDA, Morgantown, WV, USA; (2) West Virginia University, Morgantown, WV, USA
- AP-496. PEG- and *Agrobacterium* - mediated transformation of the hyperparasite *Colletotrichum gloeosporioides* with a green fluorescent protein. S. F. SHAMOUN (1), H. Williams (1), P. Tanguay (2), C. Breuil (2). (1) Canadian Forest Service, Pacific Forestry Centre, 506 West Burnside Road, Victoria, BC V8Z 1M5 Canada; (2) Department of Wood Science, University of British Columbia, 2424 Main Mall, Vancouver, BC V6T 1Z4 Canada
- AP-497. *Phytophthora ramorum* reduces xylem sapflow and specific conductivity of sapwood in mature tanoak. J. L. PARKE (1), E. Oh (1), S. Voelker (1), N. Ochiai (1), E. Hansen (1). (1) Oregon State University, Corvallis, OR 97331
- AP-498. Species-specific PCR primers to detect *Diplodia pinea* and *D. scrobiculata*. D. R. SMITH (1), G. R. Stanosz (1). (1) Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, USA
- AP-499. Stand characteristics and fuel loads in ponderosa pine infested with southwestern dwarf mistletoe in Colorado's Northern Front Range. J. G. KLUTSCH (1), R. D. Beam (1), W. R. Jacobi (1), J. F. Negron (2). (1) Colorado State University, Dept of Bioagricultural Sciences and Pest Management, Ft. Collins, CO; (2) USDA Forest Service, Rocky Mountain Research Station, Ft. Collins, CO
- AP-500. The effect of shearing on the transmission of *Diplodia pinea* within Scots pine Christmas tree farms. A. M. BATEMAN (1), J. R. Hartman (1), L. J. Vaillancourt (1). (1) University of Kentucky, Lexington, KY, USA
- AP-501. The impact of Hurricane Katrina on the health of the urban forest in New Orleans, Louisiana. D. COLLINS (1), K. Abdollahi (1). (1) Urban Forestry Program Southern University, Baton Rouge, LA, USA
- AP-502. Tip blight of pine in Georgia caused by *Diplodia* and *Lasiodiplodia* spp.. E. S. HOUSE (1), J. L. Williams-Woodward (1). (1) University of Georgia
- AP-503. Variation in pathogenicity to bay laurel of two West Coast forest *Phytophthora* species, *P. nemorosa* and *P. pseudosyringae*. R. E. LINZER (1), M. Garbelotto (1). (1) University of California at Berkeley, Berkeley, CA, USA
- AP-504. *White ash mosaic virus*, a previously undescribed flexivirus occurring in *Fraxinus* spp. in North America. J. E. Machado (1), B. E. LOCKHART (1), J. A. Smith (1). (1) University of Minnesota
- AP-505. Wood blocks as *Armillaria* traps in burned ponderosa pine stands. J. T. Blodgett (1), J. E. LUNDQUIST (2). (1) USDA-Forest Service, 1730 Samco Rd., Rapid City, SD; (2) USDA-Forest Service, 3301 'C' Street, Suite 202, Anchorage, AK

APS POSTERS

Seed Pathology

- AP-506. A diagnostic real-time TaqMan PCR assay for the detection of *Pantoea stewartii* subsp. *stewartii*. A. FESSEHAIE (2), L. M. Shepherd (2), C. C. Block (1). (1) USDA-ARS-MWA, Ames, IA, USA; (2) ISU, Ames, IA, USA
- AP-507. Applicability of magnetic capture hybridization and real time PCR as a seed assay. K. L. JOHNSON (1), R. Walcott (1). (1) University of Georgia, Athens, GA, USA
- AP-508. Diagnosis and control of *Fusarium solani* f. sp. *cucurbitae* race 1 (teleomorph, *Nectria haematococca* mating population I). H. L. MEHL (1), L. Epstein (1). (1) University of California, Davis, CA, USA
- AP-509. Optimization of blotter test protocol for blackleg detection in Brassica seed. L. M. SHEPHERD (1), C. C. Block (2). (1) Iowa State University, Ames, IA, USA; (2) USDA-ARS-MWA, Ames, IA, USA

Tropical Plant Pathology

- AP-510. *Calonectria colhounii* causing disease of koa trees in Hawaii. J. Y. UCHIDA (1), C. Y. Kadooka (1), M. Aragaki (1), J. Ho (1). (1) Department of Plant and Environmental Protection Sciences, University of Hawaii, Honolulu, HI, USA
- AP-511. First report of anthracnose caused by *Colletotrichum gloeosporioides* on Pitaya. A. J. PALMATEER (2), R. C. Ploetz (2), E. van Santen (1). (1) Auburn University, Dept. of Agronomy and Soils, Auburn, AL, USA; (2) University of Florida, Tropical Research & Education Center, Homestead, FL, USA
- AP-512. Four *Fusarium* species causing diseases on orchids in Hawaii. C. L. SWETT (1), J. Y. Uchida (1). (1) University of Hawaii at Manoa, Honolulu, HI, USA
- AP-513. Ornamental plants in the Zingiberaceae and Costaceae families susceptible to *Ralstonia solanacearum*, Race 4 biovar 4. M. L. PARET (1), A. S. De Silva (1), A. M. Alvarez (1). (1) Department of Plant and Environmental Protection Sciences, University of Hawaii, Manoa, Honolulu, HI 9682

Ecology/Epidemiology/Environmental Biology

Biology

- AP-514. Comparative analysis of glycolipids produced by *Pseudozyma* spp. and other related Ustilaginales. B. MIMÉE (1), W. Hammami (1), C. Grégoire (1), R. R. Bélanger (1). (1) Université Laval, Quebec, Quebec, Canada
- AP-515. Effect of corn residue level on disease intensity of *Fusarium* head blight (FHB) and on deoxyvalenol (DON) concentration: A multi-state field study. M. NITA (5), E. De Wolf (5), L. Madden (4), P. Paul (4), G. Shaner (2), T. Adhikari (1), S. Ali (1), J. Stein (3), L. Osborne (3). (1) North Dakota State University; (2) Purdue University; (3) South Dakota State University; (4) The Ohio State University; (5)

- The Pennsylvania State University
- AP-516. Effect of selected cover crops on seasonal population dynamics of *Ralstonia solanacearum* in infested fields. P. Ji (1), T. M. MOMOL (1), S. M. Olson (2), J. B. Jones (3). (1) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL; (2) NFREC, University of Florida-IFAS, Quincy, FL; (3) Plant Pathology Department, University of Florida-IFAS, Gainesville, FL
- AP-517. Effect of soil characteristics on toxicity of TNT to plants. M. SIMINI (1). (1) US Army, Edgewood CB Center, 5183 Blackhawk Road, APG, MD, USA
- AP-518. Effect of soil properties on sugarcane brown rust incidence and severity and associated yield loss. M. P. GRISHAM (1), R. M. Johnson (1), E. P. Richard (1). (1) USDA, ARS, SRRC, Sugarcane Research Laboratory, Houma, LA, USA
- AP-519. Effect of temperature and detergents on *Agrobacterium tumefaciens*, the causal pathogen of crown gall disease of walnut. P. SUDARSHANA (2), A. E. McClean (1), D. A. Kluepfel (1). (1) USDA-ARS, Davis, CA 95616; (2) USDA-ARS, University of California, Davis, CA, USA
- AP-520. Effects of soil texture and sclerotial size on carpogenic germination of *Sclerotinia sclerotiorum*. R. HARIKRISHNAN (1), L. Del Rio (1). (1) Department of Plant Pathology, North Dakota State University, Fargo, ND, USA
- AP-521. Endophytic bacteria promote plant growth in tropical forage brachiariagrasses. S. KELEMU (1), P. Fory (1), I. Rao (1), C. Lascano (1). (1) International Center for Tropical Agriculture (CIAT), A. A. 6713, Cali, Colombia
- AP-522. Epidemiological factors influencing regional establishment of Asian soybean rust in Brazilian soybean areas. P. D. ESKER (1), E. Del Ponte (1), X. Yang (1). (1) Iowa State University, Ames, IA, USA
- AP-523. Epidemiology of ramulosis disease of cotton under controlled and field environments. E. MONTEIRO (1), P. Sentelhas (1), P. Esker (2), M. Gleason (2). (1) Department of Exact Sciences, ESALQ, University of Sao Paulo, Piracicaba, Brazil; (2) Iowa State University, Ames, IA, USA
- AP-524. Filamentous fungal biofilms: Developmental processes and impact on plant pathology and disease management. L. R. MARQUES (2), M. W. Harding (2), M. E. Olson (2), R. J. Howard (1). (1) Alberta Agriculture Food and Rural Development - CDCS, Brooks, AB, Canada; (2) MBEC BioProducts, Calgary, AB, Canada
- AP-525. Genetic diversity among strains of *Acidovorax avenae* subsp. *citrulli* from China. T. ZHAO (1), A. Sechler (2), N. Schaad (2). (1) Chinese Agric, Academy Science, Beijing, China; (2) FDWSRU, ARS, USDA, Ft. Detrick, MD, USA
- AP-526. Genetic diversity in populations of *Xanthomonas campestris* pv. *campestris* in cruciferous weeds in Central Coastal California. A. Ignatov (1), I.

- Agarkova (4), A. SECHLER (2), B. Oliver (3), A. Vidaver (4), N. W. Schaad (2). (1) Center Bioengineering, Moscow, Russia; (2) FDWSRU, ARS, USDA, Ft. Detrick, MD, USA; (3) Monterey County Agric. Commissioners; (4) University of Nebraska, Lincoln, NE, USA
- AP-527. Genetic structure of atmospheric populations of *Gibberella zeae*. D. G. SCHMALE (4), J. F. Leslie (3), K. A. Zeller (5), A. A. Saleh (3), E. J. Shields (1), G. C. Bergstrom (2). (1) Department of Entomology, Cornell University, Ithaca, NY 14853; (2) Department of Plant Pathology, Cornell University, Ithaca, NY 14853; (3) Department of Plant Pathology, Kansas State University, Manhattan, KS 66506; (4) Department of Plant Pathology, Physiology, and Weed Science, Virginia Tech, Blacksburg, VA 24061; (5) USDA-APHIS-PPQ-CPHST, Plant Germplasm Quarantine and Biotechnology Laboratory, Beltsville, MD, USA
- AP-528. Influence of environment on atmospheric concentrations of *Alternaria panax* conidia in cultivated American ginseng gardens. S. N. HILL (1), M. K. Hausbeck (1). (1) Michigan State University, East Lansing, MI, USA
- AP-529. Inoculation by antagonistic bacteria of slow filtration unit for soilless cultures: Consequences on filter-efficiency and -microbial communities. D. RENAULT (3), F. Deniel (3), N. Wery (2), L. Garrelly (1), J. Godon (2), P. Rey (3). (1) Bouisson Bertrand Laboratoires, Parc Euromédecine, 778 rue de la Croix Verte, 34196 Motepellier, France; (2) INRA, Laboratoire de Biotechnologie de l'Environnement, Avenue des Etangs, 11100 Narbonne, France; (3) Laboratoire de Biodiversité et Ecologie Microbienne, ESMISAB, Université de Bretagne Occidentale, 29280 Plouzane, France
- AP-530. Modeling of cereal rust epidemics in Russia: Emission of spores into the air from infected crops and formation of spore clouds. S. S. SANIN (2), V. P. Chuprina (1), V. T. Sadkovsky (1), U. G. Sokolov (1), X. Chen (3). (1) All Russian Research Institute of Biological Plant Protection, Krasnodar, Russia; (2) All Russian Research Institute of Phytopathology, Moscow, Russia; (3) USDA-ARS, Washington State University, Pullman, WA
- AP-531. Modeling of cereals rust epidemics in Russia: Development of disease epidemics in time and space. S. S. SANIN (1), T. Z. Ibragimov (1), U. A. Strizhekozin (1), X. Chen (2). (1) All Russian Research Institute of Phytopathology, Moscow Region, Russia; (2) USDA-ARS, Washington State University, Pullman, WA, USA
- AP-532. Modeling of cereals rust epidemics in Russia: Dispersion of spore clouds, extraction of spores from atmosphere, maintaining viability transferred. S. S. SANIN (2), T. Z. Ibragimov (2), V. P. Chuprina (1), G. V. Pavlova (1), E. V. Nikiforov (2), X. Chen (3). (1) All Russian Research Institute of Biological Plant Protection, Krasnodar, Russia; (2) All Russian Research Institute of Phytopathology, Moscow, Russia; (3) USDA-ARS, Washington State University, Pullman, WA, USA
- AP-533. Monitoring occurrence and distribution of *Phytophthora* species in forest streams in western North Carolina. J. Hwang (1), S. W. Oak (2), S. N. JEFFERS (1). (1) Dept. of Entomology, Soils, & Plant Sciences, Clemson University, Clemson, SC; (2) USDA Forest Service-FHP, Asheville, NC, USA
- AP-534. Partial purification of proteases from filamentous fungi that cause deterioration of industrial paper. A. ROJAS (3), J. Mikán (2), L. Villalba (1), M. C. De Garcia (3). (1) Archivo de Bogota, Bogota, Colombia; (2) Universidad Militar Nueva Granada, Bogotá, Colombia; (3) Universidad de Los Andes, Bogotá, Colombia
- AP-535. Primary xylem: A pathway for passive bacterial movement?. D. S. CHATELET (1), M. M. Matthews (1), T. L. Rost (1). (1) UC Davis, CA, USA
- AP-536. Recovery of *Phytophthora ramorum* following exposure to temperature extremes. P. W. TOOLEY (2), M. Browning (2), L. Englander (1). (1) Dept. of Plant Sciences, University of Rhode Island, Kingston, RI, USA; (2) USDA-ARS, Foreign Disease-Weed Science Research Unit, 1301 Ditto Ave., Ft. Detrick, MD, USA
- AP-537. Release of *Didymella rabiei* ascospores from infested chickpea debris in relation to weather variables in the Pacific Northwest of the USA. M. I. CHILVERS (1), T. L. Peever (1), H. Akamatsu (1), W. Chen (1), F. J. Muehlbauer (1), R. J. Alldredge (1). (1) Washington State University, Pullman, WA, USA
- AP-538. *Sclerotinia sclerotiorum* ascospore dispersal gradients in canola fields in North Dakota. I. QANDAH (1), L. Del Rio (1). (1) Department of Plant Pathology, North Dakota State University, Fargo, ND 58105
- AP-539. Seasonal progress of *Phomopsis longicolla* and its relationship to seed quality in the early soybean production system of the midsouthern USA. A. MENGISTU (2), D. Boykin (3), L. Heatherly (1). (1) USDA-ARS (Retired), Seymour, TN; (2) USDA-ARS, Jackson, TN; (3) USDA-ARS, Stoneville, MS, USA
- AP-540. Spatial dependence of Asian soybean rust detections in Brazil. A. S. DIAS (1), X. B. Yang (1). (1) Iowa State University, Ames, IA, USA
- AP-541. Spatial heterogeneity and sampling of hop powdery mildew in cones. D. H. GENT (2), W. F. Mahaffee (2), W. W. Turechek (1). (1) USDA ARS, Beltsville, MD, USA; (2) USDA ARS, Corvallis, OR, USA
- AP-542. Survival analysis of days to blight of *Camellia sasanqua* stems distal of wounds inoculated with *Colletotrichum gloeosporioides*. W. E. COPES (1). (1) USDA-ARS Southern Horticultural Laboratory
- AP-543. The impact of relative humidity and cultivar on the latent period of grapevine powdery mildew. J. E. CARROLL (2), J. A. Burr (1), D. M. Gadoury (1), R. C. Seem (1), W. F. Wilcox (1). (1) Department

APS POSTERS

of Plant Pathology, Cornell University, Geneva, NY, USA; (2) NYS IPM Program, Cornell University, Geneva, NY, USA

- AP-544. *Tilletia indica* teliospore distribution in a naturally infested Arizona wheat field. T. W. ALLEN (1), T. N. Boratynski (2), C. M. Rush (1). (1) Texas Agricultural Experiment Station, Bushland, TX; (2) USDA-APHIS-PPQ, Brawley, CA, USA
- AP-545. Visualization of *Xanthomonas campestris* pv. *vesicatoria* infection of tomato using GFP and confocal laser scanning microscopy. A. JARVIS-METCALFE (2), D. A. Cuppels (1). (1) Agriculture and Agri-Food Canada, London, Ontario, Canada; (2) University of Western Ontario, London, Ontario, Canada

Pathogen-Vector Interactions

- AP-546. Acquisition of *Xylella fastidiosa* by glassy-winged sharpshooter: Imaging of bacterial colonies and their locations within the foregut over time. E. A. Backus (1), H. Shugart (1), J. CHEN (1). (1) USDA Agric. Research Service
- AP-547. Expression of the Maize mosaic virus glycoprotein in insect cells. A. E. WHITFIELD (1), T. L. German (2), C. Tsai (1), M. G. Redinbaugh (3), S. A. Hogenhout (1). (1) The Ohio State University-OARDC, Wooster, OH, USA; (2) University of Wisconsin, Madison, WI, USA; (3) USDA-ARS, Corn and Soybean Research and The Ohio State University-OARDC, Wooster, OH, USA
- AP-548. Frequencies of nitidulid beetle species contaminated with *Ceratocystis fagacearum* visiting fresh wounds on red oaks in Missouri. M. C. HAYSLETT (3), J. Juzwik (2), B. Moltzan (1). (1) Missouri Department of Conservation, Columbia, MO, USA; (2) USDA Forest Service, St. Paul, MN, USA; (3) University of Minnesota, St. Paul, MN, USA
- AP-549. In search of proteins in the aphid *Schizaphis graminum* associated with vectoring luteoviruses: A proteomics approach. X. YANG (2), M. Burrows (2), T. Thannhauser (2), D. Cox-Foster (1), S. Gray (2), F. Gildow (1). (1) Pennsylvania State University, State College, PA, USA; (2) USDA-ARS, Cornell University, Ithaca, NY, USA
- AP-550. Insect vector fitness as a function of infectivity status alters disease dynamics. M. S. Sisterson (1), J. CHEN (1). (1) USDA-ARS, Parlier, CA, USA
- AP-551. Molecular methods for the detection of *Sirex noctilio* woodwasp larvae, vectors of *Amylostereum areolatum* in North American pines. A. D. WILSON (1), N. M. Schiff (1). (1) USDA Forest Service, Southern Hardwoods Laboratory, Stoneville, MS, USA

Phyllosphere/Rhizosphere Microbiology and Ecology

- AP-552. Antifungal activity and population behavior in soybean plant of *Burkholderia cepacia* complex isolated from clinical and environmental sources. M. T. NOGUCHI (2), T. Yoshida (2), N. Someya (2), K. Tsuchiya (1). (1) National Agricultural Research

Center for Western Region, Sen-yu, Zentsuji, Kagawa 765-8508, Japan; (2) National Institute for Agro-Environmental Sciences, 3-1-3 Kannondai, Tsukuba, Ibaraki, 305-8604, Japan

- AP-553. Association of *Ralstonia solanacearum* in irrigation ponds and on semi-aquatic weeds in North Florida. J. Hong (3), P. Ji (1), T. M. MOMOL (1), S. M. Olson (2), J. B. Jones (3). (1) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL; (2) NFREC, University of Florida-IFAS, Quincy, FL; (3) Plant Pathology Department, University of Florida-IFAS, Gainesville, FL
- AP-554. Colonization of watermelon roots by mycorrhizae from commercial formulations. L. XING (1), N. Snyder (1), A. Westphal (1). (1) Department of Botany and Plant Pathology, Purdue University, 915 West State Street, West Lafayette, IN 47907
- AP-555. Detection and analysis of HCN synthase DNA in the rhizosphere of velvetleaf. C. Armstrong (1), M. Choi (1), R. ZDOR (2). (1) Andrews University; (2) United States
- AP-556. Differential impact of *Brassica* spp. seed meal amendments on fungal populations associated with roots of *Malus domestica* from a replant orchard site. A. D. IZZO (1), M. Mazzola (1). (1) USDA-ARS, Wenatchee, WA, USA
- AP-557. Distribution of *Fusarium* species on corn stubble in Connecticut. W. H. ELMER (1), F. J. Ferrandino (1). (1) The Connecticut Agricultural Experiment Station, New Haven, CT, USA
- AP-558. Effects of field management practices on rhizosphere microbial community structure. M. BENITEZ (1), F. Baysal-Tustas (1), M. D. Kleinhenz (4), J. Cardina (4), P. S. Grewal (3), D. H. Stinner (2), S. A. Miller (1), B. B. McSpadden Gardener (1). (1) Department of Plant Pathology, The Ohio State University-OARDC, Wooster, OH, USA; (2) Department of Horticulture and Crop Sciences/Department of Entomology, The Ohio State University-OARDC, Wooster, OH, USA; (3) Department of Entomology, The Ohio State University-OARDC, Wooster, OH, USA; (4) Department of Horticulture and Crop Sciences, The Ohio State University-OARDC, Wooster, OH, USA
- AP-559. Effects of peanut and crop rotation on microbial communities in soil. O. Olivares-Fuster (2), C. Arias (2), R. Huettel (1), K. BOWEN (1). (1) Dept. Entomology & Plant Pathology, Auburn University, AL, USA; (2) Dept. Fisheries and Allied Aquaculture, Auburn University, AL, USA
- AP-560. Effects of water potential on the growth and survival of *Phytophthora ramorum*. M. V. DILEO (1), E. J. Fichtner (1), R. M. Bostock (1), D. M. Rizzo (1). (1) UC Davis, Department of Plant Pathology
- AP-561. Endophytic colonization by a *Streptomyces* species in wheat plant roots. S. MOLL (3), R. Loria (2), C. Franco (1). (1) Dept. of Medical Biotechnology, Flinders University, Adelaide, Australia; (2) Dept. of Plant Pathology, Cornell University, NY, USA;

- (3) Dept. of Plant Pathology, Cornell University, NY, USA & Dept. of Medical Biotech., Flinders University, Adelaide, Australia
- AP-562. Environmental conditions affecting the development of downy mildew of lima bean caused by *Phytophthora phaseoli*. L. SANTAMARIA (1), T. A. Evans (1), R. P. Mulrooney (1), A. Grybauskas (2), K. Everts (3). (1) University of Delaware, Newark, DE 19716, USA; (2) University of Maryland, College Park, MD 20742, USA; (3) University of Maryland, Salisbury, MD 21801, USA
- AP-563. Fungal flora of Ontario apples identified by DNA sequencing and PCR-DGGE profiling. X. LI (1), T. Zhou (1). (1) Agriculture and Agri-Food Canada, Guelph, Ontario, Canada
- AP-564. *Fusarium* associations with agricultural and native grassland soils in New Zealand. M. G. CROMEY (1), R. Farrokhi-Nejad (2), A. Bentley (3). (1) Crop & Food Research, Christchurch, New Zealand; (2) Shahid Chamran University, Ahvaz, Iran; (3) University of Sydney, Sydney, Australia
- AP-565. Linking effects of farming practices on rhizosphere abundance of DAPG-producing *Pseudomonas* spp. to crop health. D. ROTENBERG (1), L. Gutierrez Chapin (1), M. Benitez (1), R. Joshi (1), A. Camp (1), A. Osborne (1), C. Zumpetta (1), B. B. McSpadden Gardener (1). (1) The Ohio State University - Ohio Agriculture Research and Development Center, Wooster, OH, USA
- AP-566. Microclimatic patterns in peanut intercropped with corn or cotton. M. A. BOUDREAU (1), B. B. Shew (2). (1) Hebert Green Agroecology, Inc., Asheville, NC, USA; (2) North Carolina State University, Raleigh, NC, USA
- AP-567. Multivariate analysis of production of asexual propagules by *Phytophthora capsici* in extracts from soils with varying chemical properties. S. SANOGO (1). (1) New Mexico State University
- AP-568. Partial characterization of epiphytic microorganisms on blueberry fruit: Enzyme production and biocontrol potential. S. A. JORDAN (2), S. Sabaratnam (1), M. Catal (2), A. Schilder (2). (1) BC Ministry of Agriculture and Lands, Abbotsford Agriculture Centre, Abbotsford, BC V3G 2M3, Canada; (2) Department of Plant Pathology, Michigan State University, East Lansing, MI, USA
- AP-569. Rapid host perception by *Pythium ultimum* in the corn and cucumber spermosphere and its impact on host colonization. S. T. WINDSTAM (1), E. B. Nelson (1). (1) Cornell University
- AP-570. The decline in quantity of bacteria of *Xanthomonas axonopodis* pv. *citri* dispersed from canker-infected citrus plants during wind/rain events. C. H. BOCK (3), P. E. Parker (2), T. R. Gottwald (1). (1) USDA, ARS, USHRL, 2001 S. Rock Rd., Ft. Pierce, FL 34945; (2) USDA-PDDML, 22675 N. Moorefield Rd., Edinburg, TX 78539; (3) University of Florida, 2001 S. Rock Rd., Ft. Pierce, FL, USA
- ### Population Genetics
- AP-571. Detecting immigration in field populations of *Rhynchosporium secalis* using assignment tests. M. M. ABANG (3), P. Brunner (2), C. C. Linde (4), A. H. Yahyaoui (1), M. Baum (1), B. A. McDonald (2). (1) ICARDA, Aleppo, Syria; (2) Plant Pathology, IBZ, ETH Zurich, Switzerland; (3) Plant Pathology, IBZ, ETH Zurich, Switzerland / ICARDA, Aleppo, Syria; (4) School of Botany and Zoology, ANU, Canberra, Australia
- AP-572. Development of Sequence-Specific Amplified Polymorphism technique (S-SAP) on *Fusarium oxysporum* f. sp. *lactucae* isolates. M. PASQUALI (1), F. Dematheis (1), M. Gullino (1), A. Garibaldi (1). (1) AGROINNOVA, University of Torino, Grugliasco, Italy
- AP-573. Genetic variation in *Stagonospora nodorum* in the north central United States. T. ADHIKARI (1), S. Ali (1), R. R. Burlakoti (1), B. P. Chhetri (1), S. B. Goodwin (2). (1) North Dakota State University, Fargo, ND 58105, USA; (2) USDA-ARS, Purdue University, West Lafayette, IN 47907-2054, USA
- AP-574. Identification of candidate loci implicated in host adaptation by comparative genomics in poplar leaf rusts (*Melampsora* spp.). N. FEAU (1), D. L. Joly (1), R. C. Hamelin (1). (1) Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, 1055 rue du PEPS, Quebec, (QC), G1V4C7, Canada
- AP-575. Intercontinental genetic structure of the poplar rust *Melampsora medusae* f. sp. *deltoidae*. N. FEAU (1), M. Bourassa (1), D. L. Joly (1), R. C. Hamelin (1), A. Andrieux (2), B. Barrès (2), P. Frey (2). (1) Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, 1055 rue du PEPS, Quebec, (QC), G1V4C7, Canada; (2) UMR IAM, Pathologie Forestière, INRA Nancy, 54280 Champenoux, France
- AP-576. Molecular epidemiology of *Banana bunchy top virus* in Hawaii. R. ALMEIDA (1). (1) University of California, Berkeley, CA, USA
- AP-577. *Pyrenophora tritici-repentis* (Tan spot) races in Australia. S. ALI (2), T. Adhikari (2), S. Barbara (1), H. Cole (1). (1) Indooroopilly Research Centre, Plant Pathology Building, 80 Meiers Rd, Indooroopilly QLD 4068, Australia; (2) Plant Pathology Department, North Dakota State University, Fargo, ND, USA
- AP-578. Structure of *Puccinia triticina* populations from different regions of Russia in 2004. A. A. ZHEMCHUZHINA (1), N. N. Kurkova (1), X. Chen (2). (1) All Russian Research Institute of Phytopathology, Moscow, Russia; (2) USDA-ARS, Washington State University, Pullman, WA, USA
- AP-579. Use of microsatellite markers in the characterization of genetic diversity of *Venturia inaequalis* causing apple scab in the northeastern U.S.. G. VIJI (1), J. W. Travis (1), M. M. Jimenez-Gasco (1). (1) Department of Plant Pathology, The Pennsylvania

APS POSTERS

- State University, University Park, PA 16802
AP-580. Virulence frequencies in oat crown rust in the United States from 2001 through 2005. M. L. CARSON (1). (1) USDA-ARS Cereal Disease Lab, St. Paul, MN, USA

Molecular/Cellular Plant-Microbe Interactions

Bacteria – Genetics/Molecular Biology/Cell Biology

- AP-581. A novel method to identify genes of *Ralstonia solanacearum* race 3 biovar 2 that are induced by host root exudates. J. CLIFFORD (1), C. Allen (1). (1) University of Wisconsin-Madison, Madison, WI, USA
- AP-582. Analysis of rice *PR* gene expression in developmental disease resistance. G. P. PONCIANO (1), A. Oyafuso (1), C. Lowe (1), M. Whalen (1). (1) San Francisco State University, USA
- AP-583. Analysis of soil properties and bacterial genera influencing the soil-borne culturable bacterial community in a California grapevine vineyard. S. R. PARKER (1), D. A. Kluepfel (1), K. Steenwerth (1), J. Lambert (2), D. R. Smart (2). (1) USDA, ARS, Davis, CA, USA; (2) University of California, Davis, CA, USA
- AP-584. Blue light-specific regulation of the phytotoxin thaxtomin in *Streptomyces* species. M. JOSHI (1), D. Ripoll (1), R. Loria (1), K. Lee (1). (1) Cornell University, Ithaca, NY, USA
- AP-585. Cellulase genes of *Xanthomonas oryzae* pv. *oryzae* are associated with pathogenicity. D. LEE (2), B. So (2), S. Lim (2), B. Lee (1), Y. Kim (1), Y. Park (1), H. Kang (2). (1) National Institute of Agricultural Biotechnology, Suwon 441-707, Korea; (2) Graduate School of Biotechnology and Information Technology, Hankyong National University, Ansong 456-749, Korea
- AP-586. Characterization and functional analysis of WtsE, an AvrE-family type III effector protein. J. HAM (2), D. R. Majerczak (2), D. Mackey (1), D. L. Coplin (2). (1) Dept. Horticulture & Crop Sciences, The Ohio State University, Columbus, OH, USA; (2) Dept. Plant Pathology, The Ohio State University, Columbus, OH, USA
- AP-587. Characterization of an *in planta* induced peroxidase gene of *Ralstonia solanacearum*. Z. FLORES-CRUZ (1), C. Allen (1). (1) University of Wisconsin-Madison, Madison, WI, USA
- AP-588. Characterizing the functional role of VIP2-a VirE2 interacting protein 2 in genetic transformation of plants by *Agrobacterium tumefaciens*. A. ANAND (2), T. Tzfira (1), V. Citovsky (3), K. S. Mysore (2). (1) Department of Molecular, Cellular and Developmental Biology, University of Michigan, Ann Arbor, MI 48109; (2) Plant Biology Division, Samuel Roberts Noble Foundation, Ardmore, OK 73401; (3) Department of Biochemistry and Cell Biology, State University of New York, Stony Brook, NY
- AP-589. Cloning and characterization of the thaxtomin C biosynthetic gene cluster of the bacterial sweet potato pathogen *Streptomyces ipomoeae*. B. L. Grau (2), D. GUAN (2), R. Loria (1), G. S. Pettis (2). (1) Cornell University, Ithaca, NY, USA; (2) Louisiana State University, Baton Rouge, LA, USA
- AP-590. Comparative transcriptional profiling of rice undergoing infection by *Xanthomonas oryzae* pv. *oryzae* or by *X. oryzae* pv. *oryzicola*. D. NIÑO-LIU (2), R. Caldo (2), J. Recknor (3), D. Nettleton (3), R. Wise (1), A. Bogdanove (2). (1) Department of Plant Pathology, Corn Insects and Crop Genetics Research, USDA-ARS, Iowa State University, Ames, IA; (2) Department of Plant Pathology, Iowa State University, Ames, IA; (3) Department of Statistics, Iowa State University, Ames, IA, USA
- AP-591. Expression profiling of secretion system regulated genes of *Xanthomonas oryzae* pv. *oryzae* (KACC10331) using DNA microarray. H. KANG (1), B. So (1), D. Lee (1), S. Lim (1), B. Lee (2), Y. Park (2). (1) Graduate School of Biotechnology and Information Technology, Hankyong National University, Ansong 456-749, Korea; (2) National Institute of Agricultural Biotechnology, Suwon 441-707, Korea
- AP-592. Extracellular components of the *Pseudomonas syringae* Hrp type III secretion system: Identification and role in effector delivery. J. E. MORELLO (1), A. Ramos (1), W. Deng (2), H. Huang (2), A. Collmer (1). (1) Cornell University, Ithaca, NY; (2) National Chung Hsing University, Taichung 402, Taiwan
- AP-593. Functional analysis of Gac two-component system in *P. syringae* pv. *tabaci*. M. MARUTANI (2), Y. Ogawa (1), F. Taguchi (1), Y. Inagaki (1), K. Toyoda (1), T. Shiraishi (1), Y. Ichinose (1). (1) Okayama University, Okayama, Japan; (2) University of Florida, Gainesville, FL, USA
- AP-594. Further molecular analysis of a bacteriocin produced by the sweet potato pathogen *Streptomyces ipomoeae* that shows interstrain inhibition. K. L. Schully (1), J. WANG (1), G. S. Pettis (1). (1) Louisiana State University, Baton Rouge, LA, USA
- AP-595. Genetic background of *Xanthomonas oryzae* pv. *oryzae* strains influences the function of specific avirulence genes. L. WANG (2), J. E. Leach (1), A. J. Bogdanove (2). (1) Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins 80537-1177, USA; (2) Department of Plant Pathology, Iowa State University, Ames, IA, USA
- AP-596. Genomic diversity of *Pseudomonas corrugata* and *Pseudomonas mediterranea* strains in Turkey. H. BASIM (1), E. Basim (2), S. Yilmaz (1). (1) University of Akdeniz, Dept. of Plant Protection, 07070, Antalya, Turkey; (2) University of Akdeniz, Korkuteli Vocational School, Dept. of Plant Production, 07800, Antalya, Turkey

- AP-597. High-throughput microarray comparative genomic analyses of *Xylella fastidiosa* strains. J. YAO (1), H. Doddapaneni (3), H. Lin (2), E. L. Civerolo (2). (1) Citrus Research Board, Visalia, CA, USA; (2) USDA, ARS, San Joaquin Valley Agricultural Sciences Center, Parlier, CA, USA; (3) University of California Davis, Dept. of Viticulture and Enology, Davis, CA, USA
- AP-598. Identification by real-time PCR and molecular characterization of *Xanthomonas axonopodis* pv. *vesicatoria* strains in Turkey. E. BASIM (2), H. Basim (1), S. Yilmaz (1). (1) University of Akdeniz, Dept. of Plant Protection, 07070, Antalya, Turkey; (2) University of Akdeniz, Korkuteli Vocational School, Dept. of Plant Production, 07800, Antalya-Turkey
- AP-599. Identification of *Ralstonia solanacearum* proteins secreted through alternative type II secretion systems. M. C. ZULETA (2), H. Liu (2), M. A. Schell (1), T. P. Denny (2). (1) Department of Plant Pathology and Microbiology, The University of Georgia, Athens, GA, USA; (2) Department of Plant Pathology, The University of Georgia, Athens, GA, USA
- AP-600. Identification of a LysR-type transcriptional regulator essential for *Pseudomonas chlororaphis* strain PA23 biocontrol. C. SELIN (1), S. Nakkeeran (2), D. W. Fernando (2), T. R. De Kievit (1). (1) Dept. of Microbiology, University of Manitoba, 137 Buller Building, Winnipeg, MB R3T 2N2; (2) Dept. of Plant Science, 222 Agriculture Building, University of Manitoba, Winnipeg, MB R3T 2N2
- AP-601. *In vitro* regeneration of transformed *Lycopersicon esculentum*. R. J. SAUVE (3), T. Chen (3), S. Zhou (3), W. A. Powell (2), C. A. Maynard (1). (1) SUNY-ESF; (2) State University of New York; (3) Tennessee State University, Nashville, TN, USA
- AP-602. Is quickness more important than strength in induced resistant responses?. M. L. PIERCE (1), P. Ayoubi (1), M. Essenberg (1). (1) Okla. Ag. Exp. Sta., Oklahoma State University, Stillwater, OK, USA
- AP-603. Lipopolysaccharide biosynthesis genes in *Xanthomonas oryzae* pathovar *oryzae*. Chemotypes and pathogenicity. Y. PARK (2), E. Song (2), H. Cho (2), H. Kang (1), B. Lee (2). (1) Graduate School of Biotechnology and Information Technology, Hankyong National University, Ansong 456-749, Rep. of Korea; (2) National Institute of Agricultural Biotechnology, RDA, 441-707, Suwon, Rep. of Korea
- AP-604. Pathogenicity assays of twenty-four *hrp* mutants in *hrp* genes cluster of *Xanthomonas oryzae* pathovar *oryzae* KACC10859. H. CHO (1), Y. Park (1), Y. Kim (1), J. Kim (1), E. Song (1), B. Lee (1). (1) National Institute of Agricultural Biotechnology, Suwon, 441-707, Korea
- AP-605. Priming of systemic defence pathways by endophytic actinomycetes. V. M. Conn (2), C. M. FRANCO (2), M. Walker (1). (1) CSIRO Plant Industry, Adelaide, Australia; (2) Flinders University, Adelaide, Australia
- AP-606. SGT1 is required for plant disease resistance and symptom development during disease susceptibility. K. WANG (1), K. S. Mysore (1). (1) Plant Biology Division, The Samuel Roberts Noble Foundation, 2510 Sam Noble Parkway, Ardmore, OK 73401, USA
- AP-607. The influence of thiamin biosynthesis on exopolysaccharide production: A new virulence component identified on *Erwinia amylovora* plasmid pEA29. G. C. MCGHEE (1), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, USA
- AP-608. The role of sigma 54-dependent transcriptional activators FleQ, DctD2, and AlgB in *Pseudomonas syringae* pv. *tomato* DC3000. C. M. BAKER (1), C. L. Bender (1). (1) Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK, USA
- AP-609. Three new *Xanthomonas* genome sequences and comparative analyses of pathogenesis associated gene clusters. H. Lu (1), M. Van Sluys (3), V. Brendel (5), F. F. White (7), P. D. Rabinowicz (8), S. L. Salzberg (2), J. E. Leach (4), A. J. BOGDANOVE (6). (1) Bioinformatics and Computational Biology Graduate Program, Iowa State University, Ames, IA, USA; (2) Center for Bioinformatics and Computational Biology, University of Maryland, College Park, MD, USA; (3) Departamento de Botânica – IBUSP, Sao Paulo, SP, Brazil; (4) Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, CO, USA; (5) Department of Genetics Development and Cell Biology and Department of Statistics, Iowa State University, Ames, IA, USA; (6) Department of Plant Pathology, Iowa State University, Ames, IA, USA; (7) Department of Plant Pathology, Kansas State University, Manhattan, KS, USA; (8) The Institute for Genomic Research, Rockville, MD, USA
- AP-610. Use of GFPuv for *in vivo* monitoring of bacterial infection at both cellular and whole plant levels. K. WANG (1), L. Kang (1), A. Anand (1), G. Lazarovits (2), K. S. Mysore (1). (1) Plant Biology Division, The Samuel Roberts Noble Foundation, 2510 Sam Noble Parkway, Ardmore, OK 73401, USA; (2) Southern Crop Protection and Food Research Centre, 1391 Sandford Street, London, ON N5V 4T3 Canada
- AP-611. Using functional and applied genomics to identify genes that confer either resistance or susceptibility to fire blight. J. L. NORELLI (4), R. E. Farrell (2), E. H. Leder (4), C. L. Bassett (4), A. M. Baldo (3), M. Malnoy (1), E. Borejsza-Wysocka (1), H. S. Aldwinckle (1), K. Gasic (5), S. S. Korban (5), M. E. Wisniewski (4). (1) Cornell University, Geneva, NY, USA; (2) Pennsylvania State University, York, PA, USA; (3) USDA-ARS, Geneva, NY, USA; (4) USDA-ARS, Kearneysville, WV, USA; (5) University of Illinois, Urbana, IL, USA

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- AP-612. Within-species flagellin polymorphism in *Xanthomonas campestris* pv. *campestris* and its impact on elicitation of Arabidopsis FLS2-dependent defenses. W. Sun (1), C. E. PFUND (1), F. Dunning (1), R. Weingarten (1), A. Bent (1). (1) University of Wisconsin-Madison, Madison, WI, USA
- Fungi – Genetics/Molecular Biology/Cell Biology**
- AP-613. A profile of expressed rice genes in response to the sheath blight pathogen *Rhizoctonia solani* revealed by DNA microarray. Y. JIA (2), M. H. Jia (2), P. Singh (1), K. Gubrij (2). (1) Department of Plant Pathology, Cornell University, Ithaca, NY, USA; (2) USDA-ARS Dale Bumpers National Rice Research Center
- AP-614. A simple sequence repeat (SSR) marker in cultivated peanut (*Arachis hypogaea* L.) is associated with resistance to *Sclerotinia minor*. K. D. CHENAULT (1), A. Maas (2). (1) USDA-ARS, Stillwater, OK, USA; (2) USDA-ARS, Tifton, GA, USA
- AP-615. *Agrobacterium*-mediated transformation of *Acremonium implicatum* with green fluorescent protein (GFP) gene. S. KELEMU (1), J. Abello (1), C. Garcia (2). (1) International Center for Tropical Agriculture (CIAT), A. A. 6713, Cali, Colombia; (2) Universidad Nacional de Colombia, Bogotá, Colombia
- AP-616. Analysis of expressed sequence tags from the banana black leaf streak pathogen *Mycosphaerella fijiensis*. S. ZHONG (1), S. Hou (1). (1) University of Hawaii at Manoa, Honolulu, HI, USA
- AP-617. Analysis of genes expressed during interaction of *Phaseolus vulgaris* with the angular leaf spot pathogen (*Phaeoisariopsis griseola*). G. S. MAHUKU (1), M. Henriquez (1), H. Ramirez (2). (1) Centro Internacional de Agricultura Tropical (CIAT), A.A. 6713, Cali, Colombia; (2) Universidad Nacional de Colombia – A.A. 237, Palmira, Colombia
- AP-618. Anastomosis and vegetative compatibility in the fungal pathogen, *Alternaria brassicicola*. K. D. CRAVEN (1), E. Velez (1), T. K. Mitchell (1). (1) North Carolina State University, Raleigh, NC, USA
- AP-619. Characterization and expression of glycosyl hydrolase of family 12 from *Phytophthora sojae* in *Nicotiana benthamiana*. S. COSTANZO (3), R. W. Hammond (2), K. L. Deahl (1), R. W. Jones (1). (1) USDA/ARS, Vegetable Laboratory, Beltsville, MD, USA; (2) USDA/ARS/PSI/MPPL, Beltsville, MD, USA; (3) University of Maryland, Dept. NRSL, College Park, MD, USA
- AP-620. Characterization of proteins secreted by *Phakopsora pachyrhizi* during spore germination. D. LUSTER (1), M. McMahon (1), M. Carter (1). (1) USDA, ARS FDWSRU, Ft. Detrick, MD
- AP-621. Competition between *Aspergillus flavus* and *Fusarium verticillioides* in maize seeds. A. L. DOLEZAL (1), N. Glassbrook (1), G. A. Payne (1). (1) North Carolina State University, Raleigh, NC, USA
- AP-622. Construction of selectable markers for endophyte transformation followed by controlled marker deletion. D. ZHANG (1), C. L. Schardl (1). (1) University of Kentucky, Lexington, KY, USA
- AP-623. Cultivar specific response to the host-selective toxin produced by *Rhizoctonia solani*, the causal pathogen of Sheath Blight disease of rice. S. A. BROOKS (1). (1) USDA ARS Dale Bumpers NRRC
- AP-624. Developing molecular tools to study the *Fusarium virguliforme* soybean interaction. S. MANSOURI (1), A. M. Fakhoury (1). (1) Department of Plant and Soil Sciences, Southern Illinois University, Carbondale, IL, USA
- AP-625. Development of a microsatellite library for *Puccinia coronata*. H. R. DAMBROSKI (1), M. Carson (1). (1) USDA-ARS-CDL
- AP-626. Development of a novel pathosystem: *Arabidopsis thaliana* - *Magnaporthe grisea* interactions. J. PARK (2), S. Kim (2), S. Kang (1), Y. Lee (2). (1) Department of Plant Pathology, The Pennsylvania State University, University Park, PA 16802, USA; (2) School of Agricultural Biotechnology, CFGR and CAB, Seoul National University, Seoul 151-921, Korea
- AP-627. Distribution and identification of species of *Armillaria* from cherry producing regions of Michigan. M. L. ELLIS (2), T. J. Proffer (1), J. L. Jacobs (2), G. W. Sundin (2), R. Hammerschmidt (2). (1) Kent State University, Kent, OH, USA; (2) Michigan State University, East Lansing, MI, USA
- AP-628. Drought and rust effects on gene expression in the dominant plant species of tallgrass prairie, *Andropogon gerardii*. E. E. FRANK (3), S. E. Travers (3), S. H. Hulbert (3), J. E. Leach (1), J. Bai (3), P. S. Schnable (2), M. D. Smith (4), D. J. Bremer (3), K. A. Garrett (3). (1) Colorado State University, Ft. Collins, CO, USA; (2) Iowa State University, Ames, IA, USA; (3) Kansas State University, Manhattan, KS, USA; (4) Yale University
- AP-629. Elucidating the role of a KH domain-containing, RNA binding protein in the SPL11-mediated programmed cell death and disease resistance pathway in rice. M. E. VEGA-SANCHEZ (1), L. Zeng (1), S. Chen (1), G. Wang (1). (1) The Ohio State University, Department of Plant Pathology, Columbus, OH, USA
- AP-630. Enhanced resistance to fungal pathogens of carrot (*Daucus carota* L.) by over-expression of three pathogenesis-related proteins. O. WALLY (1), J. Jayaraman (1), Z. K. Punja (1). (1) Simon Fraser University
- AP-631. Fruit surface phenols in relation to quiescence and development of *Monilinia fructicola* infections: A role for cellular redox?. M. Lee (1), R. M. BOSTOCK (2). (1) Department of Plant Pathology, National Chung-Hsing University, No. 250 Kao-Kuang Rd., Taichung, Taiwan; (2) Department of Plant Pathology, University of California, Davis, CA, USA
- AP-632. Functional analysis of BDM-1, a phosphatidylcholine-specific phospholipase C

- protein from *Cryphonectria parasitica* required for G-protein signaling. J. Salamon-Kozubowska (1), A. L. DAWE (1). (1) New Mexico State University, Las Cruces, NM, USA
- AP-633. Functional characterization of an *in planta* expressed gene of *Magnaporthe grisea*, *MDP1*, encoding dipeptidase. S. KIM (1), S. Yang (1), Y. Lee (1). (1) School of Agric. Biotech., Center for Fungal Genet. Res., and Center for Agric., Biomat., SNU, Seoul 151-742, Korea
- AP-634. *Fusarium verticillioides* infection induces sphinganine accumulation in maize during germination. J. PLASENCIA (1), D. Sanchez-Rangel (1), M. Rivas Sanvicente (1), M. Gavilanes-Ruiz (1). (1) Dept. Bioquimica, Facultad de Quimica, UNAM, Mexico
- AP-635. Genetic characterisation of *Phytophthora infestans* in Tunisia revealed the presence of the A2 mating type. W. Jmour (1), W. HAMADA (1). (1) INAT, Tunis, Tunisia
- AP-636. Genome wide analysis on Korean strain KJ201 of *Magnaporthe grisea*. M. SEO (1), Y. Kim (1), H. Kim (1), J. Lee (1), J. Kim (1), M. Jeong (1), J. Choi (3), S. Kim (3), Y. Lee (3), S. Han (2), W. Choi (1). (1) Depts. of Biotechnology and Bioengineering/Biomaterial Control, Dongeui University, Busan 614-714, Korea; (2) Environment and Biotechnology Division, National Institute of Crop Science, Suwon 441-857, Korea; (3) School of Agricultural Biotechnology, Seoul National University, Seoul 151-742, Korea
- AP-637. Global transcriptional analyses of appressorial development in *Magnaporthe grisea*. Y. OH (2), N. Donofrio (2), H. Pan (2), S. Coughlan (1), T. K. Mitchell (2), R. A. Dean (2). (1) Agilent Technologies, Inc., Wilmington, DE, USA; (2) Fungal Genomics Lab, North Carolina State University, Raleigh, NC, USA
- AP-638. Heterologous expression of fluorescent proteins in the phytopathogenic fungus *Ascochyta rabiei* and visualization of the fungus *in planta*. H. AKAMATSU (1), L. J. Stone (1), A. A. Sigler (1), M. I. Chilvers (1), T. Arie (2), T. L. Peever (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA 99164-6430, USA; (2) Faculty of Agriculture, Tokyo University of Agriculture and Technology, 3-5-8 Saiwaicho, Fuchu, Tokyo 183-8509, Japan
- AP-639. Identification of genes differentially expressed between cercosporin-resistant and -sensitive strains of *Cercospora nicotianae*. S. HERRERO (1), A. Amnuaykanjanasin (1), M. E. Daub (1). (1) North Carolina State University, Raleigh, NC, USA
- AP-640. Identification of genes differentially expressed during sclerotium formation and maturation in *Sclerotium rolfsii*. J. E. TAKACH (1), S. E. Gold (1). (1) University of Georgia, Athens, GA, USA
- AP-641. Identification of genes differentially expressed in fruiting bodies of the Dutch Elm Disease pathogen *Ophiostoma novo-ulmi*. J. Dufour (1), V. JACOBI (1), L. Bernier (1). (1) Forest Biology Research Centre, Laval University, Ste-Foy, QC G1K 7P4
- AP-642. Identification of resistance gene analogs and verticillium resistance-like sequences in *Mentha longifolia*. K. J. VINING (1), Q. Zhang (1), C. A. Smith (1), T. M. Davis (1). (1) University of New Hampshire, Durham, NH, USA
- AP-643. Identifying loci for resistance towards crown rot in wheat. W. Bovill (3), B. Collard (3), C. Percy (3), G. Wildermuth (2), S. Simpfendorfer (1), M. W. SUTHERLAND (3). (1) New South Wales Dept of Primary Industries, Tamworth, NSW, Australia; (2) Queensland Dept of Primary Industries and Fisheries, Toowoomba, QLD, Australia; (3) University of Southern Queensland, Toowoomba, QLD, Australia
- AP-644. Integration of *Agrobacterium tumefaciens* T-DNA into the chromosomes of *Magnaporthe grisea*. J. CHOI (2), S. Park (2), M. Ji (2), J. Park (2), J. Jun (2), J. Goh (2), S. Yoo (2), B. Kim (1), S. Han (1), S. Kim (2), Y. Lee (2). (1) Crop Environment and Biotechnology Division, National Institute of Crop Science, RDA, Suwon 441-857, Korea; (2) School of Agricultural Biotechnology, CFGR and CAB, Seoul National University, Seoul 151-921, Korea
- AP-645. Intermediates of loline alkaloid biosynthesis. J. R. FAULKNER (2), S. R. Hussaini (1), J. D. Blankenship (2), S. Pal (1), R. B. Grossman (1), C. L. Schardl (2). (1) Department of Chemistry, University of Kentucky, Lexington, KY, USA; (2) Department of Plant Pathology, University of Kentucky, Lexington, KY, USA
- AP-646. Isolation of double-stranded RNA and plasmid-like DNA elements from an isolate of *Rhizoctonia solani*. K. L. ANTHONY (1), N. Bharathan (1), S. Bharathan (1). (1) Indiana University of Pennsylvania, Indiana, PA, USA
- AP-647. Molecular characterization of *MPLC2* and *MPLC3* genes in *Magnaporthe grisea*. J. CHOI (1), H. Rho (1), Y. Lee (1). (1) School of Agricultural Biotechnology, CFGR, and CAB, Seoul National University, Seoul 151-921, Korea
- AP-648. Molecular identification of *Pythium* spp. isolated from soybean fields in Arkansas. M. L. ROSSO (1), J. C. Rupe (1), F. N. Martin (2), C. C. Rothrock (1). (1) Plant Pathology Department, University of Arkansas, Fayetteville, AR, USA; (2) USDA-ARS, 1636 East Alisal St., Salinas, CA, USA
- AP-649. Molecular markers associated with blue mold resistance in *Nicotiana glauca*. S. Zhang (1), D. ZAITLIN (1), R. Babbitt (1), Q. Huang (1). (1) KTRDC, University of Kentucky, Lexington, KY
- AP-650. *Myrothecium roridum Tri4* encodes a lethal factor for host bacterium. N. J. ALEXANDER (1), S. P. McCormick (1). (1) NCAUR/USDA/ARS, Peoria, IL, USA
- AP-651. New subgroups of *Rhizoctonia solani* that cause web blight of common bean identified by sequence

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- analysis of the ITS rDNA region. G. GODOY-LUTZ (2), S. Kuninaga (1), J. R. Steadman (3), K. S. Powers (3). (1) Health Sciences University of Kokkaido, Ishikari-Tobetsu, Hokkaido, 061-0293, Japan; (2) Instituto Dominicano de Investigaciones Agropecuarias y Forestales, IDIAF, Dominican Republic; (3) University of Nebraska, Dept. of Plant Pathology, Lincoln, NE, USA
- AP-652. *Ophiostoma piceae* pigmentation-related genes identified by insertional mutagenesis. P. TANGUAY (1), C. Breuil (1). (1) University of British Columbia, Vancouver, British Columbia, Canada
- AP-653. Oxylipins act as determinants of secondary metabolism and sporulation in *Aspergillus flavus*. J. B. SCOTT (2), L. Milde (2), B. Somai (1), R. A. Wilson (3), N. P. Keller (2). (1) Dept. of Biochemistry and Microbiology, Nelson Mandela Metropolitan University, Port Elizabeth, RSA; (2) Dept. of Plant Pathology, University of Wisconsin, Madison, WI, USA; (3) School of Biological and Chemical Sciences, Washington Singer Laboratories, Exeter, UK
- AP-654. *Phakopsora pachyrhizi* inoculation and proteome analysis of greenhouse-grown soybean plants. Z. CHEN (1), E. Mumma (1), R. W. Schneider (1). (1) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA, USA
- AP-655. Plant defense signaling and pathway interactions in *Medicago truncatula*. A. B. MORE (1), K. L. Korth (1). (1) Dept. of Plant Pathology, University of Arkansas, Fayetteville, AR
- AP-656. Putative protein phosphatase *CPP1* in *Fusarium verticillioides* is associated with fumonisin biosynthesis and cellular development. Y. CHOI (1), W. Shim (1). (1) Dept. of Plant Pathology & Microbiology, Texas A&M University, College Station, TX, USA
- AP-657. Quantification of *Fusarium culmorum* in crown rot resistant and susceptible wheat varieties using a *tri5* gene-based real-time PCR assay. J. E. PETRISKO (1), J. M. Windes (1). (1) University of Idaho
- AP-658. Quantitative proteomic analysis of the changes in the tomato cell wall proteome during infection by *Phytophthora infestans*. C. B. DAMASCENO (1), S. Zhang (1), R. W. Sherwood (1), Y. Yang (2), T. Thannhauser (2), J. C. Rose (1). (1) Cornell University, Ithaca, NY, USA; (2) USDA Plant Soil and Nutrition Laboratory, Ithaca, NY, USA
- AP-659. Role of glycosylation on potato aspartic proteases secretion. M. R. PAGANO (1), J. R. Mendieta (1), F. F. Muñoz (1), G. R. Daleo (1), M. G. Guevara (1). (1) Instituto de Investigaciones Biológicas, Universidad Nacional de Mar del Plata, Mar del Plata. Bs As. Argentina
- AP-660. Searching for signaling molecules involved in the systemic induced resistance phenomenon in Austrian pine. C. M. WALLIS (1), A. Eyles (1), P. Bonello (1). (1) The Ohio State University
- AP-661. The mycotoxin fumonisin B1 is necessary for corn seedling disease development and is translocated from roots to shoot. A. S. Zimeri (1), L. D. Williams (1), R. T. Riley (1), A. E. GLENN (1). (1) USDA, ARS, Russell Research Center, Toxicology & Mycotoxin Research Unit, Athens, GA, USA
- AP-662. The role of the *U. maydis snf1* gene in cell wall degrading enzymes expression and corn smut disease development. M. NADAL (2), M. D. Garcia-Pedrajas (1), S. E. Gold (2). (1) Dpt. Microbiología del Suelo; (2) University of Georgia
- AP-663. Towards the elimination of ergot alkaloid biosynthesis genes in *Neotyphodium coenophialum*. S. FLOREA (1), C. Machado (1), C. L. Schardl (1). (1) University of Kentucky, Lexington, KY, USA
- AP-664. Transformation of *Botrytis cinerea* with GFP - A tool to study the cytology of silicon-induced resistance against gray mold. S. KAMENIDOU (1), S. Casanova (1), M. R. Dhulipala (1), J. N. Enis (1), T. J. Cavins (2), S. M. Marek (1). (1) Oklahoma State University; (2) Sun Gro Horticulture
- AP-665. Transformation of *Leptosphaerulina trifolii* and its interaction with *Medicago*. M. R. DHULIPALA (1), J. N. Enis (1), S. Casanova (1), S. M. Marek (1). (1) Oklahoma State University
- AP-666. Two maize kernel compounds and their influence on aflatoxin biosynthesis and development in *Aspergillus flavus*. R. A. HOLMES (2), N. J. Glassbrook (1), R. S. Boston (2), G. A. Payne (2). (1) Cardiff University, Cardiff, Wales; (2) North Carolina State University, Raleigh, NC, USA
- AP-667. Use of GUS transformants of *Gaeumannomyces graminis* var. *graminis* to study the role of melanin during the pathogenesis of grass roots. H. M. FOULY (1), J. Park (1), S. Henning (1), H. T. Wilkinson (1). (1) University of Illinois, Urbana, IL, USA
- AP-668. Using a REMI approach to identify genes involved in Ochratoxin A biosynthesis by *Aspergillus ochraceus*. R. L. BAKER (1), A. M. Fakhoury (1). (1) Department of Plant and Soil Sciences, Southern Illinois University, Carbondale, IL, USA
- AP-669. Whole genome expression analysis of *Magnaporthe grisea*-infected barley: Insight into the role of reactive oxygen species. N. M. DONOFRIO (2), A. J. Powell (2), H. Pan (2), S. Coughlan (1), T. K. Mitchell (2), R. A. Dean (2). (1) Agilent Technologies; (2) North Carolina State University
- Nematodes – Genetics/Molecular Biology/Cell Biology**
- AP-670. A novel mechanism of gene regulation identified in the chorismate mutase gene from the potato cyst nematode *Globodera rostochiensis*. S. LU (1), D. Tian (1), X. Deng (1), X. Wang (1). (1) Cornell University, Ithaca, NY 14853, USA
- AP-671. Genetic analysis of *Heterodera glycines* virulence. S. BEKAL (1), K. N. Lambert (1), T. Niblack (1), L. Domier (1). (1) University of Illinois, Urbana, IL, USA

- AP-672. Phenylalanine ammonia lyase in maize - Response to infection by the root-knot nematode *Meloidogyne incognita*. C. L. MILLER (1), X. Gao (1), M. Kolomiets (1), J. L. Starr (1). (1) Texas A&M University
- Viruses – Genetics/Molecular Biology/Cell Biology**
- AP-673. 5'-coterminial LMT2 RNA represents the minor coat protein encased region of the *Citrus tristeza virus* genome. S. GOWDA (1), S. Tatineni (1), M. E. Hilf (2), W. O. Dawson (1). (1) Department of Plant Pathology, Citrus Research and Education Center, University of Florida, Lake Alfred, FL 33850; (2) Horticultural Research Laboratory, USDA-ARS, Fort Pierce, FL, USA
- AP-674. A resistance gene in common bean to Clover yellow vein virus is tightly linked with bc-3 gene which confers resistance to Bean common mosaic virus. R. LARSEN (1). (1) USDA-ARS
- AP-675. Allelic discrimination between resistant breaking and wild type *Beet necrotic yellow vein virus* (BNYVV) genotypes using TaqMan technology. R. ACOSTA-LEAL (1), B. Bryan (1), C. Rush (1). (1) Texas Agricultural Experiment Station, Amarillo, TX, USA
- AP-676. Analysis of interactions between Apple latent spherical virus and Bean yellow mosaic virus in mixed infected plants by using fluorescent proteins. T. TAKAHASHI (3), T. Yamatsuta (1), N. Sasaki (1), T. Sugawara (1), M. Isogai (1), T. Natsuaki (2), N. Yoshikawa (1). (1) Faculty of Agriculture, Iwate University, Morioka 020-8550, Japan; (2) Faculty of Agriculture, Utsunomiya University, Utsunomiya 321-8505, Japan; (3) The 21st Century Center of Excellence Program, Iwate University, Morioka 020-8550, Japan
- AP-677. Blackberry virus Y: A new component of blackberry yellow vein disease. J. SUSAIMUTHU (3), I. E. Tzanetakis (1), R. C. Gergerich (3), R. R. Martin (2). (1) Dept. of Botany and Plant Pathology, Oregon State University, Corvallis, OR; (2) Dept. of Botany and Plant Pathology, Oregon State University, USDA-ARS-HCRL, Corvallis, OR; (3) Dept. of Plant Pathology, University of Arkansas, Fayetteville, AR
- AP-678. Characterization of the diversity in the *N* family resistance genes. C. A. ANGEL (1), B. Balaji (1), J. D. Cawly (1), B. E. Wiggins (1), J. E. Schoelz (1). (1) Division of Plant Sciences, University of Missouri - Columbia, Columbia, MO, USA
- AP-679. Characterization of viruses in *Verbena × hybrida*. J. KRAUS (2), M. L. Putnam (1), R. R. Martin (3). (1) Oregon State University, Corvallis, OR, USA; (2) Oregon State University, USDA ARS, Corvallis, OR, USA; (3) USDA ARS, Corvallis, OR, USA
- AP-680. Distribution and molecular analysis of resistance-breaking isolates of *Beet necrotic yellow vein virus* in the United States. H. LIU (1), R. T. Lewellen (1). (1) USDA-ARS, Salinas, CA, USA
- AP-681. Genetic variability of *Cherry green ring mottle virus* and *Cherry necrotic rusty mottle virus*. R. LI (1), R. Mock (1), Z. Liu (2), B. Howell (3). (1) USDA-ARS, Beltsville, MD, USA; (2) USDA-ARS, Kearneysville, WV, USA; (3) Washington State University, Prosser, WA, USA
- AP-682. Genomic sequence of *Citrus tristeza virus* from India represents a new genotype. A. ROY (2), R. H. Brlansky (1). (1) University of Florida, IFAS, Citrus Research and Education Center, Lake Alfred, FL 33850; (2) University of Florida, Citrus Research and Education Center, Lake Alfred, FL, USA
- AP-683. The 50kDa protein of *Apple chlorotic leaf spot virus* suppresses systemic silencing without interfering with local silencing in *Nicotiana benthamiana*. H. YAEGASHI (5), T. Takahashi (4), M. Isogai (1), T. Kobori (3), S. Ohki (2), N. Yoshikawa (1). (1) Faculty of Agriculture, Iwate University, Morioka 020-8550, Japan; (2) Graduate School of Life and Environmental Sciences, Osaka Prefecture University, Sakai, 599-8531, Japan; (3) Kyoto Prefectural Institute of Agricultural Biotechnology, Soraku-gun, Kyoto 619-0244, Japan; (4) The 21st Century Center of Excellence Program, Iwate University, Morioka 020-8550, Japan; (5) The United Graduate School of Agricultural Sciences, Iwate University, Morioka 020-8550, Japan
- AP-684. Transformation of cowpea and *Arabidopsis* for resistance to *Cucumber mosaic virus* through an RNA silencing mechanism. B. KHAN (1), R. Gergerich (1). (1) Department of Plant Pathology, University of Arkansas, Fayetteville, AR, USA
- AP-685. Transgenic grapefruit plants resistant to *Citrus tristeza virus* (CTV). V. FEBRES (1), R. F. Lee (2), G. A. Moore (1). (1) University of Florida, Gainesville, FL 32611, USA; (2) USDA-ARS, National Clonal Germplasm Repository for Citrus & Dates, Riverside, CA 92521, USA
- AP-686. Two variants of *Pepino mosaic virus* isolated from imported tomato seed from Chile share high levels of sequence identity with the U.S. isolates. K. LING (1). (1) USDA-ARS, Charleston, SC, USA

Plant Disease Management

Biological Control

- AP-687. A novel alpha-1,3-glucan induces protection against *Rhizoctonia solani* AG-3. E. A. WOLSKI (1), S. Maldonado (2), G. R. Daleo (1), A. B. Andreu (1). (1) APS member, Universidad Nacional de Mar del Plata, Argentina; (2) Universidad de Buenos Aires
- AP-688. Biological control of *Pythium myriotylum*. M. M. Clark (1), K. D. GWINN (1), B. H. Ownley (1). (1) University of Tennessee, Department of Entomology and Plant Pathology, Knoxville, TN, USA
- AP-689. Biological control of Dutch Elm Disease by *Verticillium* isolate WCS850: An update on practical use. R. J. SCHEFFER (2), J. G. Voeten (1). (1) BTL Bomendienst B.V., Apeldoorn, the

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- Netherlands; (2) Ruud Scheffer B.V., Almere, the Netherlands
- AP-690. Biological control of powdery mildew of dogwood with two bacteria involve metabolite production. F. A. MREMA (1), M. T. Mmbaga (1). (1) Tennessee State University, Otis L. Floyd Nursery Research Center, McMinnville, TN, USA
- AP-691. Common crupina from the United States varies in susceptibility to *Puccinia crupinae*. W. L. Bruckart (2), F. M. ESKANDARI (2), D. K. Berner (2), K. M. Lesser (1). (1) Penn State Cooperative Extension, Gettysburg, PA, USA; (2) USDA, ARS, FDWSRU, Ft. Detrick, MD, USA
- AP-692. Compatibility of the bioherbicide *Myrothecium verrucaria* with selected pesticides. M. A. WEAVER (1), R. E. Hoagland (1), C. D. Boyette (1). (1) USDA-ARS, Stonville, MS, USA
- AP-693. Displacement of *Fusarium pseudograminearum* from cereal residues by fungal antagonists. D. P. SINGH (1), D. Backhouse (1). (1) School of Environmental Science and Natural Resource Management, University of New England, Armidale, NSW 2351
- AP-694. Effects of *Lysobacter enzymogenes* C3 and its antibiotic dihydromaltophilin on nematodes. G. Y. YUEN (2), K. Broderick (2), W. H. Moore (1), E. P. Caswell-Chen (1). (1) University of California, Davis, CA, USA; (2) University of Nebraska-Lincoln, Lincoln, NE, USA
- AP-695. Elucidating mechanisms of biological control by *Gliocladium catenulatum* against fusarium root and stem rot of greenhouse cucumbers. S. CHATTERTON (1), Z. K. Punja (1). (1) Simon Fraser University, Burnaby, BC, Canada
- AP-696. Evaluation of a bacteriocin-producing, opgH⁻ strain of *Xanthomonas perforans* for suppression of *Xanthomonas euvesicatoria*. A. P. HERT (1), J. B. Jones (1), T. M. Momol (2), S. M. Olson (2). (1) University of Florida, Gainesville, FL, USA; (2) University of Florida, Quincy, FL, USA
- AP-697. Evaluation of antagonism by *Trichoderma* and Actinomycetes against *Armillaria in vitro*. S. I. HOLLOSY (1), R. Hammerschmidt (1). (1) Michigan State University, East Lansing, MI, USA
- AP-698. Evaluation of bactericides and biological materials for suppressing bacterial spot of bell pepper transplants in the greenhouse. D. B. LANGSTON (1), J. H. Brock (1), M. J. Foster (1), F. H. Sanders (1), R. D. Gitaitis (1). (1) University of Georgia, Tifton, GA, USA
- AP-699. Evidence of induced systemic resistance with *Beauveria bassiana* against *Xanthomonas* in cotton. M. R. GRIFFIN (1), B. H. Ownley (1), W. E. Klingeman (2), R. M. Pereira (3). (1) Department of Entomology and Plant Pathology, The University of Tennessee, Knoxville, TN 37996, USA; (2) Department of Plant Sciences, The University of Tennessee, Knoxville, TN 37996, USA; (3) USDA-ARS, Center for Medical, Agricultural and Veterinary Entomology, Gainesville, FL 32608, USA
- AP-700. Factors affecting survival of bacteriophage on tomato leaf surfaces. F. B. Iriarte (1), B. Balogh (1), T. Momol (2), J. B. JONES (1). (1) Plant Pathology Department, University of Florida-IFAS, Gainesville, FL; (2) NFREC, Plant Pathology Department, University of Florida-IFAS Quincy, FL
- AP-701. GacS is essential for biocontrol activity of *Pseudomonas* species DF41. C. L. BERRY (3), D. G. Fernando (4), P. C. Loewen (2), T. De Kievit (1). (1) Dept. of Microbiology, 137 Buller Building, University of Manitoba, Winnipeg, MB R3T 2N2; (2) Dept. of Microbiology, 414A Buller Building, University of Manitoba, Winnipeg, MB R3T 2N2; (3) Dept. of Microbiology, University of Manitoba, 137 Buller Building, Winnipeg, MB R3T 2N2; (4) Dept. of Plant Science, 222 Agriculture Building, University of Manitoba, Winnipeg, MB R3T 2N2
- AP-702. Greenhouse evaluation of *Bacillus licheniformis* SB 3086 for control of rhizoctonia on geranium and impatiens; and Phytophthora on marigold. L. WEST (2), M. S. Reddy (1). (1) Auburn University; (2) Novozymes, Salem, VA, USA
- AP-703. Impact of *Synchytrium solstitialis* on yellow starthistle seedlings and mature plants. T. L. WIDMER (1). (1) USDA/ARS-FDWSRU, Fort Detrick, MD, USA
- AP-704. Importance of nematode inoculum density and antagonist dose for biocontrol efficacy of *Paecilomyces lilacinus* strain 251. S. KIEWNICK (1), S. Neumann (1), R. Sikora (1). (1) University of Bonn, Germany
- AP-705. Improved biological control efficacy of *Trichoderma harzianum* by amending paeonia root against *Rhizoctonia solani*. T. Lee (1), Y. KIM (1). (1) Department of Agricultural Biotechnology, Seoul National University, Seoul 151-921, Korea
- AP-706. Induced resistance by *Trichoderma hamatum* T382 and binucleate *Rhizoctonia* sp. in geranium and suppression of Botrytis blight. H. A. OLSON (1), M. Benson (1). (1) North Carolina State University, Raleigh, NC, USA
- AP-707. Inhibition of sclerotia of *Sclerotinia sclerotiorum* by *Monarda* and its essential oils constituents. K. D. GWINN (1), S. E. Greene (1), D. J. Trently (1), B. H. Ownley (1). (1) University of Tennessee, Entomology and Plant Pathology, Knoxville, TN, USA
- AP-708. Interaction of the fungus *Colletotrichum truncatum* and glyphosate for controlling hemp sesbania in glyphosate-resistant soybean. C. D. BOYETTE (1), R. E. Hoagland (1), M. A. Weaver (1). (1) USDA-ARS, Southern Weed Science Research Unit, P.O. Box 350, Stoneville, MS, USA
- AP-709. Investigations on the colonization of root-knot nematode galls and egg masses by the antagonistic fungus *Paecilomyces lilacinus* strain 251. S. KIEWNICK (2), A. J. Lauritzen (1), J. Eilenberg (1). (1) KVL, Department of Ecology, Zoology Group, Denmark; (2) University of Bonn, Dept. of

- Plant Pathology, Germany
- AP-710. Investigations on the mode of action of Bio-Save 11LP and 10LP for control of *Rhizopus* soft rot of sweetpotato. B. A. EDMUNDS (1), G. J. Holmes (1). (1) North Carolina State University, Raleigh, NC, USA
- AP-711. *In vitro* and *in vivo* antiomycete activity of bikaverin from *Fusarium oxysporum* against *Phytophthora infestans*. S. Son (1), H. Kim (1), G. Choi (1), H. Lim (1), K. Jang (1), S. Lee (1), K. Cho (1), J. KIM (1). (1) Biological Function Research Team, Korea Research Institute of Chemical Technology, Yusong PO Box 107, Taejon 305-600, Korea
- AP-712. Isolation of a *cyp1* gene homolog in the biocontrol fungus *Pseudozyma flocculosa*. G. MARCHAND (1), F. Belzile (1), R. Bélanger (1). (1) Université Laval, Quebec, Quebec, Canada
- AP-713. Modulation of gene expression in tomato by *Trichoderma hamatum* 382. G. Alfano (1), J. Bos (1), C. Cakir (1), L. Horst (1), M. Ivey (1), L. V. Madden (1), S. Kamoun (1), H. HOITINK (1). (1) The Ohio State University, Wooster, OH
- AP-714. *Monarda* as a biological control method for *Pythium myriotylum*. M. M. Marshall (1), K. D. GWINN (1), B. H. Ownley (1). (1) University of Tennessee, Department of Entomology and Plant Pathology, Knoxville, TN, USA
- AP-715. Pathogen self-inhibiting protein may be induced by metabolite(s) of a biocontrol agent. W. LIU (1), T. Zhou (1), X. Li (1). (1) Agriculture and Agri-Food Canada, Guelph, ON, Canada
- AP-716. Profiles of cell-wall degradation enzyme of *Trichoderma atroviride* at 22°C and 7°C. M. Cheng (1), J. MCBEATH (1). (1) Plant Pathology & Biotechnology Laboratory, AFES, University of Alaska Fairbanks, Fairbanks, AK 99775, USA
- AP-717. Putative biological controls for lowering incidence of mummy berry disease on lowbush blueberry in Maine. K. B. MCGOVERN (1), S. Annis (1). (1) University of Maine, Orono, ME, USA
- AP-718. *Pythium oligandrum* associated with two antagonistic fungi: Rhizosphere compatibility and tomato grey mould biocontrol. G. Le Floch (2), N. Benhamou (1), E. Thuillier (2), Y. Tirilly (2), P. REY (2). (1) Département Recherche en Sciences de la Vie et Santé, Université Laval, Sainte-Foy, Québec, G1K7P4 Canada; (2) Laboratoire de Biodiversité et Ecologie Microbienne, ESMISAB, Université de Bretagne Occidentale, 29280 Plouzane, France
- AP-719. Reduced severity of sudden death syndrome and low population densities of *Heterodera glycines* in a soybean monoculture soil. L. XING (1), A. Westphal (1). (1) Department of Botany and Plant Pathology, Purdue University 915 West State Street, West Lafayette, IN, USA
- AP-720. Screening and characterization of Streptomyces isolates for biocontrol of *Rhizoctonia solani* and other plant pathogens. D. LAKSHMAN (1), L. Wanner (2). (1) USDA-ARS, FNPRU, Beltsville, MD, USA; (2) USDA-ARS, Vegetable Laboratory, Beltsville, MD, USA
- AP-721. Streptomycetous biocontrol agents: Interactions with the tomato plant and tomato fungal pathogens. J. M. HIGHAM (2), D. A. Cuppels (1), J. A. Traquair (1). (1) Agriculture and Agri-Food Canada, London, Ontario, Canada; (2) University of Western Ontario, London, Ontario, Canada
- AP-722. Suppression of fusarium root and stem rot on greenhouse cucumbers by the bacterial antagonist *Pseudomonas aeruginosa* isolated from composts. G. G. BRADLEY (1), Z. K. Punja (1). (1) Department of Biological Sciences, Simon Fraser University, Burnaby, British Columbia, Canada
- AP-723. The efficacy of environmentally friendly compounds in controlling silver scurf in naturally infected potatoes during storage. H. M. GRIFFITHS (1), T. A. Zitter (1). (1) Cornell University
- AP-724. The evaluation of metabolites as chrysophanol and pachybasin produced from *Trichoderma harzianum* strain ETS 323 on plant pathogens and vegetable crops. C. LO (2), K. Peng (1), J. Chen (1). (1) Institute of Biotechnology, National Dong-Hwa University, Hualien, 97401, Taiwan; (2) National Formosa University, Yulin, Taiwan
- AP-725. The role of an antibiotic produced by *Lysobacter enzymogenes* C3 in fungal biocontrol. G. Y. YUEN (1), C. Jochum (1), S. Li (1), F. Yu (1), K. M. Zañeta-Rivera (1), S. Harris (1), L. Du (1). (1) University of Nebraska-Lincoln, Lincoln, NE, USA
- AP-726. The use of *Pseudomonas fluorescens* A506 and *Agrobacterium radiobacter* K1026 for management of crown gall in herbaceous perennials. M. L. PUTNAM (1), M. L. Miller (1). (1) Oregon State University, Corvallis, OR, USA
- AP-727. *Trans*-aconitic acid in silicon treated wheat: A defense response against powdery mildew infection?. W. REMUS-BOREL (1), R. Bélanger (1). (1) Laval University, Quebec, Canada
- AP-728. Transformation of *Bacillus mojavensis* with GFP and its endophytic localization. B. A. OLUBAJO (1), C. W. Bacon (1). (1) USDA, ARS, Russell Research Center, Athens, GA, USA
- AP-729. Use of high glucosinolate Indian mustard cover crops to suppress soilborne pathogens of cotton. G. D. BATES (1), C. S. Rothrock (1). (1) University of Arkansas, Fayetteville, AR, USA
- AP-730. Weeding efficacy of a potential mycoherbicide, *Sclerotium* sp., isolate BWC98-105, on a problematic weed *Trifolium repens* in lawn. Y. HONG (1). (1) Research Institute Subsidiary of Techno Green, Yongin, 641-41, Korea
- AP-731. Weeding efficacy of combined applications of lower dosages of synthetic herbicides and mycoherbicide agent on the white clover control. Y. HONG (1). (1) Research Institute Subsidiary of Techno Green, Yongin, 641-41, Korea

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Chemical Control

- AP-732. A new breakthrough in copper technology from DuPont. R. W. WILLIAMS (1), A. Marcon (1), M. J. Martin (1), R. Armstrong (1), B. McInnes (1). (1) DuPont Agriculture & Nutrition, Stine-Haskell Research Center, Newark, DE
- AP-733. Acrobat MZ in early management of late blight *Phytophthora infestans* when applied to seed potato tubers. D. ROLÓN (1), A. Andreu (3), J. Di Rico (1), D. Caldiz (2). (1) BASF-Argentina; (2) Mccain-Argentina; (3) Universidad Nacional de Mar del Plata
- AP-734. Baseline sensitivity of *Phoma ligulicola* isolates to azoxystrobin in Tasmania, Australia. S. J. PETHYBRIDGE (1), F. S. Hay (1). (1) University of Tasmania
- AP-735. Characterization of *Meloidogyne incognita* suppression by abamectin as a seed treatment. T. R. FASKE (1), J. L. Starr (1). (1) Texas A&M University, College Station, TX, USA
- AP-736. Chemical control of bacterial citrus canker in lime in Thailand. U. LERTSUCHATAVANICH (2), A. Paradornuwat (2), J. Chunwongse (2), N. Schaad (1), N. Thaveechai (2). (1) FDWSRU, ARS, USDA, Ft. Detrick, MD; (2) Kasetsart University, Bangkok, Thailand
- AP-737. Distribution and efficacy of methyl isothiocyanate against *Rhizoctonia solani* and yellow nutsedge in plastic-mulched beds. B. L. CANDOLE (1), A. S. Csinos (1), D. Wang (2). (1) Plant Pathology Dept., University of Georgia Coastal Plain Expt. Station, P.O. Box 748, Tifton, GA 31793, USA; (2) Dept. of Soil, Water and Climate, University of Minnesota, 439 Borlaug Hall, 1991 Upper Buford Circle. St. Paul, MN 55108, USA
- AP-738. Early season fungicide sprays provide efficient control of panicle and shoot blight of pistachios. D. P. MORGAN (1), T. J. Michailides (1), G. Driever (1), D. Felts (1). (1) University of California, Kearney Ag Center, Parlier, CA, USA
- AP-739. Effect of 1-methylcyclopropene on susceptibility of apples to postharvest decays. D. A. ROSENBERGER (1), F. W. Meyer (1), A. L. Rugh (1). (1) Cornell University's Hudson Valley Lab, Highland, NY 12528, USA
- AP-740. Effect of adjuvants on the performance of pyraclostrobin for *Cercospora* leaf spot control on sugar beet. M. F. Khan (2), G. Richards (1), J. Khan (2), C. A. Bradley (2), R. HARIKRISHNAN (2). (1) American Crystal Sugar Company, Moorhead, MN, USA; (2) North Dakota State University, Fargo, ND, USA
- AP-741. Effect of application timing on fungicide performance for control of Asian soybean rust (*Phakopsora pachyrhizi* Sydow) in Brazil. P. BRUNE (1), M. Wiglesworth (1), A. Tally (1). (1) Syngenta Crop Protection, Greensboro, NC, USA
- AP-742. Effect of different fungicide on stem rot (*Sclerotinia sclerotiorum*) in the field. Y. LIU (1). (1) Institute of Plant Protection, Sichuan Academy of Agricultural Sciences, 610066 Chengdu, P. R. China
- AP-743. Effect of gaseous chlorine on spore and mycelium viability of *Botrytis cinerea* and *Rhizopus stolonifer*. T. J. AVIS (1), C. Martinez (1), K. Boivin (1), R. J. Tweddell (1). (1) Centre de recherche en horticulture, Université Laval, Québec, QC, Canada, G1K 7P4
- AP-744. Effect of gaseous chlorine on the development of decay pathogens and quality of stored strawberry fruit. T. J. AVIS (1), C. Martinez (1), V. Gravel (1), R. J. Tweddell (1). (1) Centre de recherche en horticulture, Université Laval, Québec, QC, Canada, G1K 7P4
- AP-745. Effect of QoI fungicides on colonization and sporulation by *Monilinia fructicola* on peach fruit. A. L. BURNETT (1), N. Lalancette (1). (1) Rutgers University, Agricultural Research and Extension Center, Bridgeton, NJ
- AP-746. Effect of timing of fungicide applications on development of soybean rust. T. A. MUELLER (3), W. Morel (1), G. Hartman (2). (1) Centro Regional de Investigación Agrícola, Ministerio de Agricultura y Ganadería, Capitán Miranda, Itapúa, Paraguay; (2) USDA/ARS and University of Illinois, Urbana-Champaign, IL, USA; (3) University of Illinois, Urbana-Champaign, IL, USA
- AP-747. Effectiveness of new mineral oil formulations to control powdery mildew (*Uncinula necator*) of grapevine. B. A. LATORRE (1), R. Torres (1), E. X. Briceno (1). (1) Pontificia Universidad Católica de Chile
- AP-748. Effects of foliar nutritional "Phosphites" on the resistance to phytopathogens, physiology and quality potato crop. M. C. LOBATO (1), E. González Altamiranda (1), D. O. Caldiz (2), G. R. Daleo (1), F. P. Olivieri (1), A. B. Andreu (1). (1) Instituto de Investigaciones Biológicas, Universidad Nacional de Mar del Plata, Argentina; (2) Mc. Cain, Balcarce, Argentina
- AP-749. Effects of phosphonate treatments on disease caused by *Phytophthora citricola* on English walnut. G. T. BROWNE (1), L. S. Schmidt (1), T. L. Prichard (3), W. H. Krueger (2). (1) USDA, ARS, Davis, CA, USA; (2) University of California Cooperative Extension, Orland, CA, USA; (3) University of California Cooperative Extension, Stockton, CA, USA
- AP-750. Effects of the fungicide famoxadone, alone and in a premix with cymoxanil, on fireblight of apples. R. G. PETROSKI (1), C. P. Shepherd (2), D. D. Ganske (2), M. J. Martin (2), N. D. McKinley (2). (1) DuPont Agriculture & Nutrition, DuPont Canada; (2) DuPont Agriculture & Nutrition, Stine-Haskell Research Center, Newark DE
- AP-751. Efficacy of an elemental sulfur/propiconazole mixture on *Monilinia fructicola* isolates with reduced sensitivity to DMI fungicides. I. J. HOLB (2), G. Schnabel (1). (1) Department of Entomology, Soils,

- and Plant Sciences, Clemson University, Clemson, SC; (2) Department of Plant Protection, University of Debrecen, Centre of Agricultural Sciences, Debrecen, Hungary
- AP-752. Efficacy of dimethyl disulfide (DMDS) for control of nematodes and fungal plant pathogens. E. N. ROSSKOPF (3), G. T. Church (2), J. Holzinger (1), C. B. Yandoc-Ables (3), J. W. Noling (4). (1) Holzinger Flowers, Inc., Palm City, FL, USA; (2) Texas A&M, Chilcothe, TX, USA; (3) USDA, ARS, Fort Pierce, FL, USA; (4) University of Florida, Lake Alfred, FL, USA
- AP-753. Efficacy of dormant-season applications of sulfur and copper for disease control in grapes. A. Schilder (1), J. M. Gillett (1), R. W. Sysak (1), B. L. Lehman (2), S. A. JORDAN (1). (1) Department of Plant Pathology, Michigan State University, East Lansing, MI, USA; (2) Fruit Research and Extension Center, Pennsylvania State University, Biglerville, PA, USA
- AP-754. Evaluating Tanos[®] or Curzate[®] fungicide programs for control of cucurbit downy mildew. M. J. MARTIN (1), H. Flanigan (1), B. McInnes (1), S. Rick (1), S. Smith (1), B. Williams (1). (1) DuPont Ag and Nutrition
- AP-755. Evaluation of application timing and protective properties of the fungicides fluazinam and boscalid for control of Sclerotinia blight of peanut. D. L. SMITH (1), M. C. Garrison (1), J. E. Hollowell (1), B. B. Shew (1). (1) North Carolina State University, Raleigh, NC, USA
- AP-756. Evaluation of assorted foliar fungicides for control of downy mildew of Chinese broccoli. R. N. RAID (1). (1) University of Florida, Belle Glade, FL, USA
- AP-757. Evaluation of soil treatments for the elimination of *Phytophthora ramorum* from nursery beds. L. E. YAKABE (1), J. D. MacDonald (1). (1) University of California, Davis, CA, USA
- AP-758. Germ tube inhibition and appressoria formation of *Phakopsora pachyrhizi* spores exposed to fungicides: Advantages of a combined approach. B. LEITE (1), J. Marois (1), D. Wright (1). (1) NFREC-IFAS University of Florida, Quincy, FL, USA
- AP-759. Influence of application timing on fungicide efficacy against lettuce drop in Imperial County, California. T. A. TURINI (3), R. E. Cardoza (4), B. M. Pryor (1), M. D. Rethwisch (2). (1) UA, Tucson, AZ, USA; (2) UCCE, Blythe, CA, USA; (3) UCCE, Holtville, CA, USA; (4) UCCE, Imperial, CA, USA
- AP-760. Influence of host resistance and insecticide seed treatments on curly top in sugar beets. C. A. STRAUSBAUGH (3), A. M. Gillen (3), J. J. Gallian (4), S. Camp (1), J. R. Stander (2). (1) Amalgamated Sugar Co., Paul, ID, USA; (2) Betaseed Inc., Kimberly, ID, USA; (3) USDA-ARS NWISRL, Kimberly, ID, USA; (4) University of Idaho, Res. and Ext Center, Twin Falls, ID, USA
- AP-761. Influence of sodium metabisulfite on growth and fatty acid composition in potato pathogens. T. J. AVIS (1), M. Michaud (1), R. J. Tweddell (1). (1) Centre de recherche en horticulture, Université Laval, Québec, QC, Canada, G1K 7P4
- AP-762. *In planta* expression analysis in *Mycosphaerella graminicola* of genes encoding efflux proteins. T. P. BEAN (1), H. J. Cools (1), B. A. Fraaije (1), J. A. Lucas (1). (1) Rothamsted Research, Harpenden, Herts, United Kingdom
- AP-763. Management of cucumber downy mildew in organic agriculture. S. C. Fahed (1), A. T. SAAD (1). (1) Department of Plant Sciences, American University of Beirut, Beirut 1107-2020, Lebanon
- AP-764. Managing citrus canker and other diseases with copper fungicides. R. W. WILLIAMS (1), A. Marcon (1), B. McInnes (1). (1) DuPont Agriculture & Nutrition, Stine-Haskell Research Center, Newark, DE
- AP-765. Physical modes of action of new and standard Botrytis fungicides on grapes. S. M. ZITTER (1), W. F. Wilcox (1). (1) Cornell University, NYSAES, Geneva, NY, USA
- AP-766. Polymorphism of 14 alpha-demethylase gene (*CYP51*) in brown rot pathogen *Monilinia fructicola* from a resistant orchard in New York State. D. M. PARKER (1), N. Zhang (1), C. D. Smart (1), W. D. Köller (1). (1) Cornell University, Geneva, NY, USA
- AP-767. Possible development of resistance by the rice blast fungus to fungicides. D. E. GROTH (2), M. C. Rush (1). (1) LSU Agricultural Center Department of Plant Pathology; (2) LSU Agricultural Center Rice Research Station
- AP-768. Post-plant chemical control of the burrowing nematode (*Radopholus similis*) in anthuriums. B. S. SIPES (1), B. Chinnasri (1), K. Sewake (1). (1) Department of Plant and Environmental Protection Sciences, University of Hawaii at Manoa, 3190 Maile Way, Honolulu, HI, USA
- AP-769. Pre and post-infection applications of fungicides to control scab, melanose and Alternaria brown spot of citrus. A. C. Vicent (1), R. F. Reis (2), S. N. MONDAL (3), L. W. Timmer (3). (1) Instituto Agroforestal Mediterráneo, Universidad Politécnica de Valencia, 46022 Valencia, Spain; (2) São Paulo State University, Jaboticabal, São Paulo, Brazil; (3) University of Florida, CREC, Lake Alfred, FL, USA
- AP-770. Pre-plant chemical control of the burrowing nematode (*Radopholus similis*) in anthuriums. B. CHINNASRI (1), B. S. Sipes (1), K. T. Sewake (1). (1) Department of Plant and Environmental Protection Sciences, University of Hawaii at Manoa, 3190 Maile Way, Honolulu, HI 96822
- AP-771. Preliminary studies on sweet cherry powdery mildew resistance to DMI's in the Pacific Northwest. J. M. CALABRO (1), R. A. Spotts (1), G. L. Grove (2). (1) Oregon State University; (2) Washington State University, USA
- AP-772. Selection of fungicide for the control of wilt disease of *Phalaenopsis* spp. caused by *Fusarium oxysporum*. J. Kim (2), J. Sim (2), J. Lee (2), J. W. Kim (1), Y. Kim (2), S. CHUN (2). (1) Dept. of Environmental

APS POSTERS

- Horticulture, University of Seoul, Dongdaemun-gu Cirybdaegil 13, Seoul 130-743, Korea; (2) Dept. of Molecular Biotechnology, College of Life and Environmental Sciences, 1 Hwayang-dong, Kwangjin-gu, Seoul 143-701, Korea
- AP-773. Sensitivity of *Phytophthora cactorum* isolates from strawberry to pyraclostrobin and azoxystrobin. A. REBOLLAR-ALVITER (2), L. V. Madden (2), S. N. Jeffers (1), M. A. Ellis (2). (1) Department of Entomology, Soils, and Plant Sciences, Clemson University, Clemson, SC, USA; (2) Department of Plant Pathology/OARDC, The Ohio State University, Wooster, OH, USA
- AP-774. The efficacy of alkyl dimethyl benzyl ammonium chloride for decontamination of infected tomato and pepper fruits. K. TUBAJIKA (1). (1) USDA APHIS CPHST Otis Pest Survey, Detection and Exclusion Laboratory, Cape Cod, MA 02542
- AP-775. The essential micronutrient nickel inhibits the growth of the pecan scab fungus *Fusicladosporium effusum*. C. C. REILLY (1), B. W. Wood (1). (1) SEFTNRL, USDA-ARS, 21 Dunbar Rd., Byron, GA, USA
- Host Resistance**
- AP-776. A greenhouse method for screening for resistance to charcoal rot in soybeans. A. PABON (2), C. B. Hill (2), G. L. Hartman (1). (1) USDA/ARS and University of Illinois, Urbana-Champaign, IL, USA; (2) University of Illinois, Urbana-Champaign, IL, USA
- AP-777. A PCR method to detect tomato genotypes with the *I-2* gene for resistance to *Fusarium oxysporum* f. sp. *lycopersici* race 2. C. A. El-Mohtar (2), Y. A. ABOU-JAWDAH (2), H. S. Atamian (2), M. S. Salus (1), D. P. Maxwell (1). (1) Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, USA; (2) FAFS, American University of Beirut (AUB), Beirut, Lebanon
- AP-778. An AFLP marker linked to the *Pm-1* gene that confers resistance to *Podosphaera xanthii* in melon. A. M. Teixeira (1), F. A. Barreto (1), L. E. CAMARGO (1). (1) Escola Superior de Agricultura Luiz de Queiroz, Setor de Fitopatologia, Piracicaba, SP, Brazil
- AP-779. Characterization and mapping of oat crown rust resistance using phenotypic data from three assessment methods. E. W. JACKSON (3), D. E. Obert (3), M. Menz (2), G. Hu (3), J. B. Avant (3), J. Chong (1), J. M. Bonman (3). (1) Agriculture & Agri-Food Canada Cereal Research Centre, Winnipeg, Manitoba, Canada; (2) Texas A & M University, College Station, TX, USA; (3) USDA-ARS, Aberdeen, ID, USA
- AP-780. Chromosomal location of major genes for resistance to tan spot and *Stagonospora nodorum* blotch in tetraploid wheat. P. K. SINGH (1), M. Mergoum (1), S. Ali (1), T. B. Adhikari (1), E. M. Elias (1), S. F. Kianian (1). (1) North Dakota State University, Fargo, ND, USA
- AP-781. Development of inoculation techniques to screen peanut for resistance to *Cylindrocladium parasiticum* in the greenhouse. W. DONG (1), T. B. Brenneman (1), C. C. Holbrook (2), A. K. Culbreath (1). (1) Department of Plant Pathology, University of Georgia, Tifton, GA 31793, USA; (2) USDA-ARS, Coastal Plain Exp. Stn., Tifton, GA 31793
- AP-782. Digital image analyses of primary leaf lesions on wheat seedlings of Frontana and Alsen inoculated with *Fusarium graminearum*. C. K. EVANS (1), J. Pope (1). (1) Utah State University, Logan, UT, USA
- AP-783. Duration of the latent period on wheat cultivars with partial resistance. E. D. KOVALENKO (1), M. I. Kiselyova (1), N. J. Lazebnih (1), H. E. Bockelman (2). (1) All Russian Research Institute of Phytopathology, Moscow, Russia; (2) National Small Grain Collection, Aberdeen, ID
- AP-784. Enhancing disease resistance in carrot plants through genetic engineering and induced resistance. J. JAYARAJ (1), M. Rahman (1), Z. K. Punja (1). (1) Simon Fraser University, Burnaby, BC, Canada
- AP-785. Evaluation of crown rust resistance of oat germplasm from the Intermountain West. J. BONMAN (3), D. E. Obert (3), E. W. Jackson (3), J. B. Avant (3), S. A. Harrison (1), M. L. Carson (2). (1) Louisiana State University, AgCenter Agronomy Department, Baton Rouge, LA, USA; (2) USDA-ARS, Cereal Disease Laboratory, St. Paul, MN, USA; (3) USDA-ARS, Small Grains and Potato Germplasm Research Unit, Aberdeen, ID, USA
- AP-786. Evaluation of partial resistance in soybean to *Phytophthora sojae* using WinRhizo root analysis software. B. D. NELSON (1), N. Phan (1). (1) Dept. Plant Pathology, NDSU, Fargo, ND 58105
- AP-787. Fine mapping and near isogenic lines for three *Wheat streak mosaic virus* (WSMV) resistance genes. M. W. Jones (2), M. G. REDINBAUGH (1), R. Louie (2). (1) USDA, ARS Corn and Soybean Research and Dept. Plant Pathology, Ohio State University, Wooster, OH; (2) USDA, ARS Corn and Soybean Research, Wooster, OH
- AP-788. Forward and reverse genetic screens for resistance to powdery mildew and downy mildew of grapevine. L. CADLE-DAVIDSON (1). (1) USDA-ARS, Grape Genetics Research Unit, Geneva, NY, USA
- AP-789. Further biochemical characterization of induced resistance of cucumber to *Colletotrichum lagenarium*. S. I. HOLLOSZY (1), R. Hammerschmidt (1). (1) Michigan State University, East Lansing, MI, USA
- AP-790. Generation of an open pollinated near-isogenic spinach line with homozygous resistance to the downy mildew pathogen. T. C. BENTLEY (2), B. M. Irish (1), J. C. Correll (2). (1) Tropic Agriculture Research Station, Mayaguez, PR, U.S.; (2) University of Arkansas, Fayetteville, AR, U.S.
- AP-791. Genetic mapping and identification of genes for important traits using a genomic BAC library. A. N. TOMLINSON (1), J. C. Correll (1), C. Feng

- (1), B. M. Irish (1). (1) University of Arkansas, Fayetteville, AR, USA
- AP-792. Identification of QTLs associated with soybean partial resistance to progression of Sclerotinia stem rot using a field-based inoculation method. T. HUYNH THANH (2), M. Bastien (2), P. Turcotte (1), F. Belzile (2). (1) Centre de recherche sur les grains (CEROM), 335, chemin des Vingt-cinq Est, Saint-Bruno-de-Montarville (Québec) J3V 4P6; (2) Department of Plant Science, 1243 Marchand Bldg., Laval University, Québec City, Canada
- AP-793. Mapping *Fusarium solani* f. sp. *glycines* resistant loci in soybean. E. KIM (2), G. Hartman (1). (1) USDA/ARS and University of Illinois, Urbana-Champaign, USA; (2) University of Illinois, Urbana-Champaign, IL, USA
- AP-794. Molecular characterization of transgenic pear plants expressing foreign genes under the control of a phloem-specific promoter. Q. SUN (1), W. Wei (1), R. W. Hammond (1), R. E. Davis (1), Y. Zhao (1). (1) Molecular Plant Pathology Laboratory, USDA-Agriculture Research Service, Beltsville, MD, USA
- AP-795. Molecular mapping of *Rsp1* and *Rsp3* resistance genes against *Septoria passerinii* in barley using DArT technology. S. Lee (1), S. M. NEATE (1). (1) Department of Plant Pathology, North Dakota State University, Fargo, ND, USA
- AP-796. Molecular markers linked to soybean Sclerotinia stem rot resistance using bulk segregant analysis. C. PAUL (2), D. Strutz (2), G. Hartman (1). (1) USDA/ARS and University of Illinois, Urbana-Champaign, IL, USA; (2) University of Illinois, Urbana-Champaign, IL, USA
- AP-797. Resistance to *Puccinia polysora* in four maize plant introductions. J. CHÁVEZ-MEDINA (1), V. T. Castañeda-de León (2), N. E. Leyva-López (1), J. K. Pataky (3). (1) Departamento de Agropecuario, CIIDIR-IPN, Unidad Sinaloa, Guasave, Mexico; (2) Universidad Nacional Autónoma de México, Mexico City, Mexico; (3) University of Illinois, Department of Crop Sciences, Urbana, IL, USA
- AP-798. Resistance to crown and foot rot in wheat and barley cultivars grown in Idaho. J. M. WINDES (1), T. Shelman (1), C. Jackson (1). (1) University of Idaho
- AP-799. Resistance to race TTKS of *Puccinia graminis* f. sp. *tritici* in barley. B. J. STEFFENSON (1), Y. Jin (2). (1) Department of Plant Pathology, University of Minnesota, St. Paul, MN 55108, USA; (2) USDA-ARS, Cereal Disease Laboratory, University of Minnesota, St. Paul, MN 55108, USA
- AP-800. Root infection of *Nicotiana* by the blue mold pathogen *Peronospora tabacina* Adam. S. ZHANG (1), D. Zaitlin (1), Q. Huang (1), R. Babbitt (1). (1) KTRDC, University of Kentucky, Lexington, KY
- AP-801. Screening of lima bean (*Phaseolus lunatus*) germplasm for resistance to downy mildew caused by *Phytophthora phaseoli*. L. SANTAMARIA (1), T. A. Evans (1), N. F. Gregory (1), R. P. Mulrooney (1). (1) University of Delaware, Newark, DE, USA
- AP-802. Selection of monogenic resistance gene for rice differential varieties to rice BLB caused by *Xanthomonas oryzae* pv. *oryzae*. T. H. NOH (1), D. K. Lee (1), J. C. Park (1), H. K. Shim (1), M. H. Kang (2), J. D. Kim (1). (1) Honam Agricultural Research Institute, NICS, RDA, Korea; (2) Namwon Horticultural Experiment Station, JARTS, Korea
- AP-803. Sequence polymorphisms in the stem rust resistance gene *Rpg1* in barley. H. BILGIC (1), C. V. Castell-Miller (2), B. J. Steffenson (2). (1) Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN, 55108, USA; (2) Department of Plant Pathology, University of Minnesota, St. Paul, MN, USA
- AP-804. Sources of resistance to *Sclerotinia minor* in peanut. H. A. MELOUK (1), R. Pittman (2). (1) USDA-ARS, Dept. of Entomology and Plant Pathology, 127 Noble Research Center, Stillwater, OK, USA; (2) USDA-ARS, Regional Plant Introduction Station, Griffin, GA, USA
- AP-805. Sources of resistance to the watermelon downy mildew pathogen (*Pseudoperonospora cubensis*) in U.S. plant introductions (PI). C. S. KOUSIK (1). (1) US Vegetable Lab, USDA-ARS, Charleston, SC
- AP-806. Studying a world germplasm of resistance at wheat cultivars to *Septoria* sp.. T. M. KOLOMIETS (1), O. O. Scatinok (1). (1) All Russian Research Institute of Phytopathology, Moscow, Russia
- AP-807. Suitability of phenylalanine ammonia lyase and chitinase activities as biochemical markers of soft rot resistance in Actinidia chinensis kiwifruit. K. V. WURMS (1), A. Ah Chee (1), T. Reglinski (1), J. T. Taylor (1). (1) HortResearch
- AP-808. Susceptibility of new apple cultivars to rust diseases in southeastern New York. D. A. ROSENBERGER (1), F. W. Mayer (1). (1) Cornell University's Hudson Valley Lab, Highland, NY 12528, USA
- AP-809. The development of aflatoxin-resistance in maize through a U.S. – Africa collaboration. R. L. BROWN (3), A. Menkir (1), Z. Chen (2), R. Bandyopadhyay (1), T. E. Cleveland (3). (1) International Institute of Tropical Agriculture, Ibadan, Nigeria; (2) Louisiana State University, Baton Rouge, LA, USA; (3) USDA-ARS-SRRC, New Orleans, LA, USA
- AP-810. Toward the high-resolution mapping of a quantitative trait locus conferring durable spot blotch resistance in barley. C. V. CASTELL-MILLER (2), H. Bilgic (1), B. J. Steffenson (2). (1) Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN, 55108, USA; (2) Department of Plant Pathology, University of Minnesota, St. Paul, MN, USA
- AP-811. Two new sources of resistance to Wheat streak mosaic virus (WSMV) in winter wheat. S. HABER (1), D. L. Seifers (2), T. J. Martin (2). (1) Agriculture Canada, Winnipeg, Manitoba, Canada; (2) Agriculture Research Centre - KSU, Hays, KS, USA

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Integrated Pest Management

- AP-812. An interactive website to deliver a weather-based stem rust warning system for perennial ryegrass seed crops in NW USA. W. PFENDER (2), L. Coop (1), D. Upper (1). (1) Oregon State University Integrated Plant Protection Center, Botany and Plant Pathology Dept., Corvallis, OR, USA; (2) USDA-ARS NFSPRC, Corvallis, OR, USA
- AP-813. Bacterial wilt induced changes in nutrient distribution and biomass on acibenzolar-S-methyl treated tomato plants. G. Hacısalihoglu (1), P. Ji (3), K. A. Milla (2), S. M. Olson (4), T. M. MOMOL (3). (1) Biology Department, Florida A&M University, Tallahassee, FL; (2) GIS/Remote Sensing Laboratory, Florida A&M University, Tallahassee, FL; (3) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL; (4) NFREC, University of Florida-IFAS, Quincy, FL
- AP-814. Classroom in the cocoa block - a new approach to disease management and extension in Papua New Guinea. J. Konam (3), Y. Namaliu (2), R. DANIEL (1), D. I. Guest (1). (1) Faculty of Agriculture, Food and Natural Resources, The University of Sydney, NSW, Australia; (2) Plant Pathology Section, Cocoa Coconut Institute of Papua New Guinea, Madang, Madang Province, Papua New Guinea; (3) Plant Pathology Section, Cocoa Coconut Institute of Papua New Guinea, Rabaul, East New Britain Province, Papua New Guinea
- AP-815. Control of downy mildew on rose with a novel leaf-canopy air circulation system. S. A. TJOSVOLD (1), J. F. Thompson (2), S. N. Wegulo (3), S. T. Koike (1). (1) University of California Cooperative Extension; (2) University of California, Davis; (3) University of Nebraska
- AP-816. Crop rotation and cover crop effects on soilborne diseases of potato. R. P. LARKIN (1), T. S. Griffin (1), C. Honeycutt (1). (1) USDA, ARS, New England Plant, Soil, and Water Lab, University of Maine, Orono, ME, USA
- AP-817. Developing disease management strategies for organic cucurbit production. F. BAYSAL-TUSTAS (1), J. Mera (1), M. L. Lewis Ivey (1), S. A. Miller (1). (1) Department of Plant Pathology, The Ohio State University, OARDC, 1680 Madison Ave., Wooster, OH, USA
- AP-818. Effect of biofumigation with brassica crops on population densities of soilborne pathogens in South Carolina. S. Njoroge (1), M. B. RILEY (2), A. P. Keinath (1). (1) Clemson University, CREC, Charleston, SC; (2) Clemson University, Clemson, SC
- AP-819. Effect of compost and compost tea fall applications to reduce over-wintering apple scab inoculum. J. W. Travis (1), N. O. Halbrendt (1), B. L. LEHMAN (1). (1) Fruit Research & Extension Center, Penn State University, Biglerville, PA, USA
- AP-820. Effect of orchard floor treatments in an apple replant site. J. W. Travis (1), J. M. Halbrendt (1), N. O. HALBRENDT (1), B. L. Lehman (1). (1) Fruit Research & Extension Center, Penn State University, Biglerville, PA, USA
- AP-821. Effect of row covers on bacterial wilt and muskmelon production in Iowa. D. MUELLER (1), M. Gleason (1), A. J. Sisson (1), J. Massman (1). (1) Iowa State University, Ames, IA, USA
- AP-822. Effect of silicon on powdery mildew development on miniature potted rose. L. E. DATNOFF (1), T. A. Nell (1), R. T. Leonard (1), B. A. Rutherford (1). (1) University of Florida-IFAS, Gainesville, FL, USA
- AP-823. Effects of cultivar and production system on the development of skin separation (silvering) in bell pepper fruit in New Jersey. A. WYENANDT (1), W. L. Kline (2). (1) Rutgers University, Rutgers Cooperative Research and Extension Center (RAREC), Bridgeton, NJ; (2) Rutgers University, Rutgers Cooperative Research and Extension, Millville, NJ, USA
- AP-824. Effects of different organic field management strategies on soil quality and soilborne diseases of vegetable crops. F. BAYSAL-TUSTAS (2), M. S. Benitez (2), A. Camp (2), M. D. Kleinhenz (1), J. Cardina (1), S. A. Miller (2), B. McSpadden Gardener (2). (1) Department of Horticulture and Crop Sciences, The Ohio State University-OARDC, 1680 Madison Ave., Wooster, OH 44691, USA; (2) Department of Plant Pathology, The Ohio State University-OARDC, 1680 Madison Ave., Wooster, OH, USA
- AP-825. Efficacy of several biorational compounds for control of bacterial wilt of tomato under greenhouse conditions. P. Ji (1), T. M. MOMOL (1), J. B. Jones (2). (1) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL; (2) Plant Pathology Department, University of Florida-IFAS, Gainesville, FL, USA
- AP-826. Epidemic progress of brown rot caused by *Monilinia fructigena* in integrated and organic apple orchards in Hungary. I. J. HOLB (2), H. Scherm (1). (1) University of Georgia, Department of Plant Pathology, Athens, GA; (2) Department of Plant Protection, University of Debrecen, Centre of Agricultural Sciences, Debrecen, Hungary
- AP-827. Evaluation of cucurbit species and cultivars as potential trap crops for management of bacterial wilt. G. J. Lewis (1), M. Gleason (2), D. MUELLER (2). (1) Carleton College, Northfield, MN, USA; (2) Iowa State University, Ames, IA, USA
- AP-828. Integrating cover cropping into annual cropping systems in California. B. B. WESTERDAHL (1). (1) University of California, Davis, CA, USA
- AP-829. Integration of *Trichoderma harzianum* and natural plant products for the suppression of Fusarium wilt of tomato. G. C. VAN DER PUIJE (1), S. R. Gowen (1), A. N. Jama (1), D. Pike (1). (1) University of Reading, Reading, U.K.
- AP-830. Management of bacterial spot on tomato using acibenzolar-S-methyl, famoxadone and *Bacillus subtilis*. P. D. Roberts (3), T. M. MOMOL (1), L.

- S. Ritchie (1), S. M. Olson (1), B. Balogh (2), J. B. Jones (2). (1) North Florida REC, Plant Pathology Dept., University of Florida-IFAS, Quincy, FL; (2) Plant Pathology Dept., University of Florida-IFAS, Gainesville, FL; (3) Southwest Florida REC, Plant Pathology Dept., University of Florida-IFAS, Immokalee, FL, USA
- AP-831. Multi scale modeling of effective infection pressure from *Phytophthora infestans*. P. SKELSEY (1). (1) WUR, Wageningen, Gelderland, Netherlands
- AP-832. Performance of Arugula (*Eruca sativa*) as a green manure and trap crop for fungal pathogens and parasitic nematode suppression in potatoes. E. RIGA (2), H. P. Collins (1), F. Pierce (3). (1) USDA-ARS Prosser, WA; (2) Washington State University; (3) Washington State University, IAREC
- AP-833. Reducing the spread of two mealybug-transmitted *Pineapple mealybug wilt associated viruses*. D. M. Sether (1), J. S. HU (1). (1) University of Hawaii, Honolulu, HI, USA
- AP-834. Suppression of *Aphanomyces* root rot of sugar beet by field-application of agricultural waste lime. C. E. WINDELS (2), A. L. Sims (2), J. R. Brantner (2), C. A. Bradley (1). (1) Dept. Plant Pathology, North Dakota State University, Fargo, ND; (2) University of Minnesota, NW Res & Outreach Ctr, Crookston, MN, USA
- AP-835. The use of Serenade MAX in commercial integrated systems to control apple diseases in the U.S.. H. B. HIGHLAND (1), P. Walgenbach (1). (1) AgraQuest, Inc.
- AP-836. Use of genetic tolerance, resistance and seed treatment fungicides to manage *Phytophthora* stem and root rot in Nebraska soybean fields. A. D. ZIEMS (1), L. J. Giesler (1), J. A. Wilson (1). (1) University of Nebraska, USA

Regulatory Plant Pathology

- AP-837. A role for fatty acid metabolism in host defense signaling. P. Kachroo (2), J. Shanklin (1), S. Venugopal (2), E. Whittle (1), L. Lapchuk (2), A. KACHROO (2). (1) Department of Biology, Brookhaven National Laboratory, Upton, NY 11973; (2) Department of Plant Pathology, University of Kentucky, Lexington, KY, USA
- AP-838. Biopesticide efficacy research program and IR-4's role in regulatory assistance. M. P. BRAVERMAN (1), J. J. Baron (1), D. L. Kunkel (1), R. E. Holm (1). (1) IR-4 Project, Rutgers University, North Brunswick, NJ, USA
- AP-839. Everything you wanted to know about biocontainment but were afraid to ask. M. J. KENNEY (1). (1) USDA-APHIS-PPQ, Riverdale, MD, USA
- AP-840. Florida: A sentinel state for new and emerging plant pathogens. C. L. HARMON (3), P. F. Harmon (2), T. M. Momol (1). (1) NFREC, Plant Pathology Department, University of Florida-IFAS, Quincy, FL; (2) Plant Pathology Department, University

of Florida-IFAS, Gainesville, FL; (3) SPDN, Plant Pathology Department, University of Florida-IFAS, Gainesville, FL, USA

- AP-841. The new University of Florida's certificate in plant pest risk assessment and management. D. D. THOMAS (1), R. J. McGovern (1), N. C. Leppla (1), T. Durham (1). (1) University of Florida, Gainesville, FL, USA

Professionalism/Service Outreach

- AP-842. Applied phytopathology: A core emphasis of the University of Florida's interdisciplinary Plant Medicine Program. T. DURHAM (1), D. Thomas (1). (1) Doctor of Plant Medicine Program, University of Florida, Gainesville, FL, USA
- AP-843. Effective use of a personal response system in a general education plant pathology class. C. J. D'ARCY (1), D. M. Eastburn (1). (1) University of Illinois, Urbana, IL, USA
- AP-844. Impact of web-based instructional materials on student learning in a general education plant pathology course. D. M. EASTBURN (1), C. J. D'Arcy (1). (1) University of Illinois, Urbana, IL, USA
- AP-845. In field diagnostics with the University of Nebraska-Lincoln mobile plant diagnostic laboratory. S. R. Watson (1), L. J. GIESLER (1). (1) University of Nebraska, USA
- AP-846. IPM Florida building through partnerships: The UF, IFAS statewide IPM program. J. L. GILLET (1), N. C. Leppla (1). (1) University of Florida, Gainesville, FL, USA
- AP-847. The role of entomology in the National Plant Diagnostic Network (NPDN). A. HODGES (6), T. Momol (4), G. Wisler (6), R. Hoenisch (5), D. Gilrein (1), S. Perry (3), C. Klass (2). (1) Cornell University Coop. Ext. of Suffolk County, Riverhead, NY; (2) Cornell University, Ithaca, NY; (3) Michigan State University, East Lansing, MI; (4) NFREC, University of Florida-IFAS, Quincy, FL; (5) University of California-Davis, Davis, CA; (6) University of Florida-IFAS, Gainesville, FL, USA

CPS POSTERS

Biology of Plant Pathogens

Fungi – Systematics/Evolution/Ecology

- CP-36. Molecular phylogeny of *Synchytrium endobioticum*, the causal agent of potato wart. C.L. ABBOTT, S.H. De Boer, C.E. Babcock, S.A. Redhead, and C.A. Lévesque. Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, K.W. Neatby Building, Central Experimental Farm, 960 Carling Avenue, Ottawa, ON K1A 0C6, Canada; and (S.H.D.B.) Centre for Animal and Plant Health, Canadian Food Inspection Agency, Charlottetown Laboratory, 93 Mount Edward Road, Charlottetown, PE C1A 5T1, Canada.
- CP-37. Development of a quantitative PCR assay for monitoring the impact of powdery mildew on juice and wine quality. P.D. Haag, D.T. O'GORMAN, and P.L. Sholberg. Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada, 4200 Highway 97, Box 5000, Summerland, BC V0H 1Z0, Canada.
- CP-38. Genotypic diversity of two cereal rust pathogens based on rDNA data from herbarium specimens housed at DAOM, the National Mycological Herbarium, Ottawa, Canada. S. HAMBLETON, G. Robideau, and R. Tropiano. Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, ON K1A 0C6, Canada.
- CP-39. Selection and evaluation of antagonists of *Gibberella zeae* from Ontario agriculture soils using a microbiological analyser. J. HE, T. Zhou, and G.J. Boland. Department of Environmental Biology, University of Guelph, Guelph, ON N1G 2W1, Canada; and (T.Z.) Food Research Program, Agriculture and Agri-Food Canada, Guelph, ON N1G 5C9, Canada.
- CP-40. The phylogeny of orders of Myxomycetes based on small subunit rRNA gene sequences. S.Y. LIU, Y. Li, and T. Hsiang. Institute of Mycology, Department of Agronomy, Jilin Agricultural University, Changchun 130118, Jilin, China; and (T.H.) Department of Environmental Biology, University of Guelph, Guelph, ON N1G 2W1, Canada.
- CP-41. Occurrence of brown root rot of alfalfa and its causal organism *Phoma sclerotoides* in agricultural and non-agricultural sites in the Big Horn Basin ecosystem of Wyoming, USA. C.J. Reedy, F.A. GRAY, R.C. Larsen, R.W. Groose, and J.R. Gill. Department of Plant Sciences, University of Wyoming, 1000 E University Avenue, Laramie, WY 82071, USA; (R.C.L.) USDA-ARS, 42106 North Bunn Road, Prosser, WA 99350, USA; and (J.R.G.) Washakie County Program Coordinator, Box 609, Worland, WY 82401, USA.
- CP-42. Characterization of *Trichoderma* spp., causal agent of green mold in British Columbia mushroom farms. N. VERMA, J. Curtis, and S. Sabaratnam. BC Mushroom Industry Development Council, 356, 151-2500 South Fraser Way, Abbotsford, BC V2T 4W1, Canada; and (J.C., S.S.) Abbotsford Agriculture Centre, Ministry of Agriculture and Lands, 1767 Angus Campbell Road, Abbotsford, BC V3G 2M3, Canada.
- CP-43. Reaction to crude extracts from *Mycosphaerella pinodes* and detection of metabolites using thin-layer chromatography. H. WANG, S.F. Hwang, K.F. Chang, B.D. Gossen, G.D. Turnbull, and R.J. Howard. Alberta Research Council, P.O. Box 4000, Vegreville, AB T9C 1T4, Canada; (K.F.C.) Field Crop Development Centre, Alberta Agriculture, Food and Rural Development (AAFRD), 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; (B.D.G.) Saskatoon Research Centre, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon, SK S7N 0X2, Canada; and (R.J.H.) Crop Diversification Centre South, AAFRD, S.S. 4, Brooks, AB T1R 1E6, Canada.
- CP-44. Phylogeny of *Antrodia* and related taxa inferred from sequences of nuclear rDNA. Z.H. YU, S.H. Wu, and T. Hsiang. Department of Biological Science, Yangtze University, Jingzhou 434025, Hubei, China; (S.H.W.) Department of Botany, National Museum of Natural Science, Taichung 404, Taiwan; and (T.H.) Department of Environmental Biology, University of Guelph, ON N1G 2W1, Canada.

Phytoplasmas/Spiroplasmas/Fastidious Prokaryotes

- CP-45. First record of molecular identification of aster yellows phytoplasma associated with valerian and sowthistle in Canada. A.-H. KHADHAIR, C. Hiruki, and M. Deyholos. Department of Agriculture, Food and Nutritional Science, University of Alberta, 410 H Agriculture/Forestry Centre, Edmonton, AB T6G 2P5, Canada; and (M.D.) Department of Biological Sciences, CW 405, Biological Sciences Centre, University of Alberta, Edmonton, AB T6G 2E9, Canada.

Viruses – Systematics/Evolution/Ecology

- CP-46. Complete sequencing and phylogenetic analysis of *pepino mosaic virus* isolates from Canada. C.J. FRENCH, A. Bunckle, G. Ferguson, C. Dubeau, M. Bouthillier, and M.G. Bernardy. Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada, Highway 97, Summerland, BC V0H 1Z0, Canada; and (G.F.) Ontario Ministry of Agriculture and Food, Greenhouse Crops Research Centre, Harrow Research Centre, 2585 County Road 20, Harrow, ON NOR 1G0, Canada.
- CP-47. Enhancement of *Potato virus X* synthesis by *Potato leafroll virus* in doubly infected potato plants. H. XU, C. MacLeod, C. Trevors, and J. Nie. Canadian Food Inspection Agency, Charlottetown Laboratory, 93 Mount Edward Road, Charlottetown, PE C1A 5T1, Canada.

Diseases of Plants

Disease Detection and Diagnosis

- CP-48. Identification of Phytoplasma associated with *Syringa* and *Brassica* diseases by direct sequencing of rDNA. T. BARASUBIYE, O. Chrystel, C. Wood, J. Speirs, and C.A. Lévesque. Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada (AAFC), 960 Carling Avenue, Ottawa, ON K1A 0C6, Canada; (O.C.) Saskatoon Research Centre, AAFC, 107 Science Place, Saskatoon, SK S7N 0X2, Canada; and (J.S.) Friends of the Central Experimental Farm, Building 72, Arboretum, Central Experimental Farm, Ottawa, ON K1A 0C6, Canada.
- CP-49. Predicting potato tuber decay in storage requires an early and accurate diagnosis of individual and combined pathogens. A. El HADRAMI, L. Adam, and F. Daayf. Department of Plant Science, University of Manitoba, 222 Agriculture Building, Winnipeg, MB R3T 2N2, Canada.
- CP-50. Base leaf spot and a black rot of agave caused by *Thielaviopsis paradoxa*. J.L. MARTÍNEZ-RAMÍREZ, P. Posos-Ponce, J.A. Robles-Gómez, K.V. Beas-Ruvalcaba, and L. Fucikovsky-Zak. Departamento de Producción Agrícola CUCBA, Universidad de Guadalajara, Las Agujas, Km 15.5 Carretera Guadalajara-Nogales, Zapopan, Jalisco, México, C.P. 45110. Apdo postal 129; and (L.F.-Z.) Instituto de Fitosanidad, Colegio de Postgraduados, Montecillo, Estado de México, México.
- CP-51. Mango fruit rot caused by *Choanephora cucurbitarum* in México. P. POSOS-PONCE, J. L. Martínez-Ramírez, J.A. Robles-Gómez, K.V. Beas-Ruvalcaba, and L. Fucikovsky-Zak, Departamento de Producción Agrícola CUCBA, Universidad de Guadalajara, Las Agujas, Km 15.5 Carretera Guadalajara-Nogales, Zapopan, Jalisco, México, C.P. 45110. Apdo postal 129; and (L.F.-Z.) Instituto de Fitosanidad, Colegio de Postgraduados, Montecillo, Estado de México, México.
- CP-52. Validation of a procedure utilizing selective agar media to detect *Fusarium graminearum* in cereal seeds. S. POULEUR, L. Couture, and R.M. Clear. Soils and Crops Research and Development Centre, Agriculture and Agri-Food Canada, 2560 Hochelaga Boulevard, Sainte-Foy, QC G1V 2J3, Canada; and (R.M.C.) Grain Research Laboratory, Canadian Grain Commission, 1404-303 Main Street, Winnipeg, MB R3C 3G8, Canada.
- CP-54. Fusarium head blight of oat in Ontario. L. TAMBURIC-ILINCIC and A.W. Schaafsma. Ridgetown Campus, University of Guelph, Main Street East, Ridgetown, ON N0P 2C0, Canada.
- CP-55. Different aggressiveness of isolates of *Fusarium graminearum* and *Fusarium pseudograminearum* in causing root rot of soybean. A.G. XUE, E. Cober, H.D. Voldeng, C. Babcock, and R.M. Clear. Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, ON K1A 0C6, Canada; (R.M.C.) Grain Research Laboratory, Canadian Grain Commission, 1404-303 Main Street, Winnipeg, MB R3C 3G8, Canada.

Diseases – Fruits and Nuts

- CP-56. Detection of seed infection and seed transmission of *Blueberry scorch virus* in herbaceous hosts. S. MATHUR and D.A. Raworth. Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada, P.O. Box 1000, Agassiz, BC V0M 1A0, Canada.
- CP-57. Evaluation of alternative control strategies against the apple replant disease. V. PHILION, G. Bélair, J. Charest, S. Parent, and M. Mazzola. IRDA, Verger du parc national, Saint-Bruno-de-Montarville, QC J3V 4P6, Canada; (G.B.) AAC, Saint-Jean-sur-Richelieu, QC J3B 3E63, Canada; (J.C.) MAPAQ, 491-2 rue Sainte-Marie, Marieville, QC J3M 1M4, Canada; (S.P.) PREMIER TECH, Rivière-du-Loup, QC G5R 6C1, Canada; and (M.M.) USDA, Wenatchee, WA 98801-1230, USA.
- CP-58. Investigation of root rot complex on raspberries grown in the Fraser Valley of British Columbia. R. You, M. Sweeney, and S. SABARATNAM. BC Raspberry Industry Development Council, 130-32160 South Fraser Way, Abbotsford, BC V2T 1W5, Canada; and (M.S., S.S.) Abbotsford Agriculture Centre, Ministry of Agriculture and Lands, 1767 Angus Campbell Road, Abbotsford, BC V3G 2M3, Canada.

Diseases – Vegetables

- CP-59. Impact of plant age on mycosphaerella blight of field pea. S.F. HWANG, K.F. Chang, B.D. Gossen, R.L. Conner, G.D. Turnbull, and D.J. Bing. Alberta Research Council, P.O. Box 4000, Vegreville, AB T9C 1T4, Canada; (K.F.C.) Field Crop Development Centre, Alberta Agriculture, Food and Rural Development, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; (B.D.G.) Saskatoon Research Centre, Agriculture and Agri-Food Canada (AAFC), 107 Science Place, Saskatoon, SK S7N 0X2, Canada; (R.L.C.) Cereal Research Centre, AAFC, Morden Research Station, Unit 100-101, Route 100, Morden, MB R6M 1Y5, Canada; and (D.J.B.) Lacombe Research Centre, AAFC, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada.

Diseases – Cereals, Field, and Fiber Crops

- CP-53. Incidence of *Barley yellow dwarf virus* in winter and volunteer wheat in south-western Ontario and implications for management. J.L. SMITH, A. Tenuta, M.K. Sears, and A.W. Schaafsma. Department of Plant Agriculture, Ridgetown Campus, University of Guelph, Ridgetown, ON N0P 2C0, Canada; (A.T.) Ontario Ministry of Agriculture, Food and Rural Affairs, P.O. Box 400,

CPS POSTERS

- CP-60. Pathogenicity to potato tubers of *Fusarium* spp. isolated from cereal and forage crops. R.D. PETERS, C. MacLeod, R.A. Martin, C.R. Grau, and S. MacInnis. Crops and Livestock Research Centre, Agriculture and Agri-Food Canada, 440 University Avenue, Charlottetown, PE C1A 4N6, Canada; (C.R.G.) Department of Plant Pathology, University of Wisconsin-Madison, 1630 Linden Drive, Madison, WI 53706, USA; and (S.M.) Cavendish Agri Services, P.O. Box 247, Kentville, NS B4N 3W4, Canada.
- CP-61. Effect of single and combined inoculations of aggressive and weak pathogenic species of *Verticillium* on pathogen presence in plant parts. H.W. (BUD) PLATT, N. Robinson, L. Hale, and V. MacLean. Crops and Livestock Research Centre, Agriculture and Agri-Food Canada, 440 University Avenue, Charlottetown, PE C1A 4N6, Canada; and (L.H.) University of Prince Edward Island, Biology Department, 550 University Avenue, Charlottetown, PE C1A 2N1, Canada.

Forest Pathology

- CP-62. Spatial genetic diversity in the spruce pathogen *Inonotus tomentosus*. M.-J. BERGERON, H. Germain, L. Bernier, G. Laflamme, and R.C. Hamelin. Ressources naturelles Canada, Service canadien des forêts, Centre de foresterie des Laurentides, 1055, rue du P.E.P.S., C.P. 10380, succ. Sainte-Foy, Québec, QC G1V 4C7, Canada; (H.G.) Université de Montréal, Institut de recherche en biologie végétale, 4101, rue Sherbrooke Est, Montréal, QC H1X 2B2, Canada; and (L.B.) Université Laval, Centre de recherche en biologie forestière, Québec, QC G1K 7P4, Canada.

Tropical Plant Pathology

- CP-63. Assessment of banana partial resistance and aggressiveness variability of *Mycosphaerella fijiensis*, the causal agent of the black leaf streak disease. A. El HADRAMI, A. Abadie, J. Carlier, and X. Mourichon. Department of Plant Science, University of Manitoba, 222 Agriculture Building, Winnipeg, MB R3T 2N2, Canada; and (A.A., J.C., X.M.) Laboratoire PHYTROP, CIRAD-AMIS, BP-5035, Montpellier 34032 Cedex1, France.
- CP-64. A detached leaf-piece assay for assessing *Musa* sp. germplasm resistance and *Mycosphaerella fijiensis* pathogenicity. A. El HADRAMI, J. Carlier, and X. Mourichon. Department of Plant Science, University of Manitoba, 222 Agriculture Building, Winnipeg, MB R3T 2N2, Canada; and (J.C. X.M.) Laboratoire PHYTROP, CIRAD-AMIS; BP-5035, Montpellier 34032 Cedex1, France.
- CP-65. Differential effect of juglone on the active oxygen species content and the antioxidant system of banana cultivars susceptible and partially resistant to black leaf streak disease. A. El HADRAMI, D. Kone, and P. Lepoivre. Department of Plant Science, University

of Manitoba, 222 Agriculture Building, Winnipeg, MB R3T 2N2, Canada; (D.K.) BP 461, Abidjan 22, Ivory Coast; and (P.L.) Faculté Universitaire des Sciences Agronomiques de Gembloux, Unité de Phytopathologie, 2 Passage des Déportés, B-5030, Gembloux, Belgium.

Molecular/Cellular Plant-Microbe Interactions

Fungi – Genetics/Molecular Biology/Cell Biology

- CP-66. Identification and investigation of genes involved in resting structure development in *Verticillium dahliae* and *V. albo-atrum*. S.G. AMYOTTE, A. Klimes, and K.F. Dobinson. Department of Biology, University of Western Ontario, London ON N6A 5C1, Canada; and (K.F.D.) Southern Crop Protection and Food Research Centre, Agriculture and Agri-food Canada, 1391 Sandford Street, London, ON N5V 4T3, Canada.
- CP-67. Effect of *Pyrenophora tritici-repentis* ToxA on the chloroplast proteome. J. CHING, C. Rampitsch, G.M. Ballance, and N.V. Bykova. Cereal Research Centre, Agriculture and Agri-Food Canada, 195 Dafoe Road, Winnipeg, MB R3T 2M9, Canada; and (G.M.B.) Department of Plant Science, University of Manitoba, Fort Garry Campus, Winnipeg, MB R3T 2N2, Canada.
- CP-68. A systemic approach to breeding for *Fusarium* resistance delivers rapid results. A. COMEAU, F. Langevin, and G. Fedak. Centre de recherche et de développement sur les sols et les grandes cultures, Agriculture et Agroalimentaire Canada, Québec, QC G1V2J3, Canada; and (G.F.) Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, ON K1A 0C6, Canada.
- CP-69. Infection of scentless chamomile, lentil, pea, and soybean by *Colletotrichum truncatum* from each of the hosts. L. Forseille, G. PENG, Y.D. Wei, and B.D. Gossen. Saskatoon Research Center, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon, SK S7N 0X2, Canada; and (Y.D.W.) Department of Biology, University of Saskatchewan, 112 Science Place, Saskatoon, SK S7N 5E2, Canada.
- CP-70. The antifungal activity of crucifer phytoalexins against the biotrophic fungus *Albugo candida* races 2V and 7V. R.S. GADAGI, Q.A. Zheng, and M.S.C. Pedras. Department of Chemistry, University of Saskatchewan, 110 Science Place, Saskatoon, SK S7N 5C9, Canada.
- CP-71. Compatible and incompatible interactions involving the *Bt-10* gene in wheat for resistance to *Tilletia tritici*, the common bunt pathogen. D.A. GAUDET, F. Leggett, Z.-X. Lu, M. Frick, B. Puchalski, and A. Laroche. Lethbridge Research Centre, Agriculture and Agri-Food Canada, P.O. Box 3000, 5430-1st Avenue, South, Lethbridge, AB T1J 4B1, Canada.
- CP-72. Microarray gene expression analysis of wheat resistance to fusarium head blight in 'Sumai-3' and

its susceptible near isogenic lines. S. Golkari, J. GILBERT, T. Ban, S. Prashar, and J.D. Procnier. Department of Botany, Faculty of Graduate studies, University of Manitoba, Winnipeg, MB R3T 2N2, Canada; (J.G., S.P., J.D.P.) Cereal Research Centre, Agriculture and Agri-Food Canada, 195 Dafoe Road, Winnipeg, MB R3T 2M9, Canada; and (T.B.) CIMMYT, Mexico, D.F., Mexico.

- CP-73. Cloning and targeted mutagenesis, via *Agrobacterium tumefaciens*-mediated transformation, of a malate synthase gene from the necrotrophic fungus *Sclerotinia sclerotiorum*. D. LIBERTI and K.F. Dobinson. Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, 1391 Sandford Street, London, ON N5V 4T3, Canada.
- CP-74. Functional mapping of candidate genes for the disease resistance selection in western white pine using a modified approach of AFLP. J.-J. LIU and A.K.M. Ekramoddoullah. Pacific Forestry Centre, Natural Resources Canada, 506 Western Burnside Road, Victoria, BC V8Z 1M5, Canada.
- CP-75. Development of simple sequence repeat markers for the genetic analysis of wheat leaf rust [*Puccinia triticina*]. X. WANG, C. Leclerc, and B.D. McCallum. Cereal Research Centre, Agriculture and Agri-Food Canada, 195 Dafoe Road, Winnipeg, MB R3T 2M9, Canada.
- CP-76. Expression of epoxide hydrolase in *Nicotiana benthamiana* during infection by *Colletotrichum destructivum*, *Colletotrichum orbiculare*, and *Pseudomonas syringae* pv *tabaci*. C.P. WIJEKOON, P.H. Goodwin, and T. Hsiang. Department of Environmental Biology, University of Guelph, Guelph, ON N1G 2W1, Canada.
- CP-77. Molecular identification of *Fusarium* spp. causing internal rot of greenhouse sweet peppers. J. YANG, R.M. Lange, P.D. Kharbanda, W. Zhu, R.J. Howard, and M. Mirza. Alberta Research Council, P.O. Box 4000, Vegreville, AB T9C 1T4, Canada; and (R.J.H., M.M.) Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, S.S. 4, Brooks, AB T1R 1E6, Canada.
- CP-78. Quantitative analysis of resistance to *Mycosphaella pinodes* in *Pisum sativum*. R. Zhang, S.F. HWANG, K.F. Chang, B.D. Gossen, and G.D. Turnbull. Alberta Research Council, P.O. Box 4000, Vegreville, AB T9C 1T4, Canada; (K.F.C.) Field Crop Development Centre, Alberta Agriculture, Food and Rural Development, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; and (B.D.G.) Saskatoon Research Centre, Agriculture and Agri-Food Canada, Saskatoon, SK S7N 0X2, Canada.

Viruses – Genetics/Molecular Biology/Cell Biology

- CP-79. Polerovirus ORF0 genes induce a host-specific response. D. Prüfer, L.M. KAWCHUK, and W. Rohde. Universität zu Münster, Institut für Biochemie und Biotechnologie der Pflanzen, Hindenburgplatz 55, 48149 Münster, Germany; (L.M.K.) Lethbridge Research Centre, Agriculture and Agri-Food Canada, P.O. Box 3000, Lethbridge,

AB T1J 4B1, Canada; and (W.R.) Max-Planck-Institut für Züchtungsforschung, Carl-von-Linné Weg 10, D-50825 Köln, Germany.

- CP-80. Genetic analysis of *Potato virus X* isolates in Prince Edward Island and their detection by RT-PCR, RFLP, and real-time quantitative RT-PCR. H. XU, J. D'Aubin, and J. Nie. Canadian Food Inspection Agency, Charlottetown Laboratory, 93 Mount Edward Road, Charlottetown, PE C1A 5T1, Canada.

Plant Disease Management

Biological Control

- CP-81. Effect of *Phlebiopsis gigantea* treatment on the microbial diversity of red pine stumps. M.T. DUMAS and G. Laflamme. Natural Resources Canada, Canadian Forest Service – Great Lakes Forestry Centre, Sault Ste. Marie, ON P6A 2E5, Canada; and (G.L.) Natural Resources Canada, Canadian Forest Service – Laurentian Forestry Centre, Québec, QC G1V 4C7, Canada.
- CP-82. New prospects for biological control of potato verticillium wilt in Manitoba. A. El HADRAMI, A.K. Uppal, L. Adam, and F. Daayf. Department of Plant Science, University of Manitoba, 222 Agriculture Building, Winnipeg, MB R3T 2N2, Canada.
- CP-83. Screening commercial biocontrol agents for inhibition of Monilinia blight (mummy berry) on lowbush blueberry. D.H. LANGDON, J.A. Traquair, P.D. Hildebrand, and G.J. Boland. Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada (AAFC), 1391 Sandford Street, London, ON N5V 4T3, Canada; (P.D.H.) Atlantic Food and Horticulture Research Centre, AAFC, 32 Main Street, Kentville, NS B4N 1J5, Canada; and (G.J.B.) Department of Environmental Biology, University of Guelph, Guelph, ON N1G 2W1, Canada.
- CP-84. Rhizosphere persistence of selected *Pythium oligandrum* strains in tomato soilless culture assessed by plate counting and two PCR-based molecular methods. G. Le Floch, J.T. Tambong, J. Vallance, Y. Tirilly, C.A. Lévesque, and P. REY. Laboratoire de Biodiversité et d'Ecologie Microbienne, Université de Bretagne Occidentale, ESMISAB, Technopôle Brest-Iroise, 29280, Plouzané, France; and (J.T.T., C.A.L.) Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, ON K1A 0C6, Canada.
- CP-85. Antagonism of *Glomus mosseae* spore-associated bacteria on *Phytophthora nicotianae*, in vitro. L. LIOUSSANNE, A. Keough, M. Jolicoeur, and M. St-Arnaud. Institut de recherche en biologie végétale, Université de Montréal, 4101 Sherbrooke est, Montréal, QC H1X 2B2, Canada; and (M.J.) Unité de Recherche Bio-P2, Département de Génie chimique, Ecole Polytechnique de Montréal, C.P. 6079, succursale Centre-Ville, Montréal, QC H3C 3A7, Canada.

CPS POSTERS

CP-86. Movement and activity of *Phoma macrostoma* in soil and water following simulated flooding - environmental fate of a biocontrol agent for the control of dandelion. W.M. PITT, K.L. Bailey, and J.-A. Derby. Saskatoon Research Centre, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon, SK S7N 0X2, Canada.

Chemical Control

CP-87. Reduction in incidence and severity of clubroot caused by *Plasmodiophora brassicae* on bok choy and cabbage with soil application of AG3 phosphonate. P.A. ABBASI and G. Lazarovits. Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, 1391 Sandford Street, London, ON N5V 4T3, Canada.

CP-88. Effects of azoxystrobin on turfgrass phyllosphere microbial populations. D. BENEDETTO and T. Hsiang. Department of Environmental Biology, University of Guelph, Guelph, ON N1G 2W1, Canada.

CP-89. Effect of Fe, Cu, and Mo on mycelial growth of *Helminthosporium solani*, the causal agent of potato silver scurf. S. BOIVIN, T.J. Avis, and R.J. Tweddell. Centre de recherche en horticulture, Université Laval, Québec, QC G1K 7P4, Canada.

CP-90. Development and evaluation of a new sequential sampling plan for determining the need for summer fungicide sprays against apple scab. O. CARISSE, C. Meloche, G. Boivin, and T. Jobin. Horticultural Research and Development Centre, Agriculture and Agri-Food Canada, 430 Gouin Boulevard, St-Jean-sur-Richelieu, QC J3B 3E6, Canada.

CP-91. Factors influencing the concentration of volatile fatty acids in liquid swine manure. K.L. CONN, E. Topp, and G. Lazarovits. Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada, 1391 Sandford Street, London, ON N5V 4T3, Canada.

CP-92. Effect of preharvest application of pyrimethanil and calcium chloride for the control of postharvest blue mold and gray mold of apples. A. Ghosh, S. Pirgozliev, D. ERRAMPALLI, L. Wainman, D. Murr, J. DeEll, P. Sholberg, and S. Stokes. Southern Crop Protection and Food Research Centre, Agriculture and Agri-Food Canada (AAFC), P.O. Box 6000, Vineland Station, ON L0R 2E0, Canada; (S.P.) BASF-Canada, Advanced Technology Centre, Edmonton Research Park, Mailbox 22, Suite 132, 9650-20 Avenue, Edmonton, AB T6N 1G1, Canada; (D.M.) Department of Plant Agriculture, Ontario Agriculture College, University of Guelph, 50 Stone Road W., Guelph, ON N1G 2W1, Canada; (J.D.) Ontario Ministry of Agriculture, Food and Rural Affairs, P.O. Box 587, Simcoe, ON N3Y 4N5, Canada; and (P.S., S.S.) Pacific Agri-Food Research Centre, AAFC, 4200 Highway 97, Summerland, BC V0H 1Z0, Canada.

CP-93. Effect of six derivatives from coconut oils or fatty alcohols on fungal plant pathogens. T.F.

HSIEH, and C.H. Chen. Floriculture Research Center, Agricultural Research Institute, Council of Agriculture, Ku-Keng, YunLin 646, Taiwan.

CP-94. Timing and efficacy of fungicides for the management of ascochyta blight on processing peas. M.R. MCDONALD, B.D. Gossen, M.J. Celetti, E. Roddy, and G.J. Boland. Department of Plant Agriculture, University of Guelph, Guelph, ON N1G 2W1, Canada; (B.D.G.) Saskatoon Research Centre, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon, SK S7N 0X2, Canada, (M.J.C.) Ontario Ministry of Agriculture and Food (OMAFRA), University of Guelph, Guelph, ON N1G 2W1, Canada; (E.R.) OMAFRA, Ridgetown College, University of Guelph, Main Street East, Ridgetown, ON N0P 2CO, Canada; and (G.J.B.) Department of Environmental Biology, University of Guelph, Guelph, ON N1G 2W1, Canada.

CP-95. Effect of P and K on mycelial growth of *Helminthosporium solani* in vitro. C. NYIRANSENGIYUMVA, T.J. Avis, and R.J. Tweddell. Centre de recherche en horticulture, Université Laval, Québec, QC G1K 7P4, Canada.

CP-96. Effect of phosphonate on the occurrence of disease caused by *Phytophthora erythroseptica* and *P. infestans*. R.D. PETERS, H.W. (Bud) Platt, G. Lazarovits, and I. Macdonald. Crops and Livestock Research Centre, Agriculture and Agri-Food Canada (AAFC), 440 University Avenue, Charlottetown, PE C1A 4N6, Canada; and (G.L.) Southern Crop Protection and Food Research Centre, AAFC, 1391 Sandford Street, London, ON N5V 4T3, Canada.

CP-97. Effect of time of HEADLINE EC (pyraclostrobin) application on pasmo in flax. S. PIRGOZLIEV, N. Froese, and L. Drew. BASF-Canada, 3346 Reagan Bourne Road, London, ON N6N 1K8, Canada; (N.F.) BASF-Canada, Unit 100-101, Route 100, Morden, MB R6M 1Y5, Canada; and (L.D.) BASF-Canada, 3518 Edinburgh Drive, Regina, SK S4V 2G7, Canada.

CP-98. Evaluation of chemical treatments for the control of common and powdery scab diseases of potato. J.R. THOMSON, R.J. Howard, and D.R. Waterer. Department of Plant Sciences, University of Saskatchewan, 51 Campus Drive, Saskatoon, SK S7N 5A8, Canada; and (R.J.H.) Crop Diversification Centre South, Alberta Agriculture, Food and Rural Development, S.S. #4, Brooks, AB T1R 1E6, Canada.

CP-99. Evaluation of chemical seed treatments to improve stand establishment in cumin in Saskatchewan. J.R. THOMSON, R.W. McVicar, and D.R. Waterer. Department of Plant Sciences, University of Saskatchewan, 51 Campus Drive, Saskatoon, SK S7N 5A8, Canada; and (R.W.M.) Saskatchewan Agriculture and Food, 3085 Albert Street, Regina, SK S4S 0B1 Canada.

CP-100. Inhibition of snow mold fungal growth by glucosinolate-containing cruciferous spp. L. TIAN and T. Hsiang. Department of Environmental

Biology, University of Guelph, Guelph, ON N1G 2W1, Canada.

- CP-101. The baseline resistance of *Septoria apiicola*, causal agent of septoria late blight of celery, to reduced-risk fungicides pyraclostrobin and boscalid. C.L. TRUEMAN, M.R. McDonald, B.D. Gossen, and A.W. McKeown. Department of Plant Agriculture, University of Guelph, Guelph, ON N1G 2W1, Canada; (B.D.G.) Saskatoon Research Centre, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon, SK S7N 0X2, Canada; and (A.W.M.) Department of Plant Agriculture, University of Guelph, Simcoe, ON N3Y 4N5, Canada.
- CP-102. Suppression of pink rot by metalaxyl-m in tubers showing symptoms of late blight. P.D. Young, R.D. PETERS, H.W. (Bud) Platt, and L.R. Hale. Department of Biology, University of Prince Edward Island, 550 University Avenue, Charlottetown, PE C1A 4P3, Canada; and (R.D.P., H.W.P.) Crops and Livestock Research Centre, Agriculture and Agri-Food Canada, 440 University Avenue, Charlottetown, PE C1A 4N6, Canada.
- Host Resistance**
- CP-103. A technique to screen chickpea lines for resistance to *Ascochyta rabiei* using a crude extract of phytotoxin. H.U. AHMED, K.F. Chang, S.F. Hwang, B.D. Gossen, R.J. Howard, and T.D. Warkentin. Field Crop Development Centre, Alberta Agriculture, Food and Rural Development (AAFRD), 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; (S.F.H.) Alberta Research Council, P.O. Box 4000, Vegreville, AB T9C 1T4, Canada; (B.D.G.) Saskatoon Research Centre, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon, SK S7N 0X2, Canada; (R.J.H.) Crop Diversification Centre South, AAFRD, S.S. 4, Brooks, AB T1R 1E6, Canada; and (T.D.W.) Crop Development Centre, 51 Campus Drive, University of Saskatchewan, Saskatoon, SK S7N 5A8, Canada.
- CP-104. Pre-infectious structural basis of resistance in muskmelon against downy mildew pathogen. M. MAHAJAN and T.S. Thind. Doaba College, Tanda Road, Jalandhar-144004, Punjab, India; and (T.S.T.) Punjab Agricultural University, Ludhiana-141004, Punjab, India.
- CP-105. Evaluation of 177 Ethiopian barley accessions for reaction to covered smut, false loose smut, loose smut, and fusarium head blight. B.D. MCCALLUM, J.G. Menzies, and A. Tekauz. Cereal Research Centre, Agriculture and Agri-Food Canada, 195 Dafoe Road, Winnipeg, MB R3T 2M9.
- CP-106. Incidence and severity of cavity spot on carrots with different pigments. M.R. MCDONALD, K. Vander Kooi, and P.W. Simon. Department of Plant Agriculture, University of Guelph, Guelph, ON N1G 2W1, Canada; and (P.W.S.) USDA, ARS and University of Wisconsin, Madison, WI 53706, USA.
- CP-107. Sclerotinia stem rot of canola - evaluation of yield losses in Québec. D. Pageau, J. Lajeunesse, and S. RIOUX. Research Farm, Agriculture and Agri-Food Canada, 1468 St-Cyrille Street, Normandin, QC G8M 4K8, Canada; and (S.R.) Centre de recherche sur les grains, 2700 Einstein Street, Quebec, QC G1P 3W8, Canada.
- CP-108. Resistance of St. Jean-Morden and St. Jean series apple rootstocks to *Erwinia amylovora*. V. TOUSSAINT, A. Levasseur, Y. Groleau, M. Cadieux, M. Ciotola, and S. Khanizadeh. Horticultural Research and Development Centre, Agriculture and Agri-Food Canada, 430 Gouin Boulevard, St-Jean-sur-Richelieu, QC J3B 3E6, Canada.
- CP-109. Effect of hulllessness, spike density, and flag leaf characteristics on resistance to fusarium head blight and deoxynivalenol accumulation in barley. B.J. VIGIER, T.M. Choo, M. Savard, Q.Q. Shen, J.M. Yang, and J.M. Wang. Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa, ON K1A 0C6, Canada; and (Q.Q.S., J.M.Y., J.M.W.) Zhejiang Academy of Agricultural Sciences, Hangzhou, Zhejiang, 310021, China.
- CP-110. Front- and back-line defense mechanisms of two potato cultivars to US-1 and US-8 isolates of *Phytophthora infestans*. X. Wang, A. El HADRAMI, L. Adam, and F. Daayf. Department of Plant Science, University of Manitoba, 222 Agriculture Building, Winnipeg, MB R3T 2N2, Canada.
- CP-111. Transfer of stem rust resistance from diploid to hexaploid oat. T. ZEGEYE, T. Fetch, and L. Lamari. Department of Plant Science, 222 Agriculture Building, University of Manitoba, Winnipeg, MB, R3T 2N2, Canada; and (T.F.) Cereal Research Centre, Agriculture and Agri-Food Canada, 195 Dafoe Road, Winnipeg, MB R3T 2M9, Canada.

Integrated Pest Management

- CP-112. Host range and response to seeding depth of fusarium root rot in narrow-leaved lupin under greenhouse conditions. K.F. CHANG, S.F. Hwang, R.T. Bowness, B.D. Gossen, D.J. Bing, R.J. Howard, and S.E. Strelkov. Field Crop Development Centre, Alberta Agriculture, Food and Rural Development (AAFRD), 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; (S.F.H.) Alberta Research Council, P.O. Box 4000, Vegreville, AB T9C 1T4, Canada; (B.D.G.) Saskatoon Research Centre, Agriculture and Agri-Food Canada (AAFC), 107 Science Place, Saskatoon, SK S7N 0X2, Canada; (D.J.B.) Lacombe Research Centre, AAFC, 6000 C & E Trail, Lacombe, AB T4L 1W1, Canada; (R.J.H.) Crop Diversification Centre South, AAFRD, S.S. 4, Brooks, AB T1R 1E6, Canada; and (S.E.S.) Department of Agricultural, Food and Nutritional Science, 410 H Agriculture/ Forestry Centre, University of Alberta, Edmonton, AB T6G 2P5, Canada.
- CP-113. Prediction of deoxynivalenol in spring wheat based on cropping practices, *Fusarium* spores on a wheat head, and rainfall at the flowering stage. X.W. GUO, W.G.D. Fernando, H. Sapirstein, P. Bullock, and

CPS POSTERS

T. Nowicki. Department of Plant Science; (H.S.) Department of Food Science; and (P.B.) Department of Soil Science, University of Manitoba, 222 Dafoe Street, Winnipeg, MB R3T 2N2, Canada; and (T.N.) Grain Research Laboratory, Canadian Grain Commission, 1404-303 Main Street, Winnipeg, MB R3C 3G8, Canada.

CP-114. Impact of straw management and tillage systems on deoxynivalenol content in cereals. D. Pageau, J. Lajeunesse, M.E. Savard, and S. RIOUX. Research Farm, Agriculture and Agri-Food Canada (AAFC), 1468 St-Cyrille Street, Normandin, QC G8M 4K8, Canada; (M.E.S.) *Eastern Cereal and Oilseed Research*

Centre, AAFC, 960 Carling Avenue, Ottawa ON K1A 0C6, Canada; and (S.R.) Centre de recherche sur les grains, 2700 Einstein Street, Quebec, QC G1P 3W8, Canada.

CP-115. Effect of harvest practices on deoxynivalenol content in barley grain. S. RIOUX, S. Fortin, and M. Tremblay. Centre de recherche sur les grains, 2700 rue Einstein, Sainte-Foy, QC G1P 3W8, Canada; (S.F.) 335, Chemin des Vingt-cinq Est, Saint-Bruno-de-Montarville, QC J3V 4P6, Canada; and (M.T.) 3300, rue Sicotte, Saint-Hyacinthe, QC J2S 7B8, Canada.



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MSA POSTERS

Ecology, Cell and Molecular Biology, Pathology

- MP-61. Global patterns of variation in *Glomus etunicatum*. Presenter: K.S. Shamieh(1); Co-Author(s): T.E. Pawlowska(1). (1)Cornell University, Ithaca, NY
- MP-62. Performance of burgundy truffle oak host in multiple potting substrates. Presenter: G. Pruett, University of Missouri, Columbia, MO
- MP-63. Hyphal transfer of 1N-nitrate and rubidium between 2-3 yr established blue oak seedlings in an oak woodland of the California Sierra Nevada Foothills. Presenter: S.M. Meding(1); Co-Author(s): C.S. Bledsoe(1), W.R. Horwath(1), R.J. Zasoski(1). (1)University of California, Davis, CA
- MP-64. Distribution and host-specificity of *Amanita phalloides* in North America. Presenter: B.E. Wolfe(1); Co-Author(s): A. Pringle(1). (1)Harvard University, Cambridge, MA
- MP-65. *Genea*, *Genabea*, and *Gilkeya* gen. nov. Ascomycota, (Pyronemataceae): ascomata and ectomycorrhiza formation in a *Quercus* woodland. Presenter: M.E. Smith(1); Co-Author(s): D.M. Rizzo(1), J.M. Trappe(2). (1)University of California, Davis, CA, (2)Oregon State University, Corvallis, OR
- MP-66. Belowground response of fungal and plant ectomycorrhizal root communities to fire and fire surrogate treatments. Presenter: A.D. Izzo(1,3); Co-Author(s): D.T. Nguyen(2,3), P.G. Kennedy(3), S.L. Stephens(3), T.D. Bruns(3). (1)USDA-ARS Tree Fruit Laboratory, Wenatchee, WA, (2)Tufts University, Boston, MA, (3)University of California, Berkeley, CA
- MP-67. Ectomycorrhizal community structure in a xeric *Quercus* woodland as inferred from rDNA sequence analysis of pooled EM roots and sporocarps. Presenter: M.E. Smith(1); Co-Author(s): D.M. Rizzo(1), G. Douhan(2). (1)University of California, Davis, CA, (2)University of California, Riverside, CA
- MP-68. Molecular Evolution and Ecology of the basidiomycete genus *Calostoma* (Sclerodermatineae, Boletales). Presenter: A.W. Wilson(1); Co-Author(s): D.S. Hibbett(1). (1)Clark University, Worcester, MA
- MP-69. Bacterial communities associated with tuberculate mycorrhizae. Presenter: S. Bai(1); Co-Author(s): A. Kretzer(1). (1)State University of New York, Syracuse, NY
- MP-70. Population Structure of Endosymbiotic Bacteria Associated with Arbuscular Mycorrhizal Fungi. Presenter: K.L. Pivarski(1); Co-Author(s): T. Pawlowska(1). (1)Cornell University, Ithaca, NY
- MP-71. Screening for decay and pioneer fungi that are tolerant to Western red cedar extractives. Presenter: Y. W. Lim(1); Co-Author(s): R. Chedgy(1), S. Amirthalingam(1), B. Breuil(1). (1)University of British Columbia, Vancouver, BC, Canada
- MP-72. Calcium extraction from gypsum board (sheetrock) by wood-degrading fungi. Presenter: J.S. Schilling(1); Co-Author(s): J. Jellison(1). (1)University of Maine, Orono, ME
- MP-73. Effect of white-rot fungi and arthropods on early-stage tropical leaf decomposition. Presenter: D.J. Lodge(1); Co-Author(s): G. Gonzalez(2). (1) International Institute of Tropical Forestry, Luquillo, PR, Jardín Botánico Sur, San Juan, PR
- MP-74. WITHDRAWN
- MP-75. Assessment of fungal diversity of gulf coast saltmarshes, with implications for coastal restoration. Presenter: A. Kennedy(1); Co-Author(s): J. Campbell(1). (1)University of Southern Mississippi, Ocean Springs, MS
- MP-76. Pleasing Fungus Beetles (Erotylidae) from the Peruvian Amazon. Presenter: R.O. Gazis Olivas, Texas Christian University, Fort Worth, TX
- MP-77. Macrofungi associated with tree windfall in old growth prairie groves. Presenter: K. Vernier(1); Co-Author(s): V.P. Hustad(1), A.S. Methven(1), S.J. Meiners(1), K.F. Gaines(1), A.N. Miller(2). (1)Eastern Illinois University, Charleston, IL, (2)Illinois Natural History Survey, Champaign-Urbana, IL
- MP-78. Comparison of the diversity of fungi at different soil depths in an old-growth forest. Presenter: J.E. Skillman(1); Co-Author(s): T.M. McLendon(1), J.M. Moncalvo(2). (1)University of Toronto, Toronto, ON, Canada, (2)Royal Ontario Museum, Toronto, ON, Canada.
- MP-79. Testing the effect of secondary compound production on fungal endophyte community structure in corn. Presenter: M. Saunders(1); Co-Author(s): L.M. Kohn(1). (1)University of Toronto, Mississauga, ON, Canada
- MP-80. Fungal endophytes in native vs non-native Cupressaceae: community structure in mesic and xeric sites. Presenter: M. Hoffman(1); Co-Author(s): A.E. Arnold(1). (1)University of Arizona, Tucson, AZ
- MP-81. Levels and temporal variation of ergot alkaloids in endophyte-infected drunken horse grass (*Achnatherum inebrians*) in China. Presenter: C. Li(1); Co-Author(s): Z. Nan(1), L.C. Schardl(2). (1)College of Pastoral Agriculture Science and Technology, Lanzhou University, Lanzhou, China, (2) University of Kentucky, Lexington, KY
- MP-82. Antagonistic potential of endophytic fungi from tropical plants at the Ecological Reserve El Eden, Quintana Roo, Mexico. Presenter: A.L. Anaya(1); Co-Author(s): M.C. González(1), A. Saucedo-García(1), M.L. Macías-Rubalcava(1), J. Muria(1). (1)Universidad Nacional Autónoma de México, Ciudad Universitaria. México, D.F., México
- MP-83. High diversity of endophytic fungi associated with *Pinus* species: evidence from three forests. Presenter: A.E. Arnold(1); Co-Author(s): M.M. Lee(1), M. Shimabukuro(2), M. Hoffman(1), F. Lutzoni(3). University of Arizona, Tucson, AZ, (2)Dine College, Tsailé, AZ, (3)Duke University, Durham, NC

MSA POSTERS

- MP-84. A preliminary laboratory and field study of the smut *Sporisorium ellisii* on Broomsedge, *Andropogon virginicus* in the Eastern US. Presenter: D.E. Shevlin(1); Co-Author(s): J. Morrison(1), R. Shupak(1). (1)The College of New Jersey, Ewing, NJ
- MP-85. Wood decay fungi associated with beetle-killed Lutz spruce from the Kenai Peninsula, AK. III. Culture data. Presenter: J.A. Glaeser(1); Co-Author(s): D.L. Lindner(1), M.T. Banik(1), L. Trummer(2). (1)USDA Forest Service, Madison, WI, (2)USDA Forest Service, Anchorage, AK
- MP-86. Bioremediation of engine-oil polluted soil by *Pleurotus tuber-regium* Singer, a Nigerian white-rot fungus. Presenter: C.O. Adenipekun, niversity of Ibadan, Ibadan, Nigeria
- MP-87. Antagonism of *Botrytis cinerea* by *Aureobasidium pullulans* and a cellulolytic, *Phoma*-like fungus. Presenter: J.A. Traquair(1); Co-Author(s): G.J. White(1), B.L. Singh(2). (1)Agriculture and Agri-Food Canada, London, ON, Canada, (2)University of Arizona, Tucson, AZ
- MP-88. Global patterns of myxomycete biodiversity. Presenter: S. L. Stephenson, University of Arkansas, AR
- MP-89. Distribution and ecology of dictyostelids in the Great Smoky Mountains National Park. Presenter: S.L. Stephenson(1); Co-Author(s): J.C. Landolt(2), J.C. Cavender(3). (1)University of Arkansas, Fayetteville, AR, (2)Shepherd University, Shepherdstown, WV, (3)Ohio University, Athens, OH
- MP-90. Mycetozoans of the National Parks. Presenter: K.E. Winsett(1); Co-Author(s): S. Edwards(1), L. Lindley(1), M. Mcelderry(1), R.K. Nelson(1), S.L. Stephenson(1). (1)University of Arkansas, Fayetteville, AR
- MP-91. Role of fungus gnat larvae in the acquisition and transmission of oomycete propagules. Presenter: N. Hyder(1); Co-Author(s): M.E. Stanghellini(1), M.D. Coffey(1). (1)University of California, Riverside, CA
- MP-92. Study of Hydrophobicity and Adhesion of the yeast *Cryptococcus neoformans* to Vero cell line in Vitro. Presenter: Y.H. Hou(1); Co-Author(s): S.X. Wu(1). (1)Guangzhou TCM Hospital, Guangzhou, GD, China
- MP-93. Sequence analysis of the mitochondrial genome of *Didymium iridis*. Presenter: M.E. Silliker(1); Co-Author(s): W.K. Castle(1), M.J. DiMarco(1), C.L. Williams(1). (1)DePaul University, Chicago, IL
- MP-94. Two novel calcium channel mutants in *Gibberella zeae* affect ascospore development and discharge. Presenter: H.E. Hallen(1); Co-Author(s): J.G. Guenther(1), F. Trail(1). (1)Michigan State University, East Lansing, MI
- MP-95. A high-throughput procedure for disruption of *Neurospora* genes. Presenter: P.D. Collopy(1); Co-Author(s): H.V. Colot(1), S. Curilla(1), C. Ringelberg(1), L. Litvinkova(2), L. Altamirano(2), G. Park(2), J. Jones(2), K.A. Borkovich(2), J. Dunlap(1). (1)Dartmouth Medical School, Hanover, NH, (2)University of California, Riverside, CA
- MP-96. Partial purification of proteases from filamentous fungi that cause deterioration of industrial paper. Presenter: A. Rojas(1); Co-Author(s): J. Mikán(1), L.E. Villalba(1), M.C. De García(1). (1)Universidad de los Andes, Universidad Militar Nueva Granada, Archivo de Bogotá, Columbia.
- MP-97. *Hebeloma helodes* a model for diversification of nitrate transporter function in mycorrhizal fungi. Presenter: J.C. Slot(1); Co-Author(s): D.S. Hibbett(1). (1)Clark University, Worcester, MA
- MP-98. The genetics of early lichen symbiosis between the mycobiont *Cladonia grayi*, and the photobiont *Asterochloris* sp. Presenter: S. Joneson(1); Co-Author(s): F. Lutzoni(1), D. Armaleo(1). (1)Duke University, Durham, NC
- MP-99. Epigenetics of lichen symbiosis. Presenter: T.R. McDonald(1); Co-Author(s): D. Armaleo(1), F. Lutzoni(1). (1)Duke University, Durham, NC
- MP-100. Preliminary investigation of gene regulation in a heterokaryon of *Neurospora crassa*. Presenter: M.D. Winter(1); Co-Author(s): T.J. Volk(1). (1)University of Wisconsin, La Crosse, WI
- MP-101. Construction of the first phage library of chickpea blight pathogen *Ascochyta rabiei*. Presenter: D. White(1); Co-Author(s): W. Chen(1). (1)USDA-ARS, Washington State University, Pullman, WA
- MP-102. Identifying pathogenesis-related genes of *Sclerotinia sclerotiorum* by using *Agrobacterium*-mediated transformation. Presenter: X. Wang(1); Co-Author(s): D. White(1), J. Wamatu(1), W. Chen(1). (1)USDA-ARS, Washington State University, Pullman, WA
- MP-103. Modification of the pH profile of *Aspergillus niger* phytase by site-directed mutagenesis. Presenter: E.J. Mullaney(1); Co-Author(s): A.H.J. Abul(1), H. Locovare(1), K. Sethumadhavan(1), X.G. Lei(2). (1)SRRC-ARS-USDA, New Orleans, LA, (2)Cornell University, Ithaca, NY
- MP-104. *Fusarium verticillioides GBB1*, a heterotrimeric G-protein beta subunit, regulates fumonisin biosynthesis, conidiation, hyphal development, and maize stalk rot virulence. Presenter: U.S. Sagaram(1); Co-Author(s): B.D. Shaw(1), W.B. Shim(1). (1)Texas A&M University, College Station, TX
- MP-105. Can *Amanita muscaria* fight cancer? More questions than answers. Presenter: M.D. Winter(1); Co-Author(s): A. Daba(1), J.M. Palmer(1), B. Taylor(1), C. Dunek(1), T.J. Volk(1). (1)University of Wisconsin, La Crosse, WI
- MP-106. Composition of *Agaricus bisporus* harvested from three flushes. Presenter: N. Caglarirmak(1); Co-Author(s): R.H. Kurtzman(2). (1) Celal Bayar University, Saruhanli Manisa, Turkey, (2)Berkeley, CA
- MP-107. Effects of nutrition on ascomycete growth and development. Presenter: D.A. Hewitt, Harvard University, Cambridge, MA

- MP-108. Solving the chemical composition of ascus sap. Presenter: L. Yafetto(1); Co-Author(s): N.P. Money(1), D.J. Davis(2). (1)Miami University, Oxford, OH, (2)College of Mount St. Joseph, Cincinnati, OH
- MP-109. Preliminary isolation and characterization of novel antifungal chemicals from fungal fruiting bodies. Presenter: C.P. Dunek(1); Co-Author(s): T.J. Volk(1). (1)University of Wisconsin, La Crosse, WI
- MP-110. Substrate degradation patterns of freshwater euascomycetes: extracellular enzymes and soft-rot decay. Presenter: C.A. Shearer(1); Co-Author(s): J.L. Simonis(1), H.A. Raja(1). (1)University of Illinois, Urbana IL
- MP-111. Microsatellite variation among clinical *Coccidioides* spp. isolates in Arizona. Presenter: K. Jewell(1); Co-Author(s): E. Clark(1), R. Cheshier(2), G. Cage(2). (1)Arizona Department of Health Services, Phoenix, AZ, (2)Ribomed Biotechnologies, Inc., Phoenix, AZ
- MP-112. The effects of human activities and air disturbance on airborne fungi in a water damaged building. Presenter: D.W. Li, Windsor, CT
- MP-113. Antagonism by selected isolates of fluorescent *Pseudomonas* against *Fusarium oxysporum* f.sp. *ciceri* causing chickpea wilt in India. Presenter: R. Kaur(1); Co-Author(s): R. S. Singh(2), C. Alabouvette(3). (1)University of Florida, Gainesville, FL, (2)Punjab Agricultural University, Ludhiana, PB, INDIA, (3)INRA-CMSE, UMR BBCE_IPM, Dijon Cedex, France
- MP-114. Factors influencing virulence in *Batrachochytrium dendrobatidis*. Presenter: A.S. Moss(1); Co-Author(s): I. Dortaj(1), N.S. Reddy(1), M.J. San Francisco(1). (1)Texas Tech University, Lubbock, TX
- MP-115. Field and laboratory evaluation of resistance to *Puccinia virgata*. Presenter: J. Taylor(1); Co-Author(s): J.D. Matula(1). (1)Stephen F. Austin State University, Nacogdoches, TX
- Systematics**
- MP-116. Teaching the fungal tree of life to high school teachers and students with a comprehensive website and adapted peer reviewed literature. Presenter: J.C. Slot(1); Co-Author(s): D.S. Hibbett(1). (1)Clark University, Worcester, MA
- MP-117. Introducing the Fungal Planet: a global initiative to describe a 1000 new species of fungi. Presenter: P. W. Crous(1); Co-Author(s): K. A. Seifert(2), R. A. Samson(1), and D. L. Hawksworth(3). (1)Centraalbureau voor Schimmelcultures, Utrecht, Netherlands, (2)Agriculture and Agri-Food Canada, Ottawa, ON, Canada, (3)The yellow House, Madrid, Spain
- MP-118. A new species challenges taxonomy of Leptomitales. Presenter: S. L. Enos(1); Co-Author(s): J. E. Longcore(1), and J. C. Bailey(2). (1)University of Maine, ME, (2) University of North Carolina, Wilmington, NC
- MP-119. The diversity of root-inhabiting fungi and oomycetes in a Southeastern mixed hardwood forest. Presenter: M. H. Hersh(1); Co-Author(s): R. Vilgalys(1) and J. S. Clark(1). (1)Duke University, Durham, NC
- MP-120. Ultrastructural and molecular delineation of a new order, the Rhizophydiales Chytridiomycota. Presenter: P. M. Letcher(1); Co-Author(s): M. J. Powell(1), P. F. Churchill(1), J. G. Chambers(1). (1)University of Alabama, AL
- MP-121. Developing molecular systematics for the Myxomycota. Presenter: D. R. Dewsbury(1); Co-Author(s): S. Margaritescu(2), S. L. Stephenson(3), and J.M. Moncalvo(1,2). (1)University of Toronto, Toronto, ON, (2)Canada, University of Arkansas, AR, (3)Royal Ontario Museum, Toronto, ON Canada
- MP-122. Fungal associates of the northern spruce engraver, *Ips perturbatus*, in northwestern Canada: *Leptographium fruticetum* sp. nov. Presenter: A.S. Massoumi(1); Co-Author(s): J.J. Kim(1) and C. Breuil(1). (1)University of British Columbia, Vancouver, BC, Canada
- MP-123. Ultrastructural and Molecular Analyses of the Soil Chytrid Fungi, Spizellomycetales (Chytridiomycota). Presenter: S. W. Wakefield(1); Co-Author(s): P.M. Letcher(1), M.J. Powell(1). (1)University of Alabama, AL
- MP-124. Genetic and zoospore ultrastructural data support a new chytrid genus. Presenter: D. R. Simmons(1); Co-Author(s): J. E. Longcore(1), and T. Y. James(2). (1)University of Maine, ME, (2)Duke University, Durham, NC
- MP-125. Basidiomycetes of the Mobile River Basin. Presenter: J. L. Mata(1); Co-Author(s): D. Lewis(2). (1)University of South Alabama, AL, (2)Gulf States Mycological Society, TX
- MP-126. Evolutionary relationships among aquatic anamorphs and teleomorphs II: Tricladium and Varicosporium. Presenter: J. Campbell(1); Co-Author(s): C. A. Sheare(2), and L. Marvanova(3). (1)University of Southern Mississippi, MS, (2)University of Illinois, Urbana, IL, (3)Masaryk University, Brno, Czech Republic
- MP-127. *Catinella olivacea*: an ascostromatic fungus masquerading as an inoperculate discomycete. Presenter: R. S. Currah(1); Co-Author(s): M.D. Greif(1), C.F.E. Gibas(1), and A. Tsuneda(1). (1)University of Alberta, Alberta, AB Canada
- MP-128. Five new *Stenella* species from the Brazilian Cerrado. Presenter: J.C. Dianese(1); Co-Author(s): D. Dornelo-Silva(1). (1)Universidade de Brasília, Brasília, DF, Brazil.
- MP-129. The Gnomoniaceae on the Juglandaceae. Presenter: M. V. Sogonov(1); Co-Author(s): L.A. Castlebury(2), A. Y. Rossman(2), and J. F. White, Jr(1). (1)Rutgers University, New Brunswick, NJ, (2)Systematic Botany and Mycology Laboratory, Beltsville, MD

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- MP-130. Phylogenetic relationships of North American truffles in the genus *Tuber*. Presenter: G. Bonito(1); Co-Author(s): R. Vilgalys(1), O. Isikhuemhen(2), and J. Trappe(3). (1)Duke University, Durham, NC, (2)North Carolina Agricultural and Technical State University, NC, (3)Pacific Northwest Forest and Range Experiment Station Forestry Sciences Laboratory, OR
- MP-131. *Jahnula* species from North and Central America, including three new species. Presenter: H.A. Raja(1); Co-Author(s): C.A. Shearer(1). (1)University of Illinois, Urbana, IL
- MP-132. Phylogenetic distinction of *Diaporthe/Phomopsis* isolates from soybeans. Presenter: L.A. Castlebury(1); Co-Author(s): A. Mengistu(2). (1) USDA ARS Systematic Botany and Mycology Laboratory, MD, (2)USDA-ARS Crop Genetics and Production Research Unit, TN
- MP-133. Identification of the yellow-spored aspergilli. Presenter: M.A. Klich, USDA/ARS/SRRC, LA
- MP-134. Reappraisal of *Chaetomium ampullare* Chivers and *Coniochaeta emodensis* Udagawa & Y. Hori from soil. Presenter: M. Stchigel(1); Co-Author(s): A. N. Miller(2), and J. Guarro(1). (1)Universitat Rovira i Virgili, Reus, Spain, (2)Illinois Natural History Survey, Center for Biodiversity, IL
- MP-135. Systematics and mating systems of fungal pathogens of opium poppy: *Crivellia papaveracea* with a *Brachycladium penicillatum* asexual state and a homothallic species *B. papaveris*. Presenter: N. R. O'Neill(1); Co-Author(s): P. Inderbitzin(2), R. A. Shoemaker(3), B. G. Turgeon(4), and M. L. Berbee(2). (1)USDA, ARS, Molecular Plant Pathology Laboratory, MD, (2)University of British Columbia, Vancouver, BC Canada, (3)Agriculture and Agri-Food Canada, Ottawa, ON, Canada, (4)Cornell University, Ithaca, NY
- MP-136. New record of *Circinella* from a hydrocarbon polluted sand beach of Tabasco, Mexico. Presenter: M.C. González(1); Co-Author(s): C. Medina(1), N. Murrueta(1). (1)UNAM, Ciudad de México DF México
- MP-137. A new endophytic ascomycete from El Edén Ecological Reserve, Quintana Roo. Presenter: M.C. González(1); Co-Author(s): A.L. Anaya-Lang(1), A.E. Glenn(2), A. Saucedo-García(1), and R.T. Hanlin(3). (1)UNAM, México DF México, (2)USDA-ARS, Athens, GA, (3)University of Georgia, Athens, GA
- MP-138. A phylogenetic study on the sections within the genus *Phoma*. Presenter: M.M. Aveskamp(1); Co-Author(s): J.H. de Gruyter(2), P.W. Crous(1). (1)Centraalbureau voor Schimmelcultures, AD Utrecht, The Netherlands, (2)Plantenziektenkundige Dienst, Wageningen, Netherlands.
- MP-139. Three new species of *Luttrellia* from temperate and tropical freshwater habitats. Presenter: C.A. Shearer(1); Co-Author(s): A. Ferrer(1). (1)University of Illinois, Urbana, IL
- MP-140. Cultural and Molecular characterization of the halophilic black yeast *Hortaea werneckii* from a hypersaline environment in Puerto Rico. Presenter: H.R. Amores-Sánchez(1); Co-Author(s): Z. Ortiz-Pérez(1), F. Rivera-Figueroa(1), S.A. Cantrell(1). (1)Universidad del Turabo, Gurabo, PR
- MP-141. Diversity of Chytrid Fungi in Disparate Biomes. Presenter: K.T. Picard(1); Co-Author(s): M.J. Powell(1), P.M. Letcher(1), G.A. Laursen(2). (1)University of Alabama, Tuscaloosa, AL, (2)University of Alaska, Fairbanks, AK
- MP-142. Cladosporium from water and microbial mat in a hypersaline environment of Puerto Rico. Presenter: C. Báez-Félix(1); Co-Author(s): Z. Ortiz-Pérez(1), S.A. Cantrell(1). (1)Universidad del Turabo, Gurabo, PR
- MP-143. Phylogenetic affiliations of insect pathogenic *Sporothrix* species. Presenter: K.T. Hodge(1); Co-Author(s): B. Huang(1), R.A. Humber(2), M.A. Klich(1), M. Faria(1), M.S. Tigano(3), R.P. Shanley(1). (1)Cornell University, Ithaca, NY, (2)USDA-ARS, Ithaca, NY, (3)Embrapa, Parque Estacao Biologica, PqEB, Brasília, DF, Brasil
- MP-144. 2006 update of the fungal TWIG of the Great Smoky Mountains National Park's ATBI. Presenter: E.B. Lickey(1); Co-Author(s): K.W. Hughes(1), R.H. Petersen(1). (1)University of Tennessee, Knoxville, TN
- MP-145. Phylogeographic relationships and taxonomy of Eastern Canadian forest mushrooms. Presenter: L. Rivzi(1); Co-Author(s): J. Skillman(1), D. Khasa(1), Y. Piche(1), A. Fortin(2), J. Moncalvo(3). (1)University of Toronto, Toronto, ON, Canada, (2)University Laval, Quebec, QC, Canada, (3)Royal Ontario Museum, Toronto, ON, Canada
- MP-146. The Species of edible and medicinal mushrooms in China. Presenter: M.M. Chen, University of California, Berkeley, CA
- MP-147. Phylogeny of the ectomycorrhizal mushroom genus *Alnicola* (Basidiomycota, Cortinariaceae) based on rDNA sequences with special emphasis on host specificity and morphological characters. Presenter: P.A. Moreau(1); Co-Author(s): U. Peintner(2), M. Gardes(3). (1)Université de Lille, France, (2)University of Innsbruck, Austria, (3)Université de Toulouse III, France
- MP-148. Phylogenetics of *Phylloporus* (Boletales) species based on molecular data. Presenter: M. Neves(1); Co-Author(s): R.E. Halling(2). (1) City University of New York, New York, NY, (2)New York Botanical Garden, Bronx, NY
- MP-149. Macromycetes diversity from the Peruvian Amazon: preliminary inventory from the biological station "Los Amigos", Madre de Dios, Peru. Presenter: R.O. Gazis Olivas, Texas Christian University, Fort Worth, TX

- MP-150. Fungal associates of captive Atlantic bottlenose dolphins (*Tursiops truncatus*). Presenter: A. Kennedy(1); Co-Author(s): J. Campbell(1). (1)University of Southern Mississippi, Ocean Springs, MS
- MP-151. Sectional concepts in the genera *Coprinopsis* and *Coprinellus*: conflict between morphology and nuclear ribosomal sequence data. Presenter: M. Keirle, University of Chicago, Chicago, IL
- MP-152. A monograph of the genus *Crinipellis* from Southeast Asia based on morphology and nrITS data. Presenter: J.F. Kerekes(1); Co-Author(s): D.E. Desjardin(1). (1)San Francisco State University, San Francisco, CA
- MP-153. An integrated approach to identify basidiomycete cultures. Presenter: S. Zhou(1); Co-Author(s): S.E. Anagnost(1). (1)STATE UNIVERSITY OF NEW YORK- Syracuse, Syracuse, NY
- MP-154. Coprophilous species of *Coprinus* in east-central Illinois. Presenter: V.P. Hustad(1); Co-Author(s): A.S. Methven(1). (1)Eastern Illinois University, Charleston, IL
- MP-155. Phylogenetic relationships of *Perenniporia*, *Loweporus* and *Abundisporus* based on ITS, partial 28S rDNA and IGS1 sequences. Presenter: S. H. Hong(1); Co-Author(s): C. Kim(1), and H.S. Jung(1). (1)National University, Seoul, Korea
- MP-156. Two unidentified *Geastrum* species from Hawai'i. Presenter: D. E. Hemmes(1); Co-Author(s): D. E. Desjardin(2). (1)University of Hawai'i, Hilo, HI, (2) Francisco State University, San Francisco, CA
- MP-157. A phylogeny of *Russula* species from northern California. Presenter: R. M. Davis(1); Co-Author(s): R. Li(2), and S.L. Miller(3). (1)University of California, Davis, CA, (2)Yunnan Agric. University, Kunming, Yunnan, China, (3)University of Wyoming, Laramie, WY
- MP-158. Coprophilous fungi of the Great Smoky Mountains National Park. Presenter: V. P. Hustad(1); Co-Author(s): A. N. Miller(2), and A.S. Methven(1). (1)Eastern Illinois University, Charleston, IL, (2)Illinois Natural History Survey, Urbana, IL
- MP-159. A worldwide monograph of *Tetrapyrgos* based on morphology and ITS sequence data. Presenter: A.H. Honan(1); Co-Author(s): D.E. Desjardin(1). (1)San Francisco St. University, San Francisco, CA
- MP-160. DNA barcoding species in *Agaricus* section *Duploannulati*: comparison between ITS and COI data. Presenter: M.Y. Didukh(1,3); Co-Author(s): R. Vilgalys(2), S.P. Wasser(1,3), O.S. Isikhuemhen, E. Nevo(3), and J.M. Moncalvo. (1)M.G. Kholodny Institute of Botany, NASU, Kiev, Ukraine, (2)Duke University, Durham, NC, (3)University of Haifa, Mount Carmel, Israel.
- MP-161. Delineating the *Hygrophoraceae*: character myths vs. gene trees. Presenter: D.J. Lodge(1); Co-Author(s): M. P. Brandon(2), S.A. Cantrell(3), J.M. Moncalvo(4), R. Vilgalys(5), Rytas and S. Redhead(6). (1)USDA-FS, Luquillo, PR, (2)Clark University, Worcester, MA, (3)University of Turabo, Gurabo, PR, (4)University of Toronto, Toronto, ON, Canada, (5)Duke University, Durham, NC, (6)Ag. & Agri-Food Canada, Ottawa, ON, Canada.
- MP-162. Macrofungi diversity patterns in a suburban forest in the Valley of Mexico City. Presenter: J. B. Cifuentes(1); Co-Author(s): J. L. Villarruel-Ordaz Jose Luis(1). (1)FC-UNAM, Mexico

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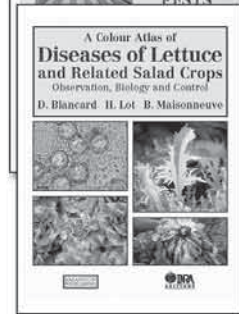
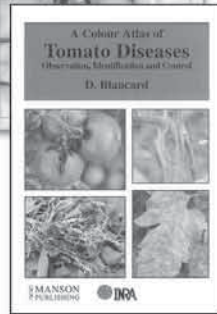
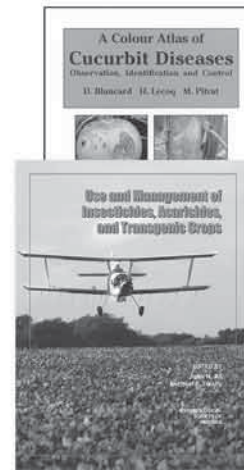
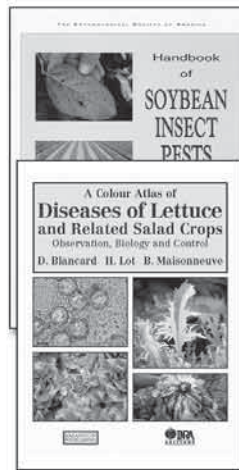
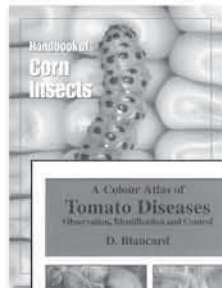
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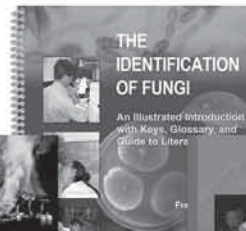
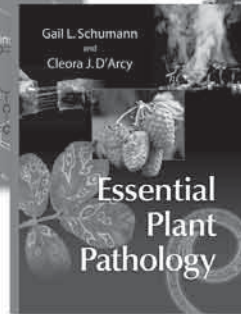
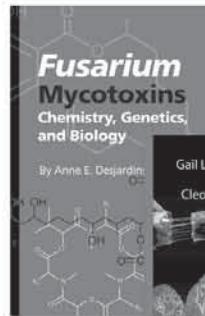
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Lisa Castlebury, *Councilor: Ecology/Pathology (2005-2007)*
Barbara Valent, *Councilor: Genetics/Molecular Biology (2005-2007)*
Greg Thorn, *Councilor: Systematics/Evolution (2005-2007)*

Editorial Appointments

Mycologia

Donald Natvig, *Editor-in-Chief (2004-2009)*
Jeffrey Stone, *Managing Editor (2004-2009)*
John Donahue, *Assistant Editor*
Gerard Hebert, *Assistant Editor*

Editorial Advisory Committee

David M Geiser, *Chair (2001-2006)*
Mary Berbee (2002-2007)
Lori Carris (2004-2009)
Christopher Schardl (2004-2009)
Rick Kerrigan (2005-2010)
Gerald F Bills, *ex officio, Past Chair*

Associate Editors

Terms coincide with calendar year
Garry T Cole (2003-2005)
Randy Currah (2004-2006)
Dennis E Desjardin (2003-2005)
David M Geiser (2005-2007)
Richard W Kerrigan (2005-2007)
Maren Klich (2004-2006)
Joyce E Longcore (2003-2005)
Nicholas P Money (2004-2006)
Kerry O'Donnell (2005-2007)
Mary Palm (2005-2007)
Barbara A Roy (2003-2005)
Gary Samuels (2005-2007)
Steven L Stephenson (2003-2005)
Lisa J Vaillancourt (2005-2007)
Charles P Woloshuk (2003-2005)

Inoculum

Richard Baird, *Editor (2004-2007)*
Amy Rossman, *Book Review Editor*

Allen Press

Beverly Prescott, *Account Manager*

Allen Marketing & Management

Claims & Membership Services
Kay Rose, *Association Manager*

HighWire Press

Julie Noblitt, *Mycologia Journal Manager*
Mycologia Online Feedback / Support
www.mycologia.org/

Standing Committees

Education

Thomas Volk, *Chair (2003-2007)*
Margaret Silliker (2002-2006)
Charles (Eddie) Beard (2004-2008)
Seanna Annis (2005-9)

Electronic Communication & Web Page Management

Roy Halling, *Chair (2004-2005) & Webmaster (2001- 2006)*
David Geiser, *Abstract Submission (2002-2007)*
Donald Natvig, *ex officio Mycologia EIC*
Faye Murrin, *ex officia, MSA Secretary*
Richard Baird, *ex officio, Inoculum Editor*
Kay Rose, *Association Manager [AMM]*
Julie Noblitt, *HighWire Journal Manager*

Endowment

Thomas Harrington, *Chair (2004-2008)*
Meredith Blackwell, (2002-2006)
Don Hemmes (2004-2008)
Fred Spiegel (2005-2009)
Judi Ellzey, *ex officia, Past Chair*

Finance

Jeff Stone, *Chair (2004-2008)*
Lorelei Norvell (2002-2006)
David Geiser (2003-2007)
Orson Miller (2004-2008)
Karen Snetselaar, *ex officia, Treasurer*
David J McLaughlin, *ex officio, President*

International

Joanne Taylor, *Chair (2004-2008)*
Julietta Carranza (2004-2008)
David Minter (2005-2009)
Sharon Cantrell, *ex officia, Past Chair*

Mycologia Memoirs

Keith Seifert, *Chair (2002-2005)*
Gary Samuels (2004-2007)
Andrew Methven (2005-2008)
Wendy Untereiner (2005-2008)
Wendy Yoder, *ex officia, Sustaining Chair*
Faye Murrin *ex officia, MSA Secretary*

Nomenclature

Lorelei Norvell, *Chair (2003-2006)*
Wendy Untereiner (2004-2007)
Scott Redhead (2004-2007)

THE MYCOLOGICAL SOCIETY OF AMERICA 2005–2006 OFFICIAL ROSTER

Sustaining

Jessie Micales, Chair (2004-2007)
Gerard Adams (2003-2006)
Payam Fallah (2004-2007)
Wendy Yoder, ex officia, Past Chair

Rotating Committees – Awards

Honorary Awards

John Taylor, Chair (2003-2006)
Carol A Shearer (2004-2007)
Dave McLaughlin (2005-2008)
George Carroll, ex officio, Past Chair

Mentor Student Travel Awards

Andrea Gargas, Chair (2002-2006)
Steven Harris (2003-2007)
Elizabeth Frieders (2004-2008)
Josef Geml (2005-2009)
Charles W Bacon ex-officio, Past Chair
Jessie Micales, ex officia, Sustaining Chair

Mycological Society Distinctions

Scott A Redhead, Chair (2001-2006)
Georgiana May (2002-2007)
Mary Berbee (2003-2008)
James Kimbrough (2004-2009)
Nick Read (2005-2010)
Ronald H Petersen ex officio, Past Chair
Jessie Micales, ex officia, Sustaining Chair

Research Awards

Nancy Weber, Chair (2003-2006)
Iris Charvat (2004-2007)
Terry Hill (2004-2008)
Gary Warren (2004-2009)
Michelle Seidl (2005-2010)
Karen Nakasone, ex officia, Past-Chair
Jessie Micales, ex officia, Sustaining Chair

Student Awards

Lori M Carris, Chair (2003-2007)
Catherine Aime (2004-2007)
Jinx Campbell (2004-2007)
Jean Marc Moncalvo (2005-2008)
François Lutzoni, ex officio, Past-Chair
Jessie Micales, ex officia, Sustaining Chair

Rotating Committees – General Service

Karling Annual Lecture

Michelle Momany, Chair (2002-2006)
Dirk Redecker (2004-2007)
Meritxell Riquelme (2005-2008)
Michael Allen, ex officio, Past Chair

Liaison with Amateur Mycological Clubs & Societies

Patrick Leacock, Chair (2003-2006)
Coleman McCleneghan (2004-2007)
Catherine Aime (2005-2008)
Steve Trudell, ex officio, Past-Chair

Nominations

Timothy J Baroni (2002-2006) -
Linda Kohn (2003-2007)
Carol A Shearer (2004-2008)
John Taylor (2005-2009)
Charles W Mims, ex officio, Past Chair

Program

Tom Bruns (2002-2006)
Gerard Adams (2004-2008)
Josephine Taylor (2004-2008)
Marc Cubeta (2005-2009)
D Jean Lodge, ex officia, Past-Chair
Don Hemmes, ex officio, President-Elect

Rotating Committees – Specific Expertise Biodiversity

Joyce E Longcore, Chair (2002-2006)
Sharon Cantrell, (2003-2007)
Dan Czederpiltz (2004-2008)
Terry Henkel (2005-2008)
Andrew Miller (2005-2009)
Cathy Cripps, ex officia, Past-Chair

Culture Collections

Pedro W Crous, Chair (2002-2006)
David Padgett (2003-2007)
Lynne Sigler (2004-2008)
Johann Bruhn (2005-2009)
Maren A Klich, ex officia, Past-Chair
Gary Samuels, ATTC ex officio

Ecology

Tom Horton, Chair (2002-2006)
Jon Polishook (2003-2007)
John Paul Schmit (2004-2008)
Ari Jumpponen (2005-2009)
Terry Henkel, ex officio, Past Chair

Environmental Health & Medical Mycology

Richard Haugland, Chair (2002-2006)
Ira Salkin (2003-2007)
Jianping Xu (2004-2008)
Mike Rinaldi (2005-2009)
Michael McGinnis, ex officio, Past Chair

Genetics & Cell Biology

Steven Harris, Chair (2004- 2008)
Brian Shaw (2004-2008)
Robert Roberson (2004-2008)
David Jacobsen (2004-2008)

Phytopathology

Tobin Peever, Chair (2002-2006)
Weidong Chen (2003-2007)
Greg Douhan (2004-2008)
Carol Stiles (2005-2009)
Lisa Castlebury, ex-officia, Past-Chair

Annual Meeting Committees

MSA 2006 Local Arrangements

James B Anderson, Chair
Linda Kohn

MSA 2007 Local Arrangements

Meredith Blackwell

MSA 2008 Local Arrangements

David Geiser

MSA 2009 Local Arrangements

Bradley R Kropp

Foray

Donald Ruch (2005-2006), Annual Foray Coordinator

Affiliates and Assignments

Representatives

American Association for the Advancement of Science (Committee of Section G: Biology) *Lisa Castlebury (2003-2006)*

American Institute of Biological Sciences *Al Torzilli, Council (2003-2006)*

American Mushroom Institute, *Richard W Kerrigan (2003-2006)*

American Type Culture Collection, *Gary Samuels (2003-2006)*

International Mycological Association, *John Taylor (2004-2007)*

International Union of Microbiological Societies (US National Committee), *Carol Shearer (2002-2006)*

Natural Sciences Collections Alliance, *Gerard Adams (2002-2006)*

Affiliated Mycological Societies - Regional

Boston Mycological Club (BMC)

Illinois Mycological Association (IMA)

Oregon Mycological Society (OMS)

Allied / Sister Mycological Societies – National & International

African Mycological Association

Australasian Mycological Society

British Mycological Society (BMS)

Latin American Mycological Society (ALM)

Mycological Society of China (MSC)

Mycological Society of Japan (MSJ)

North American Mycological Association (NAMA)

Honorary Societies & Institutes

British Mycological Society

Centraalbureau voor Schimmelcultures (CBS) 2004

Mycological Society of Japan 2005

Special Assignments & Appointments

Historian

Donald Pfister

Joint Commission on Common Names

msa+nama = JOINT appointments

msa = MSA only; nama = NAMA only

Scott Redhead, Chair (2001-2006)msa+nama

Lorelei Norvell (2001-2006)msa+nama

Judy Roger (2001-2006)msa+nama

Walt Sundberg (2004-2007)msa

Tom Volk (2001-2005)msa

Carol Dreiling (2001—2004)nama

George Riner (2001-2005)nama

Liaison for Society Incorporation

Lafayette Frederick

Memorials Publications Committee

Donald Pfister, Chair, Historian

Donald Natvig, Mycologia Editor-in-Chief

David J McLaughlin, President

Richard Baird, ex officio, Inoculum Editor

Faye Murrin, ex officia, Secretary

Public Policy Officers

Meredith Blackwell (2004-2007)

George Carroll (2004-2007)

APS • CPS • MSA Exhibit Floor Plan

Exhibit Halls 400AB • July 29 – August 2, 2006 • Québec City, Québec, Canada



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- 102 Springer
- 103 STA Laboratories, Inc./ BIORBA AG.
- 104 Percival Scientific, Inc.
- 105 Microbiology International
- 106/108 BASF: The Chemical Company
- 110 EnviroLogix Inc.
- 111 Gylling Data Management, Inc.
- 112/114 USDA APHIS Permit Services
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- 203 USDA APHIS PPQ Center for Plant Health Science and Technology

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- 223 LemnaTec
- 224/226 Unicorn Imp. & Mfg. Corp.
- 225/227 Bio Chambers Inc. (Enconair)

2006 APS/CPS/MSA Joint Meeting Exhibitors

The following suppliers will be available to answer your questions and offer innovative suggestions. Make plans to view the latest technology in plant pathology, Sunday, July 30 – Tuesday, August 1, in the Exhibit Hall.

Agdia, Inc. 123/222

30380 County Rd. 6, Elkhart, IN 46514; Phone: 1.800.622.4342, Fax: +1.574.264.2153, E-mail: info@agdia.com, Web: www.agdia.com. Agdia celebrates close to 25 years of continuous service, supplying diagnostic test kits, reagents, and services to the world's agricultural industry. Its products and services include tests in various formats for the detection of plant pathogens, transgenic plant traits, and plant growth hormones. 2006 brings new additions to the Agdia lines of PathoScreen® ELISA kits, ImmunoStrip® field tests, PCR primers, and testing services.

AGRITECNOVE Inc. 120

651 Route Bégin, St. Anselme, QC G0R 2N0, Canada; Phone: +1.418.885.9595, Fax: +1.418.885.4957, E-mail: info@agritechnove.com, Web: www.agritechnove.com. Agritechnove is a consulting firm specialized in the design of research and institutional growth facilities for plants and insects (research greenhouses, tissue culture rooms, custom designed growth rooms, insect rearing, conservatories). For new installations or modernization work, services include technical assessments, programming, cost evaluations, drawings, specifications, and construction supervision.

AnzenBio, LLC 201

2475 W. California Ave., Salt Lake City, UT 84104-4525; Phone: +1.801.972.6800, Fax: +1.801.972.6801, E-mail: jcrocker@anzenbio.com, Web: www.anzenbio.com. AnzenBio specializes in producing instrumentation and consumables for biological testing. Its products include kits for both antibody and molecular (PCR) detection of agricultural pathogens.

APS Centennial Oral History Project 128

APS Centennial Committee, contact Darin Eastburn, University of Illinois, AW-101 Turner Hall, 1102 S Goodwin Ave, Urbana, IL 61801-4730; E-mail: eastburn@uiuc.edu, Web: www.apsnet.org/members/centennial/. The APS Centennial Committee is sponsoring the production of an oral history DVD to reflect on the past 100 years and speculate on the future. Stop by the booth to record your APS reflections in 1- to 2-minute video segments.

Arysta LifeScience North America Corporation 207

Suite 150, 15401 Weston Parkway, Cary, NC 27513; Phone: +1.919.678.4900, Fax: +1.919.678.2194, E-mail: chuck.schiller@arystalifescience.com, Web: www.arysta-na.com. Arysta LifeScience North America Corporation, a group member of Arysta LifeScience, is an entrepreneurial provider of unique crop protection solutions such as ELEVATE®, CAPTEVATE™*, EVEREST®, EVITO™, BATTALION™, and CHLOROPICRIN. For further information, please visit the company's website at www.arysta-na.com. *CAPTEVATE is a pending registration trademark of Arysta LifeScience North America.

BASF: The Chemical Company 106/108

Agricultural Products, 26 Davis Dr., Research Triangle Park, NC 27709; Phone: 1.800.326.1810, Fax: +1.919.547.2433, Websites: www.agproducts.basf.com, www.SoybeanRustInfo.com, or www.turfacts.com. Built on the strength of the world's leading chemical company, BASF Agricultural Products is a technology leader in crop protection and professional turf management. The BASF portfolio includes Cabrio® EG, Headline®, Endura®, and Pristine® fungicides in agricultural production and Insignia® and Emerald® fungicides in professional turf. These products feature the active ingredients

pyraclostrobin (F500®) or boscalid. Charter™ cereal seed treatment fungicide (active ingredient triticonazole) is a recent addition to the portfolio.

Bayer CropScience 101/200

2 T.W. Alexander Dr., P.O. Box 12014, Research Triangle Park, NC 27709; Phone: +1.919.549.2000, Fax: +1.919.549.3952, E-mail: roger.kaiser@bayercropscience.com, Web: www.bayercropscience.com. A global company with headquarters in Monheim, Germany, and annual sales of about EUR 6 billion, it is a world leader in innovative crop science. With focus on crop protection, nonagricultural pest control, seeds and plant biotechnology, Bayer CropScience offers an outstanding range of products and services serving modern sustainable agriculture. Bayer's workforce of over 19,000 employees, in more than 120 countries, is committed to implementing our values of openness, honesty, integrity, sustainability of our actions, and respect for people and nature.

Bio Chambers Inc. (Enconair) 225/227

477 Jarvis Ave., Winnipeg, MB R2W 3A8, Canada; Phone: +1.204.589.8900, Fax: +1.204.582.1024, E-mail: info@biochambers.com, Web: www.biochambers.com. Bio Chambers Inc., a subsidiary of Enconair Technologies Inc., will exhibit one of their modern and full featured "Bigfoot" Plant Growth Chambers. Please visit our exhibit to pick up the latest information on new models and tell us of any special requirements you may have.

Bio-Synthesis, Inc. 214

612 E. Main St., Lewisville, TX 75057; Phone: +1.972.420.8505, Fax: +1.972.420.0442, E-mail: heidi@biosyn.com, Web: www.biosyn.com. We provide synthetic custom peptides, antibodies, bioconjugates, PNA, DNA, custom organic, and other molecular reagents. Specializing in custom peptide synthesis from small to large scale, we can help you design the optimal peptides for your research needs at the most competitive price and the highest quality. We have capabilities to synthesize over 500 peptides simultaneously with over 20 years of experience. We believe our quality control and speed is unmatched in the industry.

Blackwell Publishing 124

350 Main St., Malden, MA 02148; Phone: 1.800.759.6102, E-mail: sfagan@bos.blackwellpublishing.com, Web: www.blackwellpublishing.com.

CABI 113

Nosworthy Way, Wallingford, Oxon, OX10 8DE, United Kingdom; Phone: +44 1491 832111, Fax: +44 1491 829198, E-mail: publishing@cabi.org, Web: www.cabi.org. CABI improves people's lives worldwide by providing information and applying scientific expertise to solve problems in agriculture and the environment. To find out what we do to meet our mission, please have a look at 'CABI in review 2005' on www.cabi.org.

California Seed & Plant Lab 212

7877 Pleasant Grove Rd., Elverta, CA 95626; Phone: +1.916.655.1581, Fax: +1.916.655.1582, E-mail: randhawa@calspl.com, Web: www.calspl.com. California Seed and Plant Lab provide such services as seed health testing, plant disease diagnosis, resistance screening and variety fingerprinting using standard or in-house improved methods. We also provide disease-diagnosis related products including prepared selective media (Ready Media) and ready to use PCR primers for several important plant pathogens.

2006 APS/CPS/MSA Joint Meeting Exhibitors

Centre SÈVE 125

Université de Sherbrooke, 2500 boul. de l'Université, Sherbrooke, QC J1K 2R1, Canada; Phone: +1.819.821.8000 X1917, Fax: +1.819.821.8049, E-mail: info@centreseve.org, Web: www.centreseve.org. The Centre SÈVE is an inter-institutional plant improvement research centre. Its research activities are: plant improvement in a context of reducing greenhouse gas emissions and culture protection in a legislative context limiting the use of pesticides. The Centre not only aims to develop tools and knowledge in order to increase plant productivity considering the environmental and social imperatives but also collaborates with experts from various disciplines in the evaluation of the environmental and social impacts of the results of its research.

Cerexagri - Nisso, LLC 210

Suite 402, 630 Freedom Business Center, King of Prussia, PA 19406; Phone: +1.610.491.2872, Fax: +1.610.491.2850, E-mail: beth.sears@cerexagri.com, Web: www.cerexagri-nisso.com. Cerexagri-Nisso LLC crop protection serves production agriculture with fungicide and insecticide products for specialty crops such as pome and stone fruit, grapes, citrus, vegetables, tree nuts, and small fruit. Cerexagri-Nisso also supports canola, corn, cotton, dry bean, soy bean, sugar beets and wheat controlling select diseases and pests of economic importance.

Conviron 211

590 Berry St., Winnipeg, MB R3H 0R9, Canada; Phone: +1.204.786.6451, Fax: +1.204.786.7736, E-mail: info@conviron.com, Web: www.conviron.com. Conviron has been a leading supplier of controlled environment products for over 40 years and is the only plant growth chamber manufacturer certified as an ISO 9001 company. All standard products are also CSA/NRTL certified as meeting all OSHA electrical safety standards. Our product line includes growth chambers and rooms, tissue culture chambers, seed germinators, incubators, research greenhouses, and related products for the precise control of environmental conditions. Host computer systems allow remote programming, monitoring, and diagnostics.

DuPont Agriculture and Nutrition 122

Suite 300, 8295 Tournament Dr., Memphis, TN 38125; Phone: +1.901.746.6000, E-mail: www.dupont.com.corp.contacts.html, Web: www.dupont.com/ag/. DuPont Crop Protection serves production agriculture with herbicide, fungicide, and insecticide products and services for the grain, specialty crops, forestry, and vegetation management. Headquartered in Wilmington, Delaware, DuPont Crop Protection is part of the overall Agriculture & Nutrition business, whose mission is to best satisfy the world's need for food and nutrition by transforming the ways renewable resources are grown, processed, and distributed.

EnviroLogix Inc. 110

500 Riverside Industrial Pkwy., Portland, ME 04103; Phone: +1.207.797.0300, Fax: +1.207.797.7533, E-mail: info@envirologix.com, Web: www.envirologix.com. EnviroLogix Inc. develops and provides rapid test kits to detect pathogens in and on various seeds, crops and plants. QuickStix™ lateral flow strips provide accurate yes/no results in minutes—perfect for field and greenhouse use. The ELISA-based plate format is available for quantitative analysis in the laboratory. Easy-to-use test kits are available for soybean rust, botrytis, and bacterial fruit blotch, with more to come. EnviroLogix specializes in contract development of immunoassay-based tests for any desired target.

Environmental Growth Chambers 115

510 E. Washington St., Chagrin Falls, OH 44022-4448; Phone: 1.800.321.6854, Fax: +1.440.247.8710, E-mail: sgriggs@egc.com, Web: www.egc.com. Environmental Growth Chambers (EGC)

has the largest selection of plant growth chambers of any company worldwide. We also produce controlled environmental rooms, tissue culture chambers, lighted and refrigerated biological incubators, shelf-lighted rooms, gas exchange chambers, hydroponics systems, day-lit chambers, and root zone cabinets. Please stop by and discuss your upcoming project requirements.

Gylling Data Management, Inc. 111

405 Martin Blvd., Brookings, SD 57006; Phone: +1.605.693.4150, Fax: +1.605.693.4180, E-mail: staff@gdmdata.com, Web: www.gdmdata.com. Research management software since 1982. Use ARM software to establish, manage, analyze, and report information for crop protection research trials. ARM version 7 is more flexible and easier to use and includes new features such as AUDPC calculation and graph, one button export of reports to Word or Excel, and Undo. New for 2006: Data collection software for small handheld computer and Summary Across Trials (ARM ST 7) multi-trial summarization software. Free demonstration version of ARM available.

LemnaTec 223

18 Schumanstr., Wuerselen, 52146, Germany; Phone: +49 2405 4126-12, Fax: +49 2405 4126-26, E-mail: joerg@lemnatec.de, Web: www.lemnatec.com. LemnaTec is an innovative company in image processing for ecotoxicology, high throughput screening, healthcare, and biotechnology purposes. The LemnaTec team combines engineering and scientific competences. Together with leading scientists in medical and biological research, LemnaTec develops integrated solutions based on optical recognition and statistical analysis. LemnaTec products meet all requirements from dose-response bioassay analysis to big high throughput screening systems for both plants and small-animal testing from 96-well plates to 2-m plants.

MBEC BioProducts Inc. 213/215

Suite 870 Phipps-McKinnon Bldg., 10020 - 101A Ave., Edmonton, AB T5J 3G2, Canada; Phone: +1.403.670.5445, Fax: +1.780.424.0941, E-mail: info@mbec.ca, Web: www.mbec.ca. Bacteria grow mostly as complex, resilient communities attached to surfaces (biofilms, or "slime"). MBEC tests fungicides, pesticides, and disinfectants for efficacy against biofilms on agriculture and production surfaces (e.g., seeds, equipment, and storage) through contract research. We sell the MBEC Assay, a high throughput system for testing compounds/coatings for anti-biofilm activity.

Microbiology International 105

Suite A, 5108 Pegasus Ct., Frederick, MD 21704; Phone: 1.800.396.4276, Fax: +1.301.662.8096, E-mail: info@800ezmicro.com, Web: www.800ezmicro.com. We will be featuring our new automated deep dish (100 × 25-mm) Petri plate pourer and media sterilizer, WASP 2 automated spiral plater for the elimination of serial dilutions, ProtoCOL automated bacterial colony counter, and the new Pulsifier for the liberation of bacteria from plant and root samples.

National Plant Diagnostic Network 204

Michigan State University, Dept. Plant Pathology, 107 CIPS, East Lansing, MI 48824-1311; Phone: +1.517.353.8624, Fax: +1.517.353.1781, E-mail: hammersr@anr.msu.edu, Web: www.npdn.org. The National Plant Diagnostic Network (NPDN) serves to enhance national agricultural security by quickly detecting and diagnosing plant pests and pathogens. The network is developing capacity and providing diagnostic and educational tools to support this effort. Stop by the NPDN booth for updates on current activities and future activities.

2006 APS/CPS/MSA Joint Meeting Exhibitors

Oxford University Press 209
198 Madison Ave., New York, NY 10016; Phone: 1.800.445.9714, Fax: +1.212.726.6079, E-mail: custserv-us@oup.com, Web: www.oup.com/us. Visit our booth to meet the author and see Nicholas Money's new TRIUMPH OF THE FUNGI: A ROTTEN HISTORY and CARPET MONSTERS, KILLER SPORES; also new: King's DICTIONARY OF GENETICS 7/e; Vega-Blackwell's INSECT-FUNGAL ASSOCIATIONS.

Percival Scientific, Inc. 104
505 Research Dr., Perry, IA 50220; Phone: +1.515.465.9363 or 1.800.695.2743, Fax: +1.515.465.9464, E-mail: sales@percival-scientific.com, Web: www.percival-scientific.com. Percival Scientific sets the standard of excellence for the environmental control industry, producing several lines of plant growth chambers, biological incubators, environmental control rooms, dew formation chambers, and various special application chambers including plant tissue culture, Arabidopsis, seed germination, and emergence cases.

Plant Disease Diagnostics Contest 202
(Sponsored by Diagnostic Committee)
E215 Plant Sciences, Colorado State University, Fort Collins, CO 80523-1177; Phone: +1.970.491.6950, Fax: +1.970.491.3862, E-mail: tamla.blunt@colostate.edu. Test your knowledge of plant diseases at the Diagnostics Committee's Plant Disease Diagnosis Contest. The contest is designed in "Jeopardy" format, with different categories/topics. Questions may be answered Sunday and Monday. Answers will be posted on Tuesday so you can see how you did. Stop by and have some fun.

PPIL—Plant Pathogen Identification Laboratory 205
Dept. of Plant Pathology, North Carolina State University, B29 Marye Ann Fox, Raleigh, NC 27695-7616; Phone: +1.919.515.3825, Fax: +1.919.515.7716, E-mail: gloria_abad@ncsu.edu, Web: www.ncsu.edu/ppil. Identification of Plant Pathogens. The PPIL is a service center for the identification of fungi and straminipiles to species levels and is open to research and extension programs locally, nationally, and internationally. The PPIL is specialized, but not limited, in the identification of *Fusarium*, *Phytophthora* (including compatibility types), *Pythium*, *Rhizoctonia* (including AG types), and bacteria (with 16S rRNA). The PPIL is the organizer of the 1st and 2nd International Workshops (2004 and 2006) for the "Morphological and Molecular Identification of *Phytophthora* and *Pythium*" and two minisymposiums for "Establishing the Basis for an International Survey of *Phytophthora* and *Pythium* in the Americas and Beyond."

Spectrum Technologies, Inc. 127
12360 S. Industrial Dr. East, Plainfield, IL 60586; Phone: +1.815.436.4440, Fax: +1.815.436.4460, E-mail: info@specmeters.com, Web: www.specmeters.com. Spectrum Technologies, Inc. offers affordable devices to measure nutrient levels, soil qualities, light, weather, and other factors affecting plant growth. Our WatchDog weather stations and data loggers make it easy to record weather events and conditions. Over 15,000 customers count on Spectrum's easy-to-use, dependable technology for their growing needs.

Springer 102
233 Spring St., New York, NY 10013; Phone: +1.212.460.1600, Fax: +1.201.348.4505, E-mail: exhibits-ny@springer.com, Web: www.springer.com.

STA Laboratories, Inc./BIOREBA AG 103
P.O. Box 1257, Longmont, CO 80504; Phone: +1.303.651.6417, Fax: +1.303.772.4003, E-mail: judit.monis@stalabs.com, Web: www.stalabs.com. STA Laboratories, Inc. and BIOREBA AG are partners in providing agro-diagnostic products and services for results you can trust. STA Laboratories, a leading independent lab, is the exclusive distributor of BIOREBA products in the U.S. STA Plant Health Services offers effective disease resistance screening, plant pathogen diagnosis, and disease eradication services for the horticultural, viticultural, and ornamental industries. BIOREBA's R&D laboratory develops and produces reagents and complete ready-to-use kits for the detection of plant pathogens.

Unicorn Imp & Mfg Corp. 224/226
P.O. Box 461119, Garland, TX 75046; Phone: +1.972.272.2588, Fax: +1.972.272.8883, E-mail: unicornbag@aol.com, Web: www.unicornbag.com.

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USDA APHIS PPQ Center for Plant Health Science and Technology 203
Suite 400, 1730 Varsity Dr., Raleigh, NC 27607; Phone: +1.919.855.7548, Fax: +1.919.855.7480, E-mail: greg.r.parra@aphis.usda.gov, Web: <http://cphst.aphis.usda.gov>. CPHST identifies and evaluates pathways used by invasive plant pests and the potential risks they pose to American agriculture and natural resources. CPHST works to develop, adapt, and support technologies for effective and efficient detection, identification, and mitigation of exotic pests. Programs include Agricultural Quarantine Inspection and Port Technology, Integrated Pest Management and Emergency Programs, Molecular Diagnostics and Biotechnology, Risk and Pathway Analysis, and Survey Detection and Identification.

The number following each name refers to the presentation number in the program book. The letters preceding the abstract number refer to the type of presentation: O = oral technical session presentation, P = poster technical session presentation, and S = special session presentation.

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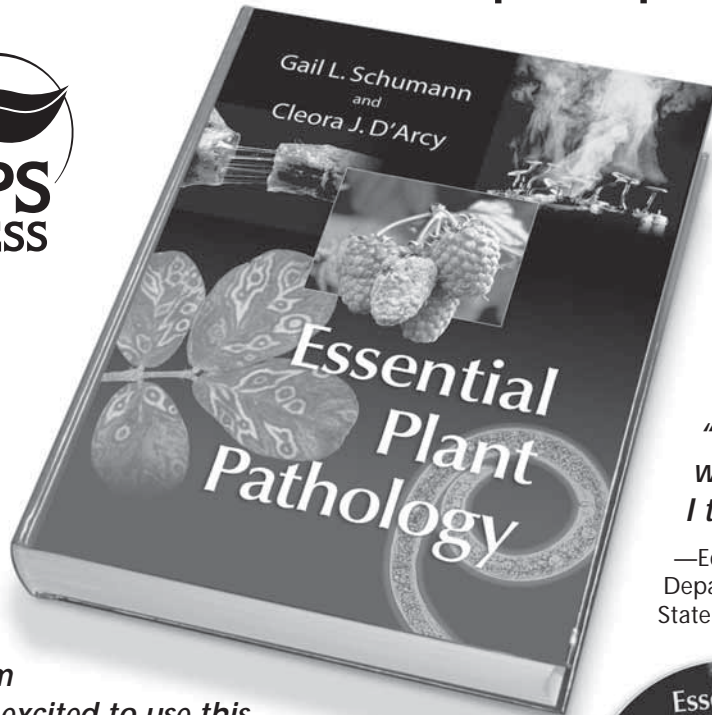
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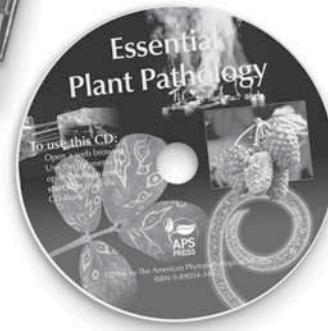
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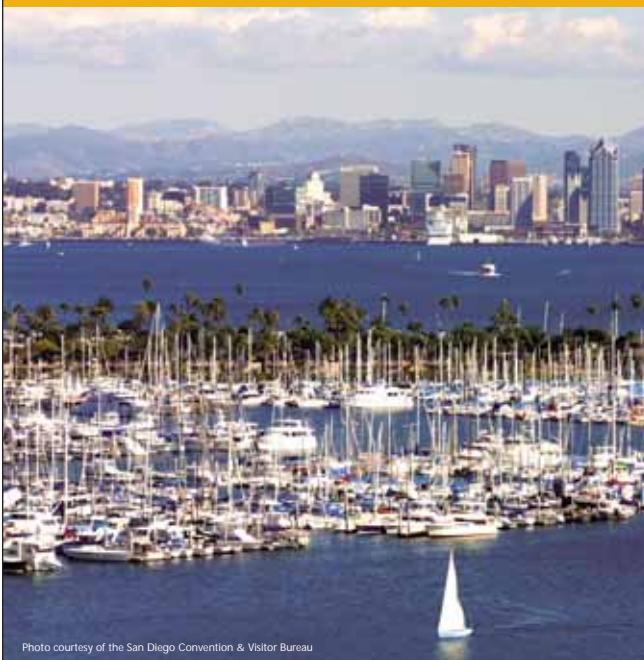


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