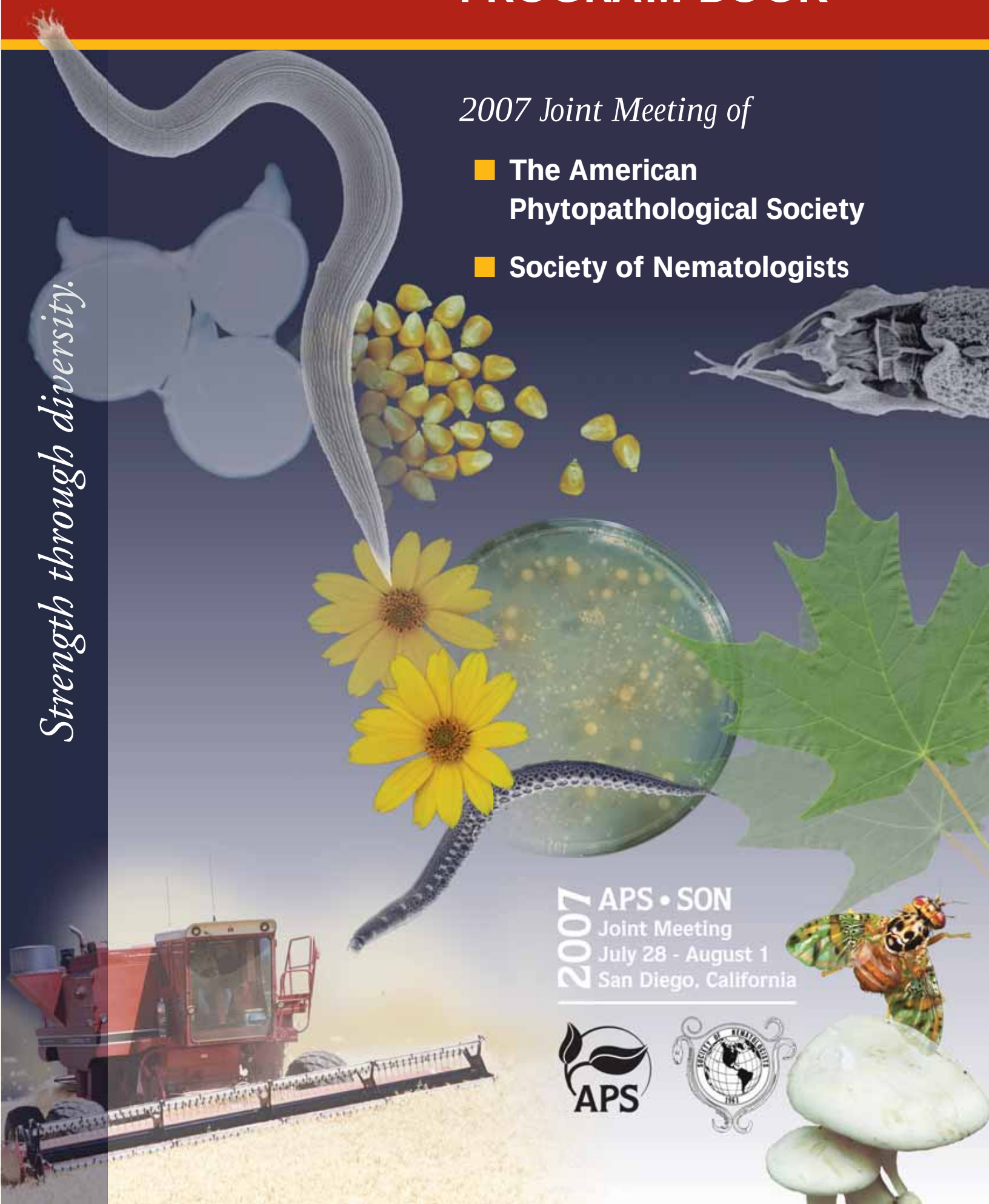
PROGRAM BOOK

2007 Joint Meeting of

- **The American Phytopathological Society**
- **Society of Nematologists**

Strength through diversity.



2007 APS • SON Joint Meeting
July 28 - August 1
San Diego, California

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75 YEARS

Strength through diversity.

A Special Welcome

Photo courtesy of the San Diego Convention & Visitor Bureau

The 2007 APS • SON Joint Meeting in San Diego offers a dynamic introduction to the future of our science. The Program Planning Committees for the two societies have put together an exciting program that contains not only high quality science, but also many opportunities to network.

The theme for the meeting is '*Strength through diversity*', which is reflected in the range of topics covered in the many symposia, discussions, joint workshops, and contributed paper sessions. There will be several "Hot Topics" sessions designated in the program; these sessions will address areas of research, teaching or outreach that are particularly timely and exciting.

Our stunning program topics will challenge traditional ideas, ask new questions, and help us redefine our mission. Your invitation to participate in the San Diego meeting is an invitation to explore the very heart of our work, to examine the essential questions about how science matters in our world. We believe our success in being relevant lies in our ability to connect our remarkable resources to the lives of the people we affect.

Plan to attend the new "Flash and Dash" oral paper sessions on Sunday afternoon. These 5-minute, 3-slide presentations will highlight some of the many posters at the meeting. Each concurrent session will focus on a different research area: molecular and cellular interactions, plant pathogen biology, and plant disease management.

You won't want to miss the Welcome Reception and Alumni Socials to be held on Sunday evening in the Atlas Ballroom and will include hors d'oeuvres and beverages. This is a fantastic opportunity to meet up with old friends, engage in scientific discussion around the posters, or just relax, and have a good time.

We look forward to and solicit your support in helping to make the 2007 APS • SON Joint Meeting a success. Join us and imagine with us: What if…? How about…? Could we…? Why not…?

Enjoy the meeting!

Ray Martyn
APS 2007 Program Chair and President-Elect

Eric Davis
SON 2007 Program Chair and President-Elect

2007 APS • SON
Joint Meeting
July 28 - August 1
San Diego, California

APS

2007 APS • SON
Joint Meeting
July 28 - August 1
San Diego, California

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Joint Meeting Planning Committee

These leaders are recognized and acknowledged for their time and expertise in the development of the program:

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James Baldwin

GENERAL INFORMATION

Registration Hours

Registration Desk will be located in the Atlas Ballroom Foyer

Saturday, July 28	2:00 – 6:00 p.m.
Sunday, July 29	7:30 a.m. – 7:30 p.m.
Monday, July 30	7:30 a.m. – 4:30 p.m.
Tuesday, July 31	8:00 a.m. – 4:30 p.m.
Wednesday, August 1	8:00 – 11:00 a.m.

Exhibit Hours

Grand Exhibit Hall

Sunday, July 29	3:30 – 5:30 p.m.
Monday, July 30	11:30 a.m. – 1:30 p.m.
	3:00 – 6:00 p.m.
Tuesday, July 31	11:30 a.m. – 2:00 p.m.

APS PRESS HOURS

Grand Exhibit Hall

Sunday, July 29	3:30 – 5:30 p.m.
Monday, July 30	9:00 a.m. – 6:00 p.m.
Tuesday, July 31	9:00 a.m. – 5:00 p.m.
Wednesday, August 1	9:00 a.m. – 1:00 p.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 July issue of *Phytopathology*. SON abstracts are also published in *The Journal of Nematology.*

Technical Posters

More than 600 posters will be presented concurrently. Author presentation times are listed below. Lunch and refreshments will be available for purchase during exhibit/poster hours.

Poster Hours

Sunday, July 29	
10:00 a.m. – 2:00 p.m.	Poster Set-up
4:30 – 5:30 p.m.	Authors Present—Session A (odd numbers and Flash-and-Dash)
Monday, July 30	
7:30 a.m. – 7:00 p.m.	Poster Viewing Open
4:30 – 5:30 p.m.	Authors Present—Session B (even numbers)
Tuesday, July 31	
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 fully searchable CD-Rom provides a record of the posters. Citable abstracts of each poster are included. This CD-Rom is available to meeting attendees at the discounted rate of $40 each, including shipping, when ordered with registration. Posters are presented in PDF format. CD-ROMs will be shipped in October.

Job Placement Service

Boardroom, Grand Exhibit Hall

Complimentary use of the online Job Placement Service to employers and job candidates is available. **The placement service is open Saturday – Tuesday, during the following times:**

Saturday, July 28	1:00 – 4:00 p.m.
Sunday, July 29	9:00 a.m. – 4:00 p.m.
Monday, July 30	9:00 a.m. – 4:00 p.m.
Tuesday, July 31	9:00 a.m. – 4:00 p.m.

See What's New at the APS PRESS Bookstore!

Grand Exhibit Hall

Stop by the APS PRESS bookstore and discover new books, teaching videos, image collections, and t-shirts. Present your book idea to Editorial Director Karen Cummings and Editor-in-Chief Margery Daughtrey and find out how you can *publish your passion* with APS PRESS!

What's Your Plant Pathology Profile?

Did you know you can easily customize the online content from *Plant Disease, Phytopathology,* and *MPMI* to match your interests? It's easy. Learn how at the APS PRESS Bookstore.

APS Central

Grand Foyer

Find out what is happening in APS by stopping by APS Central. Learn about the latest initiatives in public affairs, outreach, and education, as well as industry relations and international programs, all in one spot. While you are there, pick up your free meeting postcard, provided by the APS Office of Public Relations & Outreach (OPRO). Stop by and check it out!

Open Meeting Rooms

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

Getting Around San Diego

MTS buses, trolleys, and coaster provide convenient transportation throughout San Diego County. Travel to and from the airport, all shopping centers, attractions, beaches, hotels, and Mexico. Schedules differ, but most hotels and attractions have service every 15 to 20 minutes.

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/SON Joint Meeting. By registering for this meeting, you agree to allow APS/SON 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 property 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 cannot, stay in your room and call the operator or security to let them know you are in your room.
- Put your hand on the room door to see if it is hot before opening it. If it is, do not open quickly. Open it just a crack to see what is on the other side and be prepared to slam it 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.

Procedures in Case of Earthquake

The greatest threat during an earthquake is falling debris. Earthquakes are unpredictable and strike without warning.

If you are in the hotel during an earthquake:
The safest place during an earthquake is inside of the hotel. Should you feel an earthquake stay in the area you are in. Move away from any windows. Move slowly to the corner of a room and away from anything that may fall from overhead, such as light fixtures, chandeliers, etc. You may seek cover under a desk or table. Wait until all of the quake movement has stopped. Then proceed down to the lobby or second floor if you are nervous about staying in the building. Hotel staff will guide you from there to a safe location. The public address system will also be used to give guests updates.

- Do not use elevators after an earthquake until hotel staff advises it is safe to do so.
- Move slowly down any stairwells. Look ahead to make sure the stairs are ok to walk down.
- Do not run outside during an earthquake. That is the most dangerous place to be. Debris and broken glass may come down from buildings all around the hotel during an earthquake. Stay inside the hotel during an earthquake.

If you are in one of the Exhibit Halls:

- Move to open areas in the exhibit hall – take cover and protect yourself and others.
- Public address system announcements will give further instructions.

If you are outside:

- Move away from buildings and utility poles.
- Watch for falling glass, electrical wires, poles, or other debris.

Emergency Information

Medical emergencies should be communicated to either an APS staff member at the Registration Desk or a Town and Country Resort employee. All Town and Country 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 Hotel is (APS/SON does not endorse this facility):

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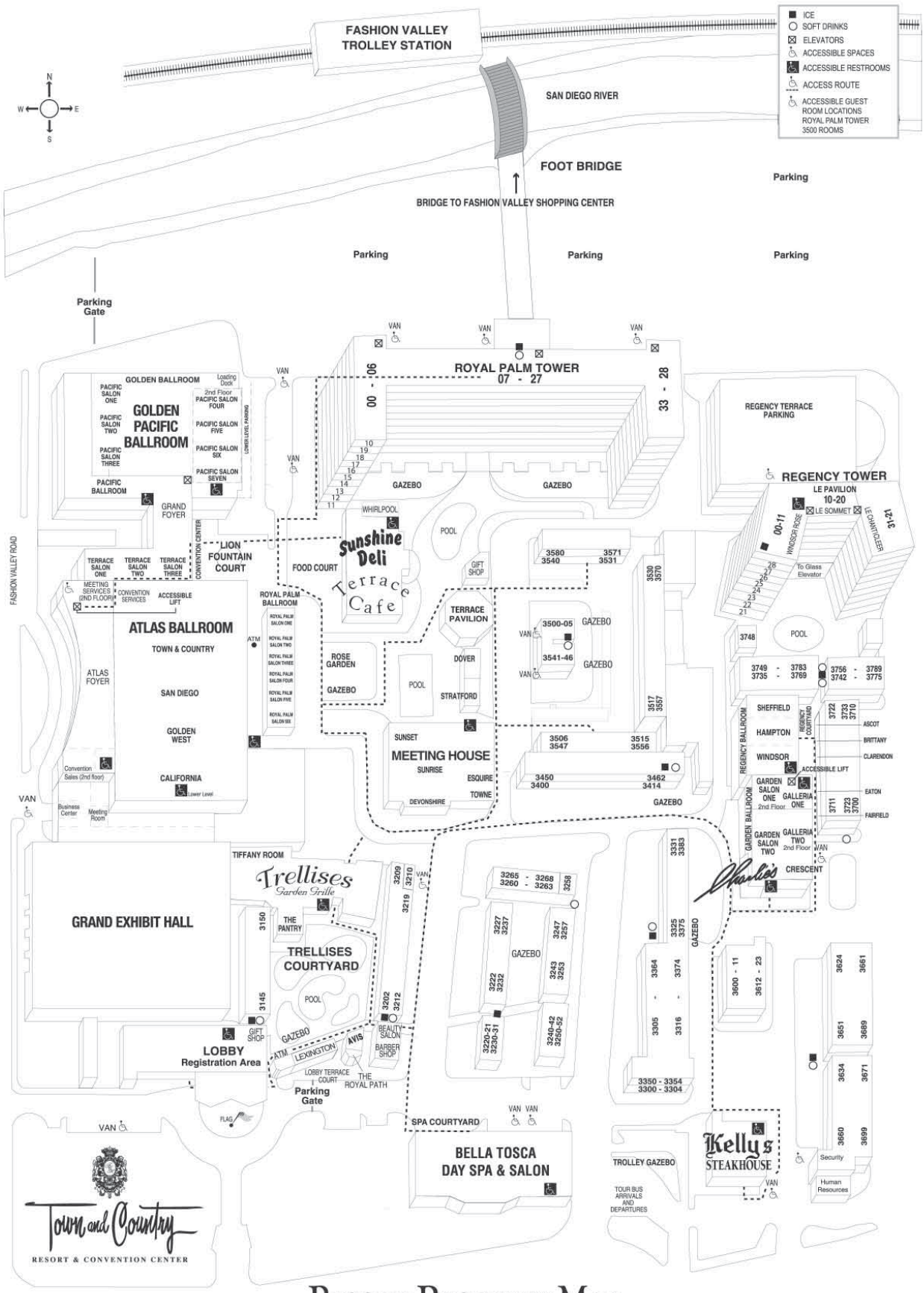
SESSIONS AT A GLANCE

	Biology of Plant Pathogens	Diseases of Plants	Epidemiology/ Ecology/ Environmental Biology	Molecular/ Cellular Plant-Microbe Interactions	Plant Disease Management	Professionalism/ Service/Outreach
Sunday	**Fungal Genetics** *12:30 – 2:30 p.m.; Pacific Salon 3* **Flash & Dash Poster Presentations – Biology of Plant Pathogens** *3:30 – 4:30 p.m.; Pacific Salon 2*	**Disease of Vegetables** *12:30 – 2:45 p.m.; Pacific Salon 2*	**Epidemiology/Ecology/Environmental – Fungi** *12:30 – 4:30 p.m.; Hampton*	**Plant Molecular Interactions – Bacteria** *12:30 – 2:30 p.m.; Pacific Salon 1* **Flash & Dash Poster Presentations – Molecular Cellular Interactions** *3:30 – 4:30 p.m.; Pacific Salon 1*	**Global Diversity of IPM Systems** *12:30 –3:30 p.m.; Royal Palm 1-3* **Plant Germplasm Collections in the Genomics Age** *12:30 –3:30 p.m.; Sheffield* **Suppressive soils: Agronomic practices to enhance biological control of plant-parasitic nematodes and plant-pathogenic fungi** *12:30 –2:30 p.m.; Windsor* **Flash & Dash Poster Presentations – Plan Disease Management** *3:30 – 4:30 p.m.; Pacific Salon 3*	**Blueprint for Learning - Constructing Courses** *12:30 – 3:30 p.m.; Pacific Salon 4-5* **7th I.E. Melhus Graduate Student Symposium: Emerging and Changing Viral Pathogens - Biology and Molecular Mechanisms** *12:30 – 3:30 p.m.; Pacific Salon 6-7* **Three Hundred Years of Nematology: Eelwool to RNAi** *12:30 – 3:30 p.m.; Royal Palm 4-6*
Monday	**Nematode Systematics** *8:00 – 9:00 a.m.; Golden West*	**International Movement of Ornamental and Forestry Diseases** *8:30 a.m. – 12:00 p.m.; Royal Palm 1-3* **Turf Diseases** *8:00 – 10:00 a.m.; Pacific Salon 1* **Biology and Management of Dollar Spot in Turf** *1:00 – 4:30 p.m.; Royal Palm 1-3*	**Interkingdom Encounters in the Phyllosphere** *8:30 a.m. – 11:30 a.m.; Garden Salon 2* **Rhizosphere Communities and Plant Health** *8:30 a.m. – 11:45 a.m.; California* **Addressing Today's Critical Issues in Disease/Pathogen Assessment** *1:00 – 4:00 p.m.; Golden West* **Cross Domain Bacteria: Emerging Threats to Plant, Humans, and Our Food Supply** *1:00 – 5:00 p.m.; California* **Fungal Mycotoxins** *1:00 – 4:15 p.m.; Pacific Salon 6-7*	**Advances in Bioengineered Resistance to Nematodes** *8:30 – 11:30 a.m.; San Diego* **Host Resistance – Molecular Genetics** *8:00 a.m. – 12:00 p.m.; Pacific Salon 4-5* **Molecular Biology – Viruses I** *10:30 a.m. – 12:00 p.m.; Pacific Salon 1* **Molecular Biology – Viruses II** *1:00 – 2:30 p.m.; Pacific Salon 1*	**Diseases of Fruit Crops** *8:00 a.m. – 12:00 p.m.; Pacific Salon 6-7* **Disease Management – Chemical Control** *8:00 – 11:45 a.m.; Pacific Salon 2* **New Products and Services** *8:30 – 11:30 a.m.; Royal Palm 4-6* **Disease of Cereal, Field, and Fiber Crops** *1:00 – 4:15 p.m.; Pacific Salon 2* **Disease Management – Biocontrol** *1:00 – 4:30 p.m.; Pacific Salon 3* **Diseases of Vegetable Crops** *1:00 – 2:30 p.m.; Pacific Salon 4-5* **Host Plant Resistance for Growers: From Sequence to the Field** *1:00 – 4:30 p.m.; Royal Palm 4-6* **Potato Cyst Nematode Regulatory Information and Implications for the Future** *1:00 – 4:00 p.m.; San Diego*	**Navigating the Maze of Online Community Resources** *8:30 – 10:30 a.m..; Pacific Salon 3* **Regulatory / Professionalism / Outreach** *3:30 – 4:30 p.m.; Pacific Salon 1*

Tuesday	**Collaboration Between Industry and Researchers to Improve Management of Viral Diseases of Ornamentals - A Model for Other Crops** *8:00 – 11:15 a.m. * Pacific Salon 3* **Systematics/Ecology/ Environment: Fastidious Procaryotes** *8:00 a.m. – 12:00 p.m.; Royal Palm 1-3* **Systematics and Phylogeny: The Tree of Life, Dorylaimia, Triplonchida and the Origin of Nematodes** *1:00 – 4:00 p.m.; Golden West*	**Disease Detection I** *8:00 – 11:45 a.m.; Pacific Salon 4-5* **Free Trade: Challenges to Plant Health** *8:00 – 11:00 a.m.; California* **Disease Detection II** *1:00 – 2:45 p.m.; Royal Palm 4-6*	**Information Technologies for Multi-scale Disease Forecasting and Surveillance Systems** *8:00 – 11:00 a.m.; San Diego* **Phyllosphere/Rhizosphere** *8:00 a.m. – 12:00 p.m.; Pacific Salon 6-7* **Approaches for Predicting Establishment and Expansion of Exotic Invasive Forest Pathogens** *1:00 – 4:00 p.m.; California* **Population Biology – Fungi** *1:00 – 2:45 p.m.; Pacific Salon 1*	**Most Resistance–Molecular Genetics** *8:00 – 11:45 a.m.; Windsor* **Effector Molecules in Diverse Host-Parasite Interactions** *1:00 – 3:30 p.m.; San Diego* **Fungal Genetics I** *8:00 a.m. – 12:00 p.m. ; Royal Palm 4-6* **Fungal Genetics II** *1:00 – 2:45 p.m.; Royal Palm 4-6*	**Management of Nematodes in Cotton** *8:00 – 9:30 a.m.; Pacific Salon 1* **Emerging Technologies for the Detection and Regulation of Mycotoxin Contamination** *8:00 – 10:00 a.m.; Pacific Salon 2* **Triazole (DMI) Resistance Part 1: A Broad Issue Affecting Plant Disease Control** *8:30 – 11:30 a.m. ; Garden Salon 2* **Disease Management – IPM** *1:00 – 5:00 p.m.; Pacific Salon 3* **Potato Viruses and Potato Seed Certification in the 21st Century** *1:00 – 4:30 p.m.; Royal Palm 1-3* **Triazole (DMI) Resistance Part 2: Case Studies and Recommendations for Various Crop Groups** *1:00 – 5:00 p.m.; Garden Salon 2*	**Faces of the Future in Nematology** *8:00 – 10:00 a.m.; Golden West* **Public Policy 101** *1:00 – 5:00 p.m.; Pacific Salon 6-7*
Wednesday	**New Approaches to Elucidating the Mechanisms of Seed Invasion and Transmission** *8:00 – 10:30 a.m.; Royal Palm 1-3*	**Forest Pathology** *8:00 – 9:30 a.m.; Pacific Salon 2* **Diseases of Fruit and Nut Crops** *8:00 a.m. – 12 p.m.; Pacific Salon 6-7* **Stem Rust: A Threat to Global Wheat Production** *8:30 – 11:30 a.m.; Garden Salon 2*	**The Ecological Complexities of Biological Control: Trophic Cascades, Spatial Heterogeneity, and Behavioral Ecology** *8:30 – 11:30 a.m.; Royal Palm 4-6*	**Contributions of Plant Virology to Biotechnology** *8:00 a.m. – 12:00 p.m.; California* **Oomycete Genomes come of Age** *8:30 a.m. – 12:00 p.m.; San Diego* **Molecular Biology – Nematodes** *10:30 a.m. – 12:00 p.m.; Pacific Salon 2*	**Disease Control – Chemical** *8:00 – 9:45 a.m.; Pacific Salon 3* **Disease Management – Biological** *8:00 – 9:45 a.m.; Pacific Salon 4-5* **Disease Forecasting Models: What Comes Under the Umbrella of Model Validation?** *8:00 – 11:45 a.m.; Golden West*	**Integrating Diverse Disciplines: Assessing Social & Economic Impact of our Research and Outreach Program** *8:30 a.m. – 12:00 p.m..; Pacific Salon 1*



Resort Property Map

APS • SON EXHIBIT FLOOR PLAN
Grand Exhibit Hall

(See page 112 for additional information)

Exhibit Hours

Sunday, July 29	3:30 – 5:30 p.m.
Monday, July 30	11:30 a.m. – 1:30 p.m.
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Tuesday, July 31

8:30 a.m. – 4:30 p.m.	Poster Viewing Open
4:30 – 6:30 p.m.	Poster Take-down

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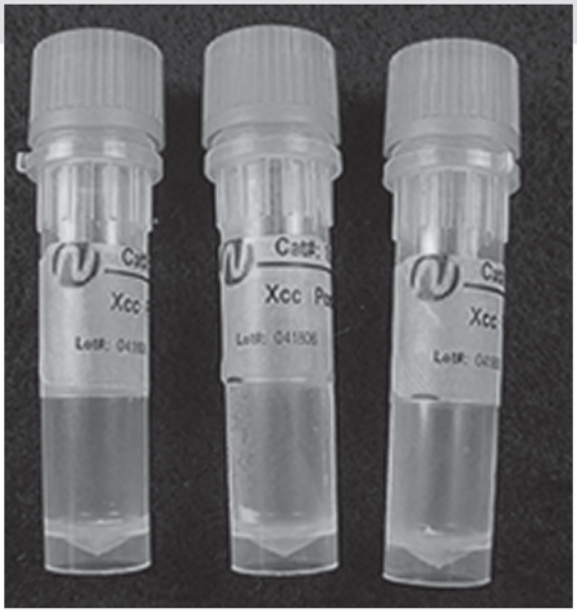

A partial list:

Cucurbits
Acidovorax avenae subsp citrulli
Cucumber mosaic virus

Tomato
Clavibacter michiganensis subsp. michiganensis
Pseudomonas syringae pv tomato
Tobamo group
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
Fan leaf virus
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Brisbane, Queensland, Australia

13 – 18 July 2008

Go to

http://www.5icn.org/

and complete the Expression of Interest to ensure you receive more information and to indicate your interest in attending and presenting at the Congress

or

E-mail: sally.brown@uq.net.au

Place Your Bids! APS-OIP Silent Auction

Join your colleagues on Sunday and take home unique cultural items!

Place a bid during the Office of International Program's Silent Auction, Sunday, July 29, from 2:00 – 7:00 p.m. Be sure to check out all the items during registration and the APS Welcome Reception. Don't limit your bidding to just one piece – with each winning bid you take home a wonderful item and support the building of international relationships.

Special thanks to all of the volunteers, donors, bidders, and sponsors who made this year's Silent Auction possible. Funds raised support the Connecting Knowledge with a Growing World workshop series. These new workshops will connect plant pathologists from around the world via grants to fund international collaboration. After two years, nearly $6,000 has already been raised - your support is helping make a positive difference in the world!

DAILY PROGRAM SCHEDULE

Friday, July 27

7:30 – 10:00 a.m.	APS Council Meeting	Garden Salon 1 & 2
8:00 a.m. – 5:00 p.m.	NPDN Operation Committee, *invitation only*	Windsor
8:00 a.m. – 7:00 p.m.	Tree Fruit and Small Fruit Field Trip	
10:00 a.m. – 5:00 p.m.	APS Leadership Forum	Garden Salon 1& 2

Friday Field Trip

Tree Fruit and Small Fruit Field Trip
*8:00 a.m. – 7:00 p.m. * Off-site*
Sponsoring Committees: Deciduous Tree Fruit, Small Fruit Workers
Organizers: Jim Adaskaveg, University of California-Riverside, Riverside, CA; Doug Gubler, University of California-Davis, Davis, CA

An agrochemical industry field trip through Southern California's fruit production areas. Stops to include avocado and citrus orchards, vineyards, and strawberry fields in Riverside and San Diego Co. The following diseases to be covered: Phytophthora root rot, Pierce's disease, Esca, powdery mildew, gray mold, Verticillium wilt, and anthracnose.

Saturday, July 28

6:30 – 8:00 a.m.	APS Counciler's Forum	Eaton
8:00 a.m. – 12:00 p.m.	APS Council Meeting	Garden Salon 2
8:00 a.m. – 4:30 p.m.	Ornamental Horticulture Field Trip	
8:00 a.m. – 5:00 p.m.	SON Executive Board First Meeting	Eaton
9:00 a.m. – 4:00 p.m.	Ralstonia Biosecurity Collaborative Research Group Conference, *invitation only*	Crescent
10:00 a.m. – 12:00 p.m.	Legume IPM-PIPE Workshop	Royal Palm 1
11:00 a.m. – 3:00 p.m.	APS PRESS Board Meeting	Brittany
12:00 – 5:00 p.m.	OIP Lunch and Committee Meeting	Ascot
1:00 – 4:00 p.m.	APS Placement	Boardroom
1:00 – 5:00 p.m.	Comprehensive Phytopathegen Genome Resource: Using Genomics and Bioformatics for Diagnostics	Pacific Salon 2
1:00 – 5:00 p.m.	The Interface of Grape Disease Research and Production Practices. What is Working and What is Not Workshop	California
1:00 – 5:00 p.m.	Statistical Workshop for Repeated Measurement	Pacific Salon 3
2:00 – 6:00 p.m.	Registration	Atlas Ballroom Foyer
2:30 – 6:00 p.m.	APS Publications Board Meeting	Claredon
3:00 – 4:00 p.m.	APS Section Chairs Meeting	Fairfield
3:00 – 4:00 p.m.	APS Committee Chair/Vice-Chair Orientation	Windsor
3:30 – 5:00 p.m.	State Regulatory Plant Disease and Nematology Diagnostics Laboratories Meeting	Esquire
4:00 – 5:00 p.m.	APS Program Planning Orientation	Windsor
4:00 – 6:00 p.m.	Plant Pathologists Forensics Interest Group Meeting	Terrace 3
4:30 – 5:30 p.m.	First Timers Orientation	Sunrise
5:00 – 6:00 p.m.	SON Committee Meetings	Shettfield & Hampton
	• Biocontrol Committee	
	• Education Committee	
	• Extension Committee	
	• Long-Range Planning Committee	
	• Public Awareness Committee	
5:30 – 7:00 p.m.	APS Committee Meetings	
	• APS PRESS: Illustrations of Plant Pathogens and Diseases Committee	Pacific Salon 4
	• APS PRESS: Standardization of Common Names for Plant Disease Committee	Pacific Salon 5
	• Awards and Honors Committee	Pacific Salon 6
	• Biotechnology Committee	Royal Palm 1
	• Collections & Germplasm Committee	Royal Palm 2
	• Diagnostics Committee	Royal Palm 3

	• Future of Education in Plant Pathology Ad Hoc Committee	Royal Palm 4
	• Integrated Plant Disease Management Committee	Royal Palm 5
	• International Programs Ad Hoc Committee	Royal Palm 6
	• Joint Committee of Women in Plant Pathology and Cultural Diversity Committee	Sunset
	• Pathogen Resistance Committee	Esquire
	• Postharvest Pathology Committee	Towne
	• Regulatory Plant Pathology Committee	Dover
	• Tropical Plant Pathology Committee	Strattford
6:00 – 7:00 p.m.	SON Committee Meetings	Shettfield & Hampton
	• Cobb Foundation Committee	
	• Industry Committee	
	• Entomophillic Nematodes Committee	
	• Ecology Committee	
	• Finance & Advisory Committee	
7:00 – 8:00 p.m.	SON Committee Meetings	Shettfield & Hampton
	• Membership Committee	
	• Regulatory Committee	
	• Systematics Committee	
	• Honors & Awards Committee	
7:00 – 8:30 p.m.	APS Committee Meetings	
	• Biological Control Committee	Pacific Salon 4
	• Epidemiology Committee	Pacific Salon 5
	• Graduate Student Committee	Pacific Salon 6
	• Host Resistance Committee	Pacific Salon 7
	• Industry Committee	Royal Palm 1
	• Mycology Committee	Royal Palm 2
	• Mycotoxicology Committee	Royal Palm 3
	• Nematology Committee	Royal Palm 4
	• Phyllosphere Microbiology Committee	Royal Palm 5
	• Plant Disease Management Reports Committee	Royal Palm 6
	• Profession of Plant Pathology Ad Hoc Committee	Sunset
	• Seed Pathology Committee	Esquire
	• Soil Microbiology and Root Diseases Committee	Towne
	• Turfgrass Pathology Committee	Dover
	• Virology Committee	Strattford
8:00 – 9:00 p.m.	SON Committee Meetings	Shettfield & Hampton
	• Resistance Committee	
	• Student Committee	
8:30 – 10:00 p.m.	APS Committee Meetings	
	• Bacteriology Committee	Pacific Salon 4
	• Biochemistry, Physiology, and Molecular Biology Committee	Pacific Salon 5
	• Chemical Control Committee	Pacific Salon 6
	• Crop Loss & Risk Evaluation Committee	Pacific Salon 7
	• Diseases of Ornamental Plants Committee	Royal Palm 1
	• Early Career Professionals Committee	Royal Palm 2
	• Emerging Diseases and Pathogens Ad Hoc Committee	Royal Palm 3
	• Environmental Quality and Plant Health Committee	Royal Palm 4
	• Extension Committee	Royal Palm 5
	• Forest Pathology Committee	Royal Palm 6
	• Genetics Committee	Sunset
	• Placement Committee	Esquire
	• Plant Pathogen and Disease Detection Committee	Towne
	• Teaching Committee	Dover

DAILY PROGRAM SCHEDULE

Saturday Field Trips and Workshops

Ornamental Horticulture Field Trip
*8:00 a.m. – 4:30 p.m. * Off-site*
Sponsoring Committee: Diseases of Ornamentals
Organizer: Jan Hall, Paul Ecke Ranch, Encinitas, CA

Southern California represents a diverse ornamental horticulture area. From large scale production of cut flowers, annuals, herbaceous and woody ornamentals to unique landscape situations, there will be many opportunities to talk with growers and landscape managers about their disease challenges and how they approach disease management.

Comprehensive Phytopathogen Genome Resource: Using Genomics and Bioinformatics for Diagnostics Workshop
*1:00 – 5:00 p.m. * Pacific Salon 2*
Organizer: Robin Buell, The Institute for Genomics Research, Rockville, MD

This workshop will cover basic concepts in genomics and bioinformatics necessary for interpretation of DNA sequence and annotation using publicly available tools. Another feature of the workshop will be a tutorial on our project website (cpgr.tigr.org) and how it can be used in development of diagnostic markers for plant pathogens.

The Interface of Grape Disease Research and Production Practices. What is Working and What is Not Workshop.
*1:00 – 5:00 p.m. * California*
Sponsoring Committees: Chemical Control Committee, Pathogen Resistance and OIR Board
Organizers: Bob Kemerait, University of Georgia, Tifton, GA; Doug Gubler, University of California-Davis, Davis, CA; Lorianne Fought, Bayer CropScience Fresno, CA

This workshop is designed to provide grape growers with the most up-to-date information on disease management issues and practices that are facing their crop. Subject matter will include information on powdery mildew, downy mildew, botrytis rots, and berry rots as well as other discussion of diseases such as Xylella and organic grape production. Speakers will include experts from industry and from public research institutions.

Statistical Workshop for Repeated Measurements
*1:00 – 5:00 p.m. * Pacific Salon 3*
Sponsoring Committee: Epidemiology
Organizers: Larry Madden, Ohio State University, Wooster, OH; Paul Esker, Kansas State University/Iowa State University, Ames, IA

Plant pathologists routinely collect data on the same experimental units at multiple times, in field, laboratory, and greenhouse studies. The terms repeated measures and longitudinal data are used to refer to data collected on the same units (the so-called subjects) over time. Analysis of repeated measures is more difficult than analysis of data collected at a single time. This is because the variability of the response of interest (e.g., disease severity, spore density) between times within an experimental unit is likely different from the variability of the response between experimental units (e.g., plots, plants, petri dishes). Moreover, because time of measurement (or observation) cannot be randomized, data will be correlated within experimental units, and the structure of the correlation (i.e., how it changes as the differences in times increase) cannot be predicted before the data are analyzed. Mixed models can accommodate all the features of repeated-measures experimental designs in an organized and integrated statistical framework. Registrants will learn to use PROC MIXED and GLIMMIX of SAS to analyze properly a range of repeated-measures data sets with linear mixed models. Participants will also learn the consequences of ignoring key features of repeated measures designs in data analysis. This session will follow the tradition of the epidemiology and crop loss assessment and risk evaluation committees' workshops on "bringing statistical analysis to the masses". ***All registrants must bring a laptop computer with version 9 of SAS installed***. Participation is limited to 60 individuals.

Saturday Program Highlights

APS Committee Chair/Vice-Chair Orientation

*3:00 – 4:00 p.m. * Windsor 1*

All current APS committee chairs/vice-chairs should attend this important orientation session which will provide an overview of the opportunities available to enhance committee efforts. APS Past President John Andrews, Senior Councilor-at-Large Barb Christ, and Intermediate Councilor-at-Large Wayne Wilcox will lead discussions highlighting 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 Committee Chairs not able to attend, make sure to have your replacement attend.

APS Program Planning Orientation

*4:00 – 5:00 p.m. * Windsor 1*

Join the Annual Meeting Program Planning Committee to learn what steps are needed to host a special session in 2008 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. * Sunrise*

Meet colleagues and learn more about APS and SON in an informal setting. You'll hear helpful hints and suggestions from key leaders in the organizations on how to make the most of your meeting experience.

Sunday, July 29

Sunday symposia and technical session descriptions, presenters and times found on pages 23-31.

7:00 – 9:00 a.m.	Vegetable Extension & Plant Research Breakfast	Sunrise
7:00 – 9:00 a.m.	APSnet Education Center Editorial Board	Ascot
7:30 – 8:30 a.m.	APS *Phytopathology* Senior Editor's Meeting, *invitation only*	Fairfield
7:30 – 9:00 a.m.	APS *Plant Disease* Senior Editor's Meeting, *invitation only*	Eaton
7:30 a.m. – 7:30 p.m.	Registration	Atlas Ballroom Foyer
8:00 a.m. – 12:00 p.m.	Ornamental Virus Working Group	Brittany
8:30 – 9:00 a.m.	APS *Phytopathology* Editorial Board Meeting, *invitation only*	Fairfield
8:30 – 9:00 a.m.	*Plant Health Progress* Editorial Board Meeting	Dover
9:00 – 11:00 a.m.	Welcome & Plenary Session	Golden Ballroom
10:00 a.m. – 2:00 p.m.	Exhibit Set-up	Grand Exhibit Hall
9:00 a.m. – 4:00 p.m.	APS Placement	Boardroom
11:00 – 11:30 a.m.	APS Business Meeting	Golden Ballroom
11:00 a.m. – 3:00 p.m.	PMN Strategic Planning Meeting	Claredon
11:30 a.m. – 12:00 p.m.	Moderator Orientation, *all session moderators and co-moderators must attend*	Sunrise
12:00 – 1:30 p.m.	APS Journals Senior Editors Luncheon, *invitation only*	Towne
12:00 – 2:00 p.m.	APS Division Officers Luncheon, *invitation only*	Esquire
12:00 – 2:00 p.m.	APS Foundation Luncheon, *invitation only*	Sunset
12:30 – 2:30 p.m.	Fungal Genetics	Pacific Salon 3
12:30 – 2:30 p.m.	Plant Microbe Interaction – Bacteria	Pacific Salon 1
12:30 – 2:30 p.m.	Suppressive Soils: Agronomic Practices to Enhance Biological Control of Plant Parasitic-Nematodes and Plant-Pathogenic Fungi	Windsor
12:30 – 2:45 p.m.	Diseases of Vegetables	Pacific Salon 2
12:30 – 3:30 p.m.	Blueprint for Learning – Constructing Courses	Pacific Salon 4-5
12:30 – 3:30 p.m.	Plant Germplasm Collections in the Genomics Age	Sheffield
12:30 – 3:30 p.m.	Three Hundred Years of Nematology: Eelwood to RNAi	Royal Palm 4-6
12:30 – 3:30 p.m.	Global Diversity of IPM Systems	Royal Palm 1-3
12:30 – 3:30 p.m.	7th I.E. Melhus Graduate Student Symposia: Emerging and Changing Viral Pathogens-Biology and Molecular Mechanisms	Pacific Salon 6-7
12:30 – 4:30 p.m.	Epidemiology / Ecology / Environmental – Fungi	Hampton
12:30 – 5:00 p.m.	APS Office of Electronic Communication Board Meeting	Ascot
2:00 – 7:00 p.m.	NPDN Town Hall Meeting	Sunrise

DAILY PROGRAM SCHEDULE

2:00 – 7:00 p.m.	APS-OIP Silent Auction: *Connecting Knowledge with a Growing World*	Atlas Ballroom Foyer
3:30 – 4:30 p.m.	Flash & Dash Poster Presentations – Molecular Cell Interactions	Pacific Salon 1
3:30 – 4:30 p.m.	Flash & Dash Poster Presentations – Biology of Pathogens	Pacific Salon 2
3:30 – 4:30 p.m.	Flash & Dash Poster Presentations – Plant Disease Management	Pacific Salon 3
3:30 – 5:30 p.m.	APS PRESS Bookstore	Grand Exhibit Hall
3:30 – 5:30 p.m.	Exhibits Open	Grand Exhibit Hall
4:30 – 5:30 p.m.	Posters Open with Authors Present (odd numbered posters and Flash & Dash Posters)	Grand Exhibit Hall
5:30 – 7:30 p.m.	Welcome Reception and University Alumni Socials	Atlas Ballroom
7:00 – 10:00 p.m.	Industry & Extension Social	

Sunday Program Highlights

Vegetable Extension & Research Plant Pathologists Breakfast

*7:00 a.m. – 9:00 a.m. * Sunrise*

Sponsored by the vegetable seed industry, this annual event promotes the sharing of ideas on seed health and expounds on the phytosanitary needs of the vegetable seed industry. This year's discussion topic will be *Human Pathogens and Fresh Produce, a Biological and Regulatory Update*. Breakfast will be followed by two presentations: Ms. Betsy Peterson will present *E. coli and Spinach, a Biological and Regulatory Update* and Dr. Jeri Barak will offer *Human Pathogens in Association with Seed.*. This event is invitation only.

Welcome & Plenary Session

*9:00 – 11:00 a.m. * Golden Ballroom*

The Joint APS/SON Welcome & Plenary Session will focus on the theme *Strength Through Diversity*. Speakers lead by APS President Jan Leach, will address this theme from multiple perspectives. Dr. Diana Wall, Colorado State University will present *Debunking the Great Global Warming Swindle: A Perspective on Climate Change, Biodiversity and Ecosystem Service* and Dr. Trevor V. Suslow, U.C. Davis will present *Plant Pathology: A Key Discipline for Microbial Food Safety Cross-Talk.*

APS Business Meeting

*11:00 – 11:30 a.m. * Golden Ballroom*

Immediately following the Plenary Session, the APS officers will provide an overview of APS's recent accomplishments and highlight future initiatives. Your input is always encouraged, so make sure to bring any questions you would like addressed.

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

*2:00 – 7:00 p.m. * Atlas Ballroom Foyer*

Returning for its third year, the Office of International Program's Silent Auction offers you the chance to bid on and take home unique cultural items from around the world. Join your colleagues and help build international relationships by supporting the OIP's *Connecting Knowledge with a Growing World* workshop series. **Note:** Items to donate should be brought to the registration desk by 10:00 a.m. on Sunday, July 29. Questions? Ask for Sally Miller or Amy Steigman at registration.

New! Flash & Dash Poster Sessions

*3:30 – 4:30 p.m. * Pacific Salons 1, 2, and 3*

Poster presenters, who selected this option, will provide five-minute presentations about their poster content immediately prior to the poster viewing opening in the exhibit hall.

New! Welcome Reception and University Alumni Socials

*5:30 – 7:30 p.m. * Atlas Ballroom*

Kick start your annual meeting experience at the Welcome Reception and University Alumni socials held jointly this year. Mix, mingle, and bid on APS-OIP Silent Auction items while enjoying food and drink. Look for your fellow alumni at designated areas within the reception. *This reception is included in the registration fee*.

Catch up with fellow alumni at the university alumni socials!

- Cornell University
- Michigan State University
- Midwest States
- North Carolina State University
- Penn State University
- Texas A&M University
- University of California - Riverside
- University of Florida
- University of Minnesota
- University of Wisconsin

Industry & Extension Social
*7:00 – 10:00 p.m. * Sea World San Diego*
A yearly favorite, this event will be held at Sea World San Diego, located a short bus ride from the Town and Country Hotel. Enjoy amazing animal shows, exciting rides, or just wonder the remarkable grounds. The night ends with a fireworks display. A dinner reception is included, along with admission to the park, tickets for the gondola ride, bus service, and two drinks per person. A park horticulturalist will be on hand to answer your questions. **Boarding begins at 6:30 p.m. Buses begin departing from the Town and Country at 6:45 p.m.** *Pre-registration and ticket required.*

Monday, July 30

Monday symposia and technical session descriptions, presenters and times found on pages 32-46.

6:30 – 8:00 a.m.	Extension Plant Pathologists Breakfast	Sunrise
6:45 – 8:00 a.m.	Biological Control Editorial Board Meeting	Brittany
7:00 – 9:00 a.m.	APS Centennial Planning Committee	Eaton
7:00 – 10:00 a.m.	APS Public Policy Board	Towne
7:30 a.m. – 4:30 p.m.	Registration	Atlas Ballroom Foyer
8:00 – 9:00 a.m.	Nematode Systematics	Golden West
8:00 – 10:00 a.m.	Turf Diseases	Pacific Salon 1
8:00 – 11:45 a.m.	Disease Management – Chemical Control	Pacific Salon 2
8:00 a.m. – 12:00 p.m.	Diseases of Fruit Crops	Pacific Salon 6-7
8:00 a.m. – 12:00 p.m.	Host Resistance – Molecular Genetics	Pacific Salon 4-5
8:00 a.m. – 12:00 p.m.	USDA-CSREES Plant Program	Sheffield
8:30 – 10:30 a.m.	Navigating the Maze of Online Community Resources	Pacific Salon 3
8:30 – 11:30 a.m.	Advances in Bioengineered Resistance in Nematodes	San Diego
8:30 – 11:30 a.m.	Interkingdom Encounters in the Phyllosphere	Garden Salon 2
8:30 – 11:30 a.m.	New Products and Services	Royal Palm 4-6
8:30 – 11:45 a.m.	Rhizosphere Communities and Plant Health	California
8:30 a.m. – 12:00 p.m.	International Movement of Ornamental and Forestry Diseases	Royal Palm 1-3
9:00 a.m. – 4:00 p.m.	APS Placement	Boardroom
9:00 a.m. – 6:00 p.m.	APS PRESS Bookstore	Grand Exhibit Hall
10:00 a.m. – 12:00 p.m.	Turfgrass Working Group	Windsor
10:30 a.m. – 12:00 p.m.	Molecular Biology – Viruses I	Pacific Salon 1
10:30 a.m. – 12:00 p.m.	SON Student Oral Competition	Hampton
11:00 a.m. – 12:00 p.m.	APS News Conference	Garden Salon 1
11:00 a.m. – 1:30 p.m.	Meeting of the America's Working Lunch, *invitation only*	Towne
11:30 a.m. – 1:00 p.m.	APS Past President's Lunch	Esquire
11:30 a.m. – 1:30 p.m.	Exhibits Open *Lunch concession service available in hall rom 11:30 a.m. – 1:00 p.m.*	Grand Exhibit Hall
12:00 – 1:00 p.m.	APS/APHIS Virology Working Group	Ascot
12:00 – 1:00 p.m.	Graduate Student & Industry Lunch	Town & Country Ballroom
12:00 – 1:30 p.m.	Tri-Cal Lunch	Claredon
1:00 – 2:30 p.m.	Molecular Biology – Viruses II	Pacific Salon 1
1:00 – 2:30 p.m.	Diseases of Vegetable Crops	Pacific Salon 4-5
1:00 – 3:00 p.m.	APS Affiliates Meeting	Eaton
1:00 – 4:00 p.m.	Addressing Today's Critical Issues in Disease/Pathogen Assessment	Golden West
1:00 – 4:00 p.m.	Potato Cyst Nematodes Regulatory Information and Implications for the Future	San Diego
1:00 – 4:00 p.m.	SON Student Oral Paper Competition	Hampton
1:00 – 4:15 p.m.	Diseases of Cereal, Field, and Fiber Crops	Pacific Salon 2
1:00 – 4:15 p.m.	Fungal Mycotoxins	Pacific Salon 6-7
1:00 – 4:30 p.m.	Biology and Management of Dollar Spot in Turf	Royal Palm 1-3
1:00 – 4:30 p.m.	Disease Management – Biocontrol	Pacific Salon 3
1:00 – 4:30 p.m.	Host Plant Resistance for Growers: From Sequence to the Field	Royal Palm 4-6
1:00 – 5:00 p.m.	Cross Domain: Emerging Threats to Plant, Humans, and Our Food Supply	California
2:00 – 4:00 p.m.	APS Office of Industry Relations Board Meeting	Esquire
3:00 – 6:00 p.m.	Exhibits Open	Grand Exhibit Hall
3:30 – 4:30 p.m.	Regulatory / Professionalism / Outreach	Pacific Salon 1
4:30 – 5:30 p.m.	Poster Authors Present (even numered posters)	Grand Exhibit Hall
5:00 – 7:00 p.m.	APS 101: Early Career Professionals Informational Social	Sunrise
5:00 – 6:00 p.m.	Food Safety Interest Group	California

DAILY PROGRAM SCHEDULE

5:00 – 7:00 p.m.	ARS Social	Windsor
5:00 – 7:00 p.m.	Graduate Student Social	Town & Country Ballroom
5:00 – 7:00 p.m.	APS Joint Committee of Women and Cultural Diversity Social	Sunset

Monday Program Highlights

Extension Plant Pathologists Breakfast
*6:30 – 8:00 a.m. * Sunrise*
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. * Sheffield*
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
*12:00 – 1:00 p.m. * Town & Country Ballroom*
Students! Connect with industry representatives from a variety of companies by attending the APS Industry Committee sponsored luncheon. Network and learn about job opportunities available in the industry. *This event is complimentary for graduate students. Both graduate students and industry members need a ticket for this event.*

APS 101: Early Career Professionals Informational Social
*5:00 – 7:00 p.m. * Sunrise*
Are you in the early stages of your career in plant pathology and interested in APS governance? Join your colleagues for this informational social and learn how you can influence the future direction of APS. During the event, APS leaders from various boards and committees will provide updates on their efforts and describe how you can become more involved. *The social is complimentary.*

Graduate Student Social
*5:00 – 7:00 p.m. * Town & Country Ballroom*
Graduate and undergraduate students – make plans to meet with your plant pathology and nematology colleagues in a casual and relaxed environment at this year's annual meeting. 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
*5:00 – 7:00 p.m. * Sunset*
Are you interested in advancing issues related to women in plant pathology and cultural diversity? Then this is the event for you. Join your peers at this informal social organized by the APS Joint Committee of Women in Plant Pathology and Cultural Diversity. This event is open to all meeting attendees, especially those who have a passion in fostering relationships with diverse audiences. Light hors d'oeuvres and beverages will be served. *A ticket is required for this event.*

Tuesday, July 31

Tuesday symposia and technical session descriptions, presenters and times found on page 48-61.

7:00 – 8:30 a.m.	APS Sustaining Associates Breakfast, *invitation only*	Eaton
7:00 – 9:00 a.m.	APS Scientific Programs Board Meeting	Esquire
7:00 – 9:00 a.m.	Department Heads Breakfast	Sunset
7:00 – 9:00 a.m.	Small Fruit Diseases Working Breakfast	Sunrise
7:00 a.m. – 12:00 p.m.	APS Foundation Board Meeting, *invitation only*	Strattford
8:00 – 9:30 a.m.	Management of Nematodes in Cotton	Pacific Salon 1
8:00 – 10:00 a.m.	Emerging Technologies for the Detection and Regulation of Mycotoxin Contaminations	Pacific Salon 2
8:00 – 10:00 a.m.	Faces of the Future in Nematology	Golden West
8:00 – 10:00 a.m.	Fastidious Procaryotes / Systematics	Royal Palm 1-3
8:00 – 11:00 a.m.	Free Trade: Challenges to Plant Health	California
8:00 – 11:00 a.m.	Information Technologies for Multi-Scale Disease Forecasting and Surveillance Systems	San Diego
8:00 – 11:15 a.m.	Collaboration Between Industry and Researchers to Improve Management of Viral Diseases of Ornamentals – A Model for Other Crops	Pacific Salon 3
8:00 – 11:45 a.m.	Disease Detection I	Pacific Salon 4-5
8:00 – 11:45 a.m.	Host Resistance – Molecular Genetics	Windsor
8:00 a.m. – 12:00 p.m.	Fungal Genetics I	Royal Palm 4-6
8:00 a.m. – 12:00 p.m.	Phyllosphere / Rhizosphere	Pacific Salon 6-7
8:00 a.m. – 4:30 p.m.	Registration	Atlas Ballroom Foyer
8:30 a.m. – 11:30 a.m.	Triazole (DMI) Resistance , Part 1: A Broad Issue Affecting Plant Disease Control	Garden Salon 2
9:00 a.m. – 4:00 p.m.	APS Placement	Boardroom
9:00 a.m. – 5:00 p.m.	APS PRESS Bookstore	Grand Exhibit Hall
10:00 a.m. – 12:30 p.m.	SON Business Meeting	Hampton - Sheffield
10:30 a.m. – 12:30 p.m.	University Responsibilities for Public Science Literacy: From K to Gray	Golden West
11:30 a.m. – 1:00 p.m.	APS *Phytopathology News* Advisory Committee	Fairfield
11:30 a.m. – 1:00 p.m.	ISF-APS Collaboration Luncheon, *invitation only*	Esquire
11:30 a.m. – 1:00 p.m.	Meet with Editor-in-Chief Margery Daughtrey	APS PRESS Bookstore
11:30 a.m. – 1:00 p.m.	Publish your Passion with APS PRESS	Grand Exhibit Hall
11:30 a.m. – 1:30 p.m.	APS/APHIS Ad-Hoc Committee Meeting on Widely Prevalent Fungi	Windsor
11:30 a.m. – 2:00 p.m.	Exhibits Open *Lunch concession service available in hall from 11:30 a.m. – 2:00 p.m*	Grand Exhibit Hall
12:00 – 1:00 p.m.	APS/APHIS Ad-Hoc Committee Meeting on Widely Prevalent Bacteria	Eaton
1:00 – 2:45 p.m.	Disease Detection II	Pacific Salon 2
1:00 – 2:45 p.m.	Fungal Genetics II	Royal Palm 4-6
1:00 – 2:45 p.m.	Population Biology – Fungi	Pacific Salon 1
1:00 – 3:30 p.m.	Effector Molecules in Diverse Host-Parasitic Interactions	San Diego
1:00 – 4:00 p.m.	Approaches for Predicting Establishment and Expansion of Exotic Invasive Forest Pathogens	California

DAILY PROGRAM SCHEDULE

1:00 – 4:00 p.m.	Systematics and Phylogeny: The Tree of Life, Dorylaimia, Triplonchida, and the Origin of Nematodes	Golden West
1:00 – 4:30 p.m.	Potato Viruses and Potato Seed Certification in the 21st Century	Royal Palm 1-3
1:00 – 5:00 p.m.	Public Policy 101	Pacific Salon 6-7
1:00 – 5:00 p.m.	Disease Management – IPM	Pacific Salon 2
1:00 – 5:00 p.m.	Triazoles (DMI), Part 2: Case Studies and Recommendations for Various Crop Groups	Garden Salon 2
1:00 – 5:00 p.m.	Viral Systematics	Pacific Salon 4-5
1:30 – 2:30 p.m.	Diagnostics Committee Working Group Meeting	Towne
1:30 – 3:00 p.m.	APS Centennial Coordinating Committee Meeting	Dover
1:30 – 3:30 p.m.	APS Office of Public Relations & Outreach Board Meeting	Strattford
2:00 – 8:00 p.m.	Exhibit Take-down	Grand Exhibit Hall
3:00 – 5:00 p.m.	APS 2008 Annual Meeting Program Planning	Garden Salon 1
5:30 – 6:30 p.m.	APS Awards & Honors Ceremony	Golden Ballroom
5:30 – 11:00 p.m.	SON Awards & Honors Banquet	Off-site
6:30 – 6:45 p.m.	APS Presidential Ceremony	Golden Ballroom
7:00 – 10:00 p.m.	APS California Beach Party	Poolside

Tuesday Program Highlights

Department Heads' Breakfast
*7:00 – 9:00 a.m. * Sunset*
Heads of plant pathology or related departments are invited to get together and discuss issues affecting universities around the country. *Ticket required.*

SON Business Meetings
*10:00 a.m. – 12:30 p.m. * Hampton-Sheffield*
SON members be sure to attend business meetings to stay abreast of all of the latest happenings in the society.

APS Awards & Honors Ceremony
*5:30 – 6:30 p.m. * Golden Ballroom*
Honor APS members who have made significant contributions to the science and practice of plant pathology through their talent and vision at the 2007 APS Awards & Honors Ceremony. Up and coming stars of our society will be highlighted first, including the APS Foundation I.E. Melhus Student Speaker Symposium presenters, the International Travel awardee, the Student Travel awardees, and the Public Policy Internship. Then, the prestigious awardees of the 2007 APS Fellow, Excellence in Extension Award, Excellence in Industry Award, Excellence in Teaching Award, International Service Award, the Ruth Allen Award, the William Boright Hewitt and Maybelle Ellen Ball Hewitt Award, the Noel T. Keen Award for Research in Molecular Plant Pathology and the Syngenta Award will be recognized. This year, we will also present the highest honor our society bestows, the APS Award of Distinction.

SON Awards & Honors Banquet
Tuesday, July 31
*5:30 – 11:00 p.m. * San Diego Zoo*
Visit the San Diego Zoo and experience a Banquet Under the Stars. Enjoy a discounted Zoo admission during the late afternoon, followed by a banquet under the California summer sky featuring the SON Awards Presentation and Nematode-themed entertainment. Spouses and children are especially encouraged to attend this event. *Tickets are required.*

APS Presidential Ceremony
*6:30-6:45 p.m. * Golden Ballroom*
Immediately following the Awards & Honors Ceremony, the APS Presidential Ceremony will recognize this year's APS Outstanding Volunteer. Then APS Past President John Andrews will receive the Past President's Scroll for his four years of dedicated service to APS in the presidential lineage. Bringing closure to this event will be the passing of the presidential gavel from Jan Leach to Ray Martyn.

APS California Beach Party
*7:00 – 10:00 p.m. * Poolside*
Celebrate the last night of a great annual meeting poolside, at the "California Beach Party". Enjoy a beach party barbecue, music by the Surfer Kings, and networking with other APS attendees. Don't miss this great outdoor event under the California sky! *This event is included in your registration fee.*

Wednesday, August 1

Wednesday symposia and technical session descriptions, presenters and times found on pages 64-69.

7:30 – 10:30 a.m.	APS Office of International Programs Breakfast Meeting	Esquire
8:00 – 9:30 a.m.	Forest Pathology	Pacific Salon 2
8:00 – 9:45 a.m.	Disease Management – Biological	Pacific Salon 4&5
8:00 – 9:45 a.m.	Disease Control – Chemical	Pacific Salon 3
8:00 – 10:00 a.m.	CSPP Breakfast, *invitation only*	Sunset
8:00 – 10:30 a.m.	New Approaches to Elucidating Mechanisms of Seed Invasion and Transmission	Royal Palm 1-3
8:00 – 11:00 a.m.	Registration	Atlas Ballroom Foyer
8:00 a.m. – 12:00 p.m.	Disease of Fruit and Nut Crops	Pacific Salon 6-7
8:30 – 11:30 a.m.	The Ecological Complexities of Biological Control: Trophic Cascades, Spatial Heterogeneity, and Behavioral Ecology	Royal Palm 4-6
8:30 – 11:30 a.m.	Stem Rust: A Global Threat to Wheat Production	Garden Salon 2
8:30 – 11:45 a.m.	Disease Forecasting Models: What Comes Under the Umbrella of Model Validation?	Golden West
8:30 a.m. – 12:00 p.m.	Contributions of Plant Virology to Biotechnology	California
8:30 a.m. – 12:00 p.m.	Integrating Diverse Disciplines: Assessing Social & Economic Impact of Our Research and Outreach Program	Pacific Salon 1
8:30 a.m. – 12:00 p.m.	Oomycete Genomes Come of Age	San Diego
9:00 a.m. – 1:00 p.m.	APS PRESS Bookstore	Atlas Ballroom Foyer
9:00 a.m. – 1:00 p.m.	SON Executive Board Meeting	Esquire
10:30 a.m. – 12:00 p.m.	Molecular Biology – Nematodes	Pacific Salon 2
1:00 – 2:00 p.m.	APS Pacific Division Business Meeting, *optional lunch, ticket required*	Towne

Thursday, August 2

8:30 a.m. – 5:00 p.m.	Field and Winery Tour Field Trip	Off-site

Thursday Program Highlights

Field and Winery Tour
8:30 a.m. – 5:00 p.m.
Plan to arrive at a 'Star Ruby' grapefruit grove and avocado grove on a steep slope in Pauma Valley where we will talk about farming on steep slopes. Then on to the Stehly Ranch in Valley Center where the discussion will focus on avocado farming. Explore with us as we see avocado root rot and citrus nematode diseases, avocado pruning, harvesting and irrigation. Join the discussion of UC trials at the Ranch and organic production. Then it's off to Temecula for lunch, wine tour and tasting. *Pre-registration required.*

SUNDAY SYMPOSIA

Listed in alphabetic order by title.

Blueprint for Learning – Constructing Courses
*12:30 – 3:30 p.m. * Pacific Salon 4-5*
Section: Professionalism / Service / Outreach
Organizer: Melissa Riley, Clemson University, Clemson, SC
Moderator: Melissa Riley, Clemson University, Clemson, SC
Sponsoring Committees: Teaching, Graduate Student

Dr. Laurie Richlin, Claremont Graduate University, Claremont, CA, will host a symposium on the construction of college courses and how to assess and document learning associated with those courses. The goal is to provide attendees with a blueprint for the selection, design, and development of learning experiences that will enable students to learn. It will also provide concepts essential in promoting learning and how to assess their effectiveness. This session is designed for graduate students and post-docs who are beginning to teach as well as faculty new to teaching. The session will be beneficial to individuals who are presently teaching but are looking for better methods for assisting their students in learning.

12:30 p.m. S-10. Overview of Course Design Process & Elements.
12:50 p.m. Individual Activity and Pair/Share Discussion of Course Design.
1:15 p.m. S-11. Cognitive Development and Course Design.
1:30 p.m. S-12. Teaching Goals and Learning Objectives.
1:45 p.m. S-13. Grading Plans.
2:05 p.m. Small Group Activity – Grading Plans.
2:10 p.m. S-14. Rubrics.
2:30 p.m. Small Group Activity – Rubrics.
2:35 p.m. S-15. Documenting Learning.
3:00 p.m. Discussion.

Global Diversity of IPM Systems
*12:30 – 3:30 p.m. * Royal Palm 1-3*
Section: Plant Disease Management
Organizers: Sue Tolin, Virginia Tech, Blacksburg, VA; George Bird, Michigan State University, East Lansing, MI
Moderators: George Bird, Michigan State University, East Lansing, MI, Sue Tolin, Virginia Tech, Blacksburg, VA
Sponsoring Committees: Integrated Plant Disease Management, Nematology, Office of International Programs, Tropical Plant Pathology

In this session, speakers will discuss their experiences in diverse IPM approaches used internationally for management of diseases in different pathosystems and cropping systems.

12:30 p.m. S-16. Integrated Management of *Tobacco etch virus* in Scotch Bonnet Pepper in Jamaica, S. A. TOLIN, Virginia Tech, Blacksburg, VA
1:00 p.m. S-17. Strategies for Managing Bacterial Wilt Diseases of Tomato, Potato, and Export Ornamentals, C. ALLEN, University Wisconsin-Madison, Madison, WI
1:30 p.m. S-18. IPM in Vegetable Cropping Systems in Southeast Asia, S. A. MILLER, The Ohio State University, Wooster, OH
2:00 p.m. S-19. A Global Perspective of Integrated Nematode Management Innovation, G. W. BIRD, Michigan State University, East Lansing, MI
2:30 p.m. S-20. Integrated Management of the Invasive Pest-plant *Melaleuca quinquenervia* in Southern Florida: Special Emphasis on the Impact of a Natural Enemy, M. RAYAMAJHI, USDA-ARS, Ft. Lauderdale, FL,
3:00 p.m. Discussion

Plant Germplasm Collections in the Genomics Age
*12:30 – 3:30 p.m. * Sheffield*
Section: Plant Disease Management
Organizers: Weidong Chen, USDA-ARS, Pullman, WA; Xianming Chen, USDA-ARS, Pullman, WA
Moderators: Weidong Chen, USDA-ARS, Pullman, WA; Xianming Chen, USDA-ARS, Pullman, WA
Sponsoring Committees: Collections and Germplasm, Host Resistance; Genetics, Mycology, SON Plant Resistance
Financial Sponsor: USDA Widely Prevalent Fungi Project via APS Mycology Committee

Plant germplasm collections are of crucial importance to national economy and food security. They form an irreplaceable reservoir of genetic diversity of agriculturally important crops and of native plant species especially during a time of global industrialization and urban sprawl resulting in losing many plant species along with their habitats worldwide. The National Plant Germplasm System of the USDA-Agricultural Research Service in cooperation with many public and private partners has played critical roles in acquiring, preserving, evaluating, and distributing the vast genetic resources for utilization and for future generations. Plant germplasm collections have contributed significantly to plant breeding programs for crops with resistance to diseases and pests. Recent advances in biotechnology and information technology provide new techniques, such as molecular markers, DNA sequencing, microarray analysis, and comparative and functional genomics, for characterizing and accessing plant germplasm collections. This symposium will bring authorities and experts from the National Plant Germplasm System and germplasm collection organizations to provide perspectives and prospects on the history, current status and importance of germplasm collections to crop resistance to diseases and nematode pests, and how to benefit germplasm collections from recent technological advances in modernizing and strengthening germplasm collections in the genomics age.

12:30 p.m. S-21. The National Plant Germplasm System: An Overview. PETER BRETTING, USDA-ARS, Washington, D.C.
1:00 p.m. S-22. Collection of Wild and Cultivated *Cicer* Germplasm and Potential Use in Genetics and Breeding. FRED MUEHLBAUER, USDA-ARS, Pullman, WA

SUNDAY SYMPOSIA

1:30 p.m. S-23. Soybean Germplasm and Disease Resistance: The Need for Change. RANDALL NELSON, USDA-ARS, Urbana, IL
2:00 p.m. S-24. Disease Resistance from the USDA National Small Grains Collection—Past, Present, and Future. MICHAEL BONMAN, USDA-ARS, Aberdeen, ID
2:30 p.m. S-25. Pea Germplasm Collections and their Evolution with Modern Technologies. CLARE COYNE, USDA-ARS, Pullman, WA
3:00 p.m. S-26. Conservation of Crop Genetic Resources and the Global Crop Diversity Trust. HENRY SHANDS, USDA-ARS, Fort Collins, CO

7th I.E. Melhus Graduate Student Symposium: Emerging and Changing Viral Pathogens – Biology and Molecular Mechanisms
*12:30 – 3:30 p.m. * Pacific Salon 6-7*
Section: Professionalism / Service / Outreach
Organizer: Rosemarie Hammond, USDA-ARS MPPL, Beltsville, MD
Moderators: Rosemarie, Hammond, USDA ARS MPPL, Beltsville, MD, Dennis Lewandowski, Ohio State University, Columbus, OH
Sponsoring Committee: Virology
Financial Sponsor: APS Foundation

Plant diseases caused by viruses appear to be increasing in number, and in some cases, severity, resulting in new challenges for disease control. Newly discovered and evolving viruses contribute to this phenomenon. This symposium features presentations of thesis work of six outstanding APS graduate students that highlight research aimed at answering critical questions related to the biology and molecular mechanisms contributing to emerging and changing viral pathogens.

12:30 p.m. S-27. Methylation as a Host Defense Against Geminiviruses, P. RAJA, Ohio State University, Columbus, OH
1:00 p.m. S-28. New Insights into the Biology and Molecular Biology of Dahlia mosaic caulimovirus, V. PAHALAWATTA, Washington State University, Pullman, WA
1:30 p.m. S-29. Emergence of Tomato Leaf Curl and Yellow Leaf Curl Diseases in West Africa: Identification of a Novel Begomovirus-satellite DNA Complex, L-F. CHEN, University of California, Davis, CA
2:00 p.m. S-30. Sequence and Recombination Analysis of Potato Virus Y, X. HU, University of Idaho, Moscow, ID
2:30 p.m. S-31. Molecular Characterization of an Emerging Citrus Virus-Dweet Mottle Virus and Study of the Intra-population Profile of Citrus Exocortis Viroid, S. HAJERI, University of California, Riverside, CA
3:00 p.m. S-32. Functional and cytopathological analysis of two unique Lettuce infectious yellows virus (LIYV)-encoded proteins: P34 and P26, L. STEWART, University of California, Davis, CA

Suppressive Soils: Agronomic Practices to Enhance Biological Control of Plant-Parasitic Nematodes and Plant-Pathogenic Fungi
*12:30 – 2:30 p.m. * Windsor*
Section: Plant Disease Management
Organizer: Susan Meyer, USDA-ARS, Beltsville, MD
Moderator: Susan Meyer, USDA-ARS, Beltsville, MD
Sponsoring Committees: Nematology, Society of Nematologists Biological Control

Suppressive soils result in environmentally friendly management of plant pathogens. Research is exploring the ways in which agronomic practices contribute to development of such soils. This session will focus on ecological interactions that incite suppression of plant-pathogenic fungi and nematodes.

12:30 p.m. S-33. Managing Microbial Community Evolution to Suppress Soilborne Plant Pathogens. LINDA KINKEL, University of Minnesota, St. Paul, MN
1:00 p.m. S-34. Soil Suppressiveness Against the Soilborne Disease Complex of Sudden Death Syndrome of Soybean. ANDREAS WESTPHAL, Purdue University, West Lafayette, IN
1:30 p.m. S-35. Soil Health, Oscillations in Bacterial Populations, and Suppression of Pathogenic Fungi and Nematodes. ARIENA H. C. VAN BRUGGEN, Wageningen University, Wageningen, The Netherlands
2:00 p.m. S-36. Examining Nematode-Suppressive Soils. JAMES BORNEMAN, University of California, Riverside, CA

Three Hundred Years of Nematology: Eelwool to RNAi
12:30 – 3:30 p.m. Royal Palm 4-6
Section: Professionalism / Service / Outreach
Organizers: Brent S. Sipes, University of Hawaii, Honolulu, HI; Koon-Hui Wang, University of Hawaii, Honolulu, HI
Moderators: Brent S. Sipes, University of Hawaii, Honolulu, HI; Koon-Hui Wang, University of Hawaii, Honolulu, HI
Sponsoring Committee: Nematology, Centennial Planning

A historical perspective on the scientists who have worked with nematodes, the contributions of nematology to plant pathology and the struggle of nematologists in plant pathology.

12:30 p.m. S-37. The Science of Nematology Revolution. DONALD SCHMITT, University of Hawaii, Marceline, MO
1:00 p.m. S-38. Nematicide Development, Use and Detection in the Twentieth Century. MICHAEL McKENRY, University of California, Parlier, CA

1:30 p.m. S-39. Plant-Parasitic Nematodes as Components of the Soil Ecosystem. BRIAN KERRY, IACR-Rothamstead, Hertfordshire, U.K.

2:00 p.m. S-40. Nematode Biology: 1750 Versus 2008. TJ BLISS, University of Nebraska, Lincoln, NE

2:30 p.m. S-41. When the Germ Meets the Worm. Plant Nematology's Contributions to Plant Pathology. AN MACGUIDWIN, University of Wisconsin, Madison, WI

3:00p.m. S-42. Plant Nematology-A Bridge Between Plant Pathology and Entomology. VIRGINIA FERRIS, Purdue University; Don Dickson, University of Florida; William Crow, University of Florida

SUNDAY TECHNICAL SESSIONS

Listed in alphabetic order by title.

Diseases of Vegetables
*12:30 – 2:45 p.m. * Pacific Salon 2*
Section: Disease of Plants
Moderators: Ben Lockhart, University of Minnesota, St. Paul, MN; William Wintermantle, USDA-ARS, Salinas, CA

12:30 p.m. AO-1. Activatable badnaviral integrants may confer resistance to viral infection in *Musa*. B. E. LOCKHART (1). (1) University of Minnesota, St. Paul, MN

12:45 p.m. AO-2. Current status of tospoviruses in vegetable cropping systems in India. K. S. RAVI (2), M. Bhanupriya (2), S. Poojari (2), S. Kunkalikar (2), U. Zehr (2), D. G. Riley (3), S. Adkins (4), R. A. Naidu (1). (1) Washington State University, Prosser, WA; (2) Mahyco Research Center, India; (3) The University of Georgia, Coastal Plain Experiment Station, Tifton, GA; (4) USDA-ARS-USHRL, Ft. Pierce, FL

1:00 p.m. AO-3. Influence of pH on infection of *Phytophthora erythroseptica* on *Solanum tuberosum*. J. BENSON (1). (1) BYU, Provo, UT

1:15 p.m. AO-4. A new genus of Totiviruses with members from bluberry and tomato. I. E. TZANETAKIS (1), J. K. Brown (2), R. R. Martin (3). (1) Oregon State Univ., Corvallis, OR; (2) Univ. of Arizona, Tucson, AZ; (3) USDA-ARS Horticultural Crops Res Lab, Corvallis, OR

1:30 p.m. AO-5. Widespread emergence of *Cucurbit yellow stunting disorder virus* (CYSDV) in the southwestern desert melon production region of the United States and Mexico. W. M. WINTERMANTEL (1), J. K. Brown (2), R. L. Gilbertson (3). (1) USDA-ARS, Salinas, CA,; (2) University of Arizona, Tucson, AZ; (3) University of California, Davis, CA

1:45 p.m. SO-6. Status of pale cyst nematode, *Globodera pallida* in Idaho – An update. S. L. HAFEZ (1), S. Palanisamy (1). (1) University of Idaho, Moscow, ID

2:00 p.m. AO-7. Intraspecific variation among isolates of *Alternaria dauci* collected from commercial carrots using genotypic and phenotypic markers. P. M. ROGERS (1), W. R. Stevenson (1). (1) University of Wisconsin-Madison, Madison, WI

2:15 p.m. **Round-up**. K. Webb

Epidemiology / Ecology / Environmental Biology - Fungi
*12:30 – 4:30 p.m. * Hampton*
Section: Epidemiology / Ecology / Environmental Biology
Moderators: Wayne Jurick, University of Florida, Gainesville, FL; Vineeta Bilgi, North Dakota State University, Fargo, North Dakota

12:30 p.m. AO-8. Molecular ecology of systemic *Botrytis cinerea*. A. P. RAJAGURU (1) M. W. Shaw (1). (1) University of Reading, Reading, Berkshire, UK

12:45 p.m. AO-9. Over winter survival of *Phakopsora pachyrhizi* on kudzu in Florida. W. M. JURICK, II (2), D. F. Narvaez (1), J. J. Marois (1), D. L. Wright (1), P. F. Harmon (2). (1) University of Florida, NFREC, Quincy, FL; (2) University of Florida, Gainesville, FL

1:00 p.m. AO-10. Genetic relationships among populations of *Frium graminearum* from cereal and non-cereal hosts. R. R. BURLAKOTI (1), S. Ali (1), G. A. Secor (1), S. M. Neate (1), M. McMullen (1), T. Adhikari (1). (1) North Dakota State University, Fargo, ND

1:15 p.m. AO-11. Genetic variability in the populations of the hyperparasitic fungus *S. filum* from *Puccinia* sp. rust on grasses, revealed by ITS sequence analysis. A. KAJAMUHAN (1), M. W. Shaw (1). (1) University of Reading, Reading, Berkshire, UK

1:30 p.m. AO-12. Assessment of codon volatility as an indicator of gene polymorphisms in *Phytophthora ramorum*. G. J. BILODEAU (3), C. Lévesque (1), A. W. Decock (2), R. C. Hamelin (3). (1) Agriculture and Agri-food Canada, Ottawa, Ontario, Canada; (2) Centraalbureau voor Schimmelcultures, Utrecht, The Netherlands; (3) Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, Quebec, Canada

1:45 p.m. AO-13. Evidence of genetic recombination in Chinese wheat yellow rust populations. M. MBOUP (1), M. Leconte (1), C. De Vallavieille Pope (1), J. Enjalbert (1). (1) INRA, UMR Santé Végétale, Villenave d´Ornon, France

2:00 p.m. AO-14. A distinct strain of *A. flavus* associated with corn production in Texas, and Tamaulipas, Mexico. J. Y. CHO (2), J. Zhang (1), P. J. Cotty (2). (1) Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada; (2) USDA-ARS, The University of Arizona, Tucson, AZ

2:15 p.m. AO-15. Quantitative epidemiology of Asian soybean rust in the Southeastern United States. R. CHRISTIANO (1), H. Scherm (1). (1) University of Georgia, Athens, GA

2:30 p.m. AO-16. Evolutionary history of the *Ustilago maydis virus H1* throughout the Americas. P. D. VOTH (3), B. E. Lockhart (2), G. May (1). (1) University of Minnesota, St. Paul, MN; (2) University of Minnesota, St. Paul, MN; (3) Plant Biological Sciences Graduate Program, University of Minnesota, St. Paul, MN

2:45 p.m. AO-17. Modeling the incidence of Karnal bunt of wheat in Texas. F. WORKNEH (1), T. W. Allen (1), C. M. Rush (1). (1) Texas Agricultural Experiment Station, Bushland, TX

3:00 p.m. Break

3:30 p.m. AO-18. Seasonal and diurnal patterns of *Sclerotinia sclerotiorum* ascospore dispersal in canola fields. I. S. QANDAH (1), F. Zapala (1), L.

del Rio (1). (1) North Dakota State University, Fargo, ND

3:45 p.m. AO-19. Relationships between genetic group, symptom type, and epidemiological features in *Erysiphe necator*, the casual agent of grape powdery mildew. L. WILLOCQUET (1), P. Cartolaro (1), J. Jolivet (1), S. Richard-Cervera (1), F. Delmotte (1). (1) INRA, UMR Santé Végétale, Villenave d'Ornon, France

4:00 p.m. AO-20. Overwinter survival of cleistothecia, ascospore release, and infection of strawberry by *Podosphaera macularis* in New York and Norway. D. M. Gadoury (1), A. STENSVAND (2), R. C. Seem (1), C. Heidenreich (1), M. L. Herrero (2), M. Welser (1). (1) Cornell University, N.Y. State Agric. Exp. Stn., Geneva, NY; (2) Norwegian Institute for Agricultural and Environmental Research, Norway

4:15 p.m. AO-21. Molecular characterization of *Frium oxysporum* f. sp. *vasinfectum* isolates from cottonseed imported from Australia into California for cattle feed. J. LIU (1), A. A. Bell (1), M. H. Wheeler (1). (1) USDA, ARS, SPARC, CPRU, College Station, TX

Fungal Genetics

*12:30 – 2:30 p.m. * Pacific Salon 3*

Section: Biology of Plant Pathogens

Moderators: Jo-Ann Crouch, Rutgers University, New Brunswick, NJ; Maria Jimenez-Gasco, The Pennsylvania State University, University Park, PA

12:30 p.m. AO-22. Interrogation of the RNA species in *Magnaporthe grisea*. M. GOWDA (1), F. Chen (2), D. Smith (2), T. Mitchell (1), R. A. Dean (1). (1) North Carolina State University, Raleigh, NC; (2) US DOE Joint Genome Institute, Walnut Creek, CA

12:45 p.m. AO-23. Combining datamining approaches for the identification of effectors in the (*Melampsora*)-Poplar interaction. N. FEAU (1), D. L. Joly (1), P. Tanguay (1), R. C. Hamelin (1). (1) Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, Canada

1:00 p.m. AO-24. Inter- and intraspecific genetic characterizations of *P. cryptoirregulare* and *P. irregulare* revealed by ITS region, COX II gene, AFLP, and SSR marker analyses. S. LEE (1), G. W. Moorman (1). (1) The Pennsylvania State University, University Park, PA

1:15 p.m. AO-25. Characterization of the diversity of *Rhizoctonia oryzae-sativae* from California rice fields. P. CHAIJUCKAM (1), C. A. Greer (2), R. M. Davis (1). (1) U. California Davis, CA; (2) UC Cooperative Extension, Colusa, CA

1:30 p.m. AO-26. Functional approaches for the identification of avirulence genes in poplar leaf rusts (*Melampsora* spp.). D. L. JOLY (1), P. Tanguay (1), N. Feau (1), R. C. Hamelin (1). (1) Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, Canada

1:45 p.m. AO-27. Genetic variability of eastern filbert blight pathogen, *Anisogramma anomala*. S. N. BAXER (1), J. Crouch (1), C. R. Funk (1), T. J. Molnar (1), B. I. Hillman (1). (1) Rutgers University, New Brunswick, NJ

2:00 p.m. AO-28. Phylogenetics of potential new species in the *Gibberella fujikuroi* species complex. M. M. JIMENEZ-GASCO (1), G. A. Kuldau (1), N. C. Zitomer (2), D. D. Archibald (3), E. M. Snyder (4), D. M. Geiser (1). (1) The Pennsylvania State University, University Park, PA; (2) USDA-ARS, Toxicology and Mycotoxin Research Unit, Athens, GA; (3) Penn State University, University Park, PA; (4) Huck Institute of Life Sciences, Penn State University, University Park, PA

2:15 p.m. AO-29. Genomic architecture of the mating-type gene cluster in graminicolous species of the genus *Colletotrichum* and across the Ascomycota. J. CROUCH (1), M. R. Thon (2), B. B. Clarke (1), L. J. Vaillancourt (3), B. I. Hillman (1). (1) Rutgers University, New Brunswick, NJ; (2) Texas A & M University, College Station TX; (3) University of Kentucky, Lexington, KY

Plant-Microbe Interactions – Bacteria

*12:30 – 2:30 p.m. * Pacific Salon 1*

Section: Molecular/Cellular Plant–Microbe Interactions

Moderators: Keri Wang, Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK; Joseph Reddy, Integrated Plant Genetics, Inc., Alachua, FL

12:30 p.m. AO-30. Role of localized water potential modulation in *Arabidopsis thaliana* defense against *Pseudomonas syringae* pv. *Tomato*. B. C. FREEMAN (1), G. A. Beattie (1). (1) Iowa State University, Ames, IA

12:45 p.m. AO-31. A high throughput screen using virus-induced gene silencing in *Nicotiana benthamiana* identifies the requirement of squalene synthase for nonhost resistance. K. WANG (2), C. Ryu (1), L. Kang (2), K. S. Mysore (2). (1) Korea Research Institute of BioScience and Biotechnology, Yuseong, Daejeon, S. Korea; (2) The Samuel Roberts Noble Foundation, Ardmore, OK

1:00 p.m. AO-32. The Arabidopsis *Thylakoid Formation 1* gene is required for the induction of chlorosis in response to *Pseudomonas syringae* pv. *tomato* DC3000 infection. T. WANGDI (1), C. Ryu (2), S. R. Uppalapati (2), C. L. Bender (1), K. S. Mysore (2).(1) Department of Entomology & Plant Pathology, Oklahoma State University, Stillwater, OK; (2) The Samuel Roberts Noble Foundation, Ardmore, OK

SUNDAY TECHNICAL SESSIONS

1:15 p.m. AO-33. Salicylic acid modulates Agrobacterium attachment and virulence. A. ANAND (1). (1) Plant Biology Division, Samuel Roberts Noble Foundation, Ardmore, OK

1:30 p.m. AO-34. Arabidopsis actin depolymerizing factor ADF4 is involved in defense signaling transduction. M. TIAN (1), B. Day (1). (1) Michigan State University, East Lansing, MI

1:45 p.m. AO-35. A *clpA* homolog in *Agrobacterium vitis* strain F2/5 is involved in biological control of grape crown gall. J. E. CREASAP (2), C. Reid (1), G. Hao (1), H. Zhang (3), T. Burr (1). (1) Cornell University; (2) Michigan State University; (3) Nanjing Agricultural University, Nanjing, China

2:00 p.m. AO-36. 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, WI

2:15 p.m. AO-37. At least some lipases are stably expressed in plants, are bacteristatic to multiple Gram negative bacterial plant pathogens, and the effect is synergistic with that of phytoalexins. J. D. REDDY (1), D. W. Gabriel (2). (1) Integrated Plant Genetics, Inc., Alachua, FL; (2) University of Florida, Gainesville, FL

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FLASH-AND-DASH POSTER PRESENTATIONS

Posters listed in presentation order.

SUNDAY

Biology of Pathogens
*3:30 – 4:30 p.m. * Pacific Salon 2*
Moderator: Jim Moyer, North Caroline State University, Raleigh, NC

AP-318. Comparative genomics and phylogenetic analyses of newly cloned genomic regions from the Citrus Huanglongbing (HLB)-associated bacterium Candidatus Liberibacter. Harshavardhan Doddapaneni, USDA-ARS, Parlier, UC Davis

AP-388. The diversity of *Barley yellow dwarf virus* and Cereal yellow dwarf virus genomes. W. Allen Miller, Iowa State University, Ames, IA

AP-386. Study of the intra-population profile of *Citrus exocortis viroid* in protoplasts of suspension-cultured tobacco and citrus cells. Subhas Hajeri, University of California, Riverside, CA

SP-686. Variability in morphology, genetics and biology of nematodes and evolution of new taxa. Michael Hodda, Nematode Biosystematics & EcologyAustralian National Insect Collection

SP-669. FLPs are physiological regulators with interesting phylogenetic signatures in plant-parasitic nematodes. Edward Masler, USDA/ARS Beltsville, MD

AP-330. Assessment of direct colony PCR and SSCP to determine the distribution of pathogenic *Pythium* spp. in Ohio. Kirk Broders, The Ohio State University, OARDC, Wooster, OH

AP-359. Sterol content analysis of *Mycosphaerella graminicola* isolates with reduced sensitivity to triazole fungicides. Timothy Bean, Rothamsted Research, Harpenden, Herts, United Kingdom

AP-421. Races of *Puccinia striiformis*, the stripe rust pathogen in the United States in 2006. Xianming Chen, USDA-ARS and Washington State University, Pullman, WA

AP-581. Cost of virulence: case of *Puccinia striiformis* f.sp. *tritici*. Bochra Bahri, INRA, Thiverval-grignon, France

Molecular / Cellular Interactions
*3:30 – 4:30 p.m. * Pacific Salon 1*
Moderator: Jan Leach, Colorado State University, Ft. Collins, CO

AP-620. The flagellar sigma factor FliA is required for full virulence and biofilm formation of *Dickeya dadantii*. Courtney Jahn, University of Wisconsin-Madison, Madison, WI

AP-616 Metabolic riches: Characterization of a novel nonribosomal peptide synthetase system in *Pseudomonas syringae* pv. *syringae* B728a. Jessica Calcote, Texas A&M University, College Station, TX

AP-607 Discovery and characterization of a Type VI Secretion System in *Pseudomonas syringae*. Angela Records, Dept. of Plant Pathology & Microbiology, Texas A&M University, College Station, TX

AP-637 Transcriptome analysis of the wheat-*Puccinia striiformis* f. sp. *tritici* interaction during both *Yr5*-mediated race-specific resistance and basal defense. Tristan Coram, USDA-ARS and Washington Sate University, Pullman, WA

AP-636 Towards identifying Brassica proteins involved in mediating resistance to *Leptosphaeria* . A proteomics-based approach. Nidhi Sharma, University of Alberta, Edmonton, Alberta, Canada

AP-628 Characterization and complementation of a fumonisin biosynthetic gene cluster deletion in banana isolates of *Fusarium verticillioides*. Anthony Glenn, USDA, ARS, Athens, GA

AP-638 Development if a *N. glutinosa* BAC library for isolation of a tombusvirus resistance gene. Carlos Angel, Division of Plant Sciences, University of Missouri, Columbia, MO

AP-644 Exploring plant-host compatibility effectors secreted by *Meloidogyne incognita* using a LC ESI MSMS proteomic approach. Stephane Bellafiore, UCSD

AP-687 A Cyst Nematode RanBPM-Like Protein Elicits R gene and RanGAP-Dependent Plant Cell Death. Peter Moffett, Boyce Thompson Institute for Plant Research, Ithaca NY

AP-657 Sequence diversity of read through protein of Midwestern isolates of *Soybean dwarf virus*. Thanuja Thekke Veetil, University of Illinois, Urbana, Illinois

Plant Disease Management
*3:30 – 4:30 p.m. * Pacific Salon 3*
Moderator: Ray Martyn, Purdue University, West Lafayette, IN

AP-757 Development of co-cultivated mixtures of antagonists active against Fusarium head blight of wheat. David Schisler, NCAUR, USDA-ARS, Peoria, IL

AP-767 Liquid fermentation can mitigate mycotoxin production in Myrothecium verrucaria, a mycoherbicide for kudzu and hemp sesbania control. Clyde Boyette, USDA ARS Stonville, MS

AP-876 Sensitivity to azoxystrobin in Didymella bryoniae isolates collected before and after first use of Quadris fungicide in South Carolina. Anthony Keinath, Clemson University, Charleston, SC

AP-797 Fungicide insensitivity and pathotype determination of *Pseudoperonospora cubensis*, causal agent of cucurbit downy mildew. Susan Colucci, NC State University, Raleigh, NC

AP-399 *Bean pod mottle virus* Movement in Insect Feeding Resistant Soybeans. Julio Molineros, The Ohio State University/OARDC, Wooster, OH

AP-846 Effects of cold temperatures and variety on cold curing of *Xylella fastidiosa* infected grapevines. Melody Meyer, University of California, Davis

AP-776 Shelf life of selected isolates of non-pathogenic *Fusarium oxysporum* and fluorescent *Pseudomonas* in talc and charcoal based formulations. Ramandeep Kaur, University of Florida, Gainesville, FL

AP-892 Identification of DNA markers linked to resistance

or tolerance to sweet potato virus disease in Kenya. Douglas Miano, Louisiana State Univ. Agricultural Center, Baton Rouge, LA

AP-823 Effects of mycorrhizal inoculation of watermelon transplants on field performance. Andreas Westphal, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN

SP-695 Effect of oxamyl and methomyl seed treatments on root-knot nematode infection. Johan Desaeger, DuPont Crop Protection, Newark, DE

MONDAY SYMPOSIA

Listed in alphabetic order by title.

Addressing Today's Critical Issue in Disease/Pathogen Assessment
1:00 p.m. – 4:00 p.m Golden West*
Section: Epidemiology / Ecology / Environmental Biology
Organizers: Forrest W. Nutter, Jr., Iowa State University, Ames, IA; Gregory Shaner, Purdue University, West Lafayette, IN
Moderator: Forrest W. Nutter, Jr., Iowa State University, Ames, IA
Sponsoring Committees: Epidemiology, Crop Loss, and Risk Evaluation

This symposium will provide a forum to address the latest issues concerning the accurate and precise assessment of pathogen and disease populations. These issues include an analysis of the psychophysical laws that have underpinned disease assessment in theory plant pathology for more than 62 years (i.e., should disease scales be logarithmic or linear?), the criteria needed to develop a pathogen rating and risk assessment system, development of a national remote sensing-based early warnings and indications system, and the effectiveness of computer-based disease assessment training programs and standard area diagrams to improve the accuracy and precision of disease assessment data.

1:00 p.m. S-73. Introduction: Addressing Today's Critical Issue in Disease/Pathogen Assessment. FORREST W. NUTTER, JR., Iowa State University, Ames, IA
1:15 p.m. S-74. To Honor Horsfall-Barrett and Repeal Their Scale. FORREST W. NUTTER, JR., Iowa State University, Ames, IA
1:45 p.m. S-75. Assessing the Severity of Phoma Stem Canker in Canola. JEAN-NOEL AUBERTOT, INRA, Paris, France
2:15 p.m. S-76. Standard Area Diagrams: Do they Improve the Accuracy and Precision of Disease Assessment Data? SAMI MICHEREFF, Universidade Federal Rural de Pernambuco, Recife, Brazil
2:45 p.m. S-77. Detecting and Quantifying the Temporal and Spatial Dynamics of Plant Pathogens Using GPS, GIS, and Remote-Sensing Technologies. KHALIL AHMAD, Iowa State University, Ames, IA
3:15 p.m. S-78. Pathogen Threat Assessment is Predictive Plant Pathology. DOUGLAS G. LUSTER, USDA-ARS, Ft. Detrick, Frederick, MD

Advances in Bioengineered Resistance to Nematodes
*8:30 a.m. – 11:30 a.m. * San Diego*
Section: Molecular / Cellular Plant–Microbe Interactions
Organizers: Philip Roberts, University of California, Riverside, CA; Valerie Williamson, University of California, Davis, CA
Moderator: Philip Roberts, University of California, Riverside, CA
Sponsor: SON Plant Resistance
There is growing support for research in the area of plant resistance to nematodes. Both natural host plant resistance and novel, bioengineered forms of resistance in plants are being investigated as alternatives to nematode control with nematicides in several major crops. The rapid advances in RNAi technology, with its initial discovery in the nematode C. elegans (2006 Nobel Prize in Medicine or Physiology awarded to Fire and Mello for this discovery), have provided exciting opportunities for not only understanding nematode and plant gene function via reverse genetic approaches, but also as a powerful tool for engineering resistance to nematodes in plants. The advances are based on several recent breakthroughs, including the engineering of broad-based root-knot nematode resistance in transgenic plants by RNAi silencing of parasitism genes (PNAS 103(39):14302-14306).

8:30 a.m. S-43. Transfer and Enhancement of Natural R Genes for Nematode Resistance. ISGOUHI KALOSHIAN, University of California, Riverside, CA
9:00 a.m. S-44. Parasitism Genes: Novel Targets for Engineering Universal Root-Knot Nematode Resistance by RNAi. RICHARD HUSSEY, University of Georgia, Athens, GA
9:30 a.m. S-45. Nematicidal Bt Crystal Proteins Targeting Plant Endoparasitic Nematodes. RAFFI AROIAN, University of California, San Diego, CA
10:00 a.m. Break
10:30 a.m. S-46. Optimizing Biotech Crops for Nematode Resistance. HOWARD ATKINSON, University of Leeds, Leeds U.K.
11:00 a.m. Discussion

Biology and Management of Dollar Spot in Turf
*1:00 – 4:30 p.m. * Royal Palm 1-3*
Section: Diseases of Plants
Organizer: John Kaminski, University of Connecticut, Storrs, CT
Moderator: Carol Stiles, University of Florida, Gainesville, FL
Sponsoring Committees: Turfgrass Pathology, Mycology
Financial Sponsor: BASF Corporation

Dollar spot (*Sclerotinia homoeocarpa*) is perhaps the most chronic and problematic disease of golf course turf throughout the United States. Described by F. T. Bennett in 1937, the validity of *S. homoeocarpa* as the causal agent is frequently questioned. Participants in this symposium will learn fundamental characteristics of the genus, gain valuable insight into the *Sclerotinia* pathosystem, and attain a greater understanding of *S. homoeocarpa* and dollar spot.

1:00 p.m. S-79. An Overview of *Sclerotinia*. LINDA KOHN, University of Toronto, Mississauga, Ontario
1:30 p.m. S-80. Demystifying *Sclerotinia* Pathosystems: Lessons from *Sclerotinia* Blight of Peanut. BARBARA SHEW, North Carolina State University, Raleigh, NC
1:55 p.m. S-81. Role of Oxalic Acid as a Pathogenicity Factor in *Sclerotinia*. RAYMOND

HAMMERSCHMIDT, Michigan State University, East Lansing, MI
2:20 p.m. Discussion
2:30 p.m. S-82. *Sclerotinia Homoeocarpa*: From F. T. Bennett Forward. BRANDON HORVATH, Virginia Polytechnic Institute and State University, Virginia Beach, VA
2:55 p.m. Break
3:25 p.m. S-83. Biology of *Sclerotinia Homoeocarpa* and Epidemiology of Dollar Spot. MICHAEL BOEHM, Ohio State University, Columbus, OH
3:50 p.m. S-84. Taxonomic clarification of the dollar spot pathogen: *Sclerotinia Homoeocarpa*. JOSEPH M. VARGAS JR., Michigan State University, East Lansing, MI
4:20 p.m. Discussion

Cross Domain Bacteria: Emerging Threats to Plant, Humans, and Our Food Supply
*1:00 – 5:00 p.m. * California*
Section: Epidemiology / Ecology / Environmental Biology
Organizers: Norm Schaad, FDWS-RU-USDA, Fort Detrick, MD; Jeri Barak, USDA-ARSWRRC, Albany, CA; Jacque Fletcher, Oklahoma ; Kimberly Webb, STA Laboratories, Longmont, CO
Moderators: Norm Schaad, FDWS-RU-USDA, Fort Detrick, MD; Kimberly Webb, STA Laboratories, Longmont, CO
Sponsoring Committee: Bacteriology and the Public Policy Board

This session will discuss the environmental biology of described enteric bacteria in fresh produce and the cross domain nature of *Burkholderia* species and their role in plant and human health. With recent outbreaks of food borne bacteria this session will be very timely and can help address areas in which plant pathologists and our collaborators from the food safety and regulatory communities can work together in researching, and ultimately minimizing, risks to human health and our national food supply.

1:00 p.m. S-85. Overview of Human Pathogens in Food and Issues Related to Field Production, Harvesting, Transport and Storage. LINDA HARRIS, CCES, University of California, Davis, CA.
1:30 p.m. S-86. *Escherichia coli* O157:H7 on Spinach and Lettuce; Environmental Investigations in the Salinas Region of Pre-harvest Contamination. MICHAEL COOLEY, USDA-ARS, St Albany, CA
2:00 p.m. S-87. Foodborne outbreaks related to fresh produce: The public health challenge of detection and response. ROBERT TAUXE, CDC, Atlanta, GA
2:30 p.m. S-88. Molecular Epidemiology and Microbial Forensics: It's in the plants now. JOSEPH LECLERC, FDA
3:00 p.m. Break
3:15 p.m. S-89. Human Bacterial Pathogens on Fresh Produce, What We Know and Research Needs. Jeri Barak, USDA-ARSWRRC, Albany, CA
3:45 p.m. S-90. *Burkholderia* "Jack of all Trades". Carlos Gonzalez, Texas A&M University, College Station, TX; John LiPuma, University of Michigan Medical School, Ann Arbor, MI
4:15 p.m. S-91. Niche Adaptation by *Serratia Marcescens:* A Versatile Enterobacterial Pathogen of Many Hosts. JACQUE FLETCHER, Oklahoma State University, Stillwater, OK
4:45 p.m. Discussion

Host Plant Resistance for Growers: From Sequence to the Field
*1:00 – 4:30 p.m. * Royal Palm 4-6*
Section: Plant Disease Management
Organizers: Gary Vallad, University of California, Davis, CA; Baozhu Guo, USDA-ARS, Tifton, GA
Moderators: Gary Vallad, University of California, Davis, CA; Baozhu Guo, USDA-ARS, Tifton, GA
Sponsoring Committees: Host Resistance, Genetics
Financial Sponsor: Pioneer Hi-Bred International, Inc., A DuPont Company

Since the late 1980s, plant geneticists have exploited nucleic acid (NA)-based techniques to identify and map agronomic traits of interest, including resistance to various pathogens and pests, with the goal of identifying the responsible genes and streamlining the introgression of such traits into commercial cultivars through marker-assisted selection. With the sequencing of several model crop and plant species, and new advances in high-throughput technologies for sequencing, NA fragment analysis, and gene expression analysis, great advances in crop improvement are expected. The goal of this symposium is to explore successes among crop breeding/ genetics programs in the use of various "genomic" approaches to improve crop resistance.

1:00 p.m. S-92. Marker-Aided Breeding for Disease Resistance in Common Bean. JAMES KELLY, Michigan State University, East Lansing, MI
1:30 p.m. S-93. Application of Molecular Breeding Techniques to the Development of Stalk Rot Resistance in Corn. LAURA ABAD, Pioneer Hi-Bred International, Inc., Johnston, IA
2:00 p.m. A-94. From Association Mapping to Marker-Assisted Selection: Experimental Design and Application. IVAN SIMKO, USDA-ARS, Salinas, CA
2:30 p.m. S-95. Association Mapping of Disease Resistance in Cultivated and Wild Barley. BRIAN STEFFENSEN, University of Minnesota, St. Paul, MN
3:00 p.m. Break
3:30 p.m. S-96. Quantitative Disease Resistance: QTLs, MAS, and Expression QTLs. DINA ST. CLAIR, University of California, Davis, CA

4:00 p.m. S-97. Microarray Expression Analysis to Characterize Widely Used, Adult-Plant Rust Resistance Mechanisms of Wheat. SCOT HULBERT, Washington State University, Pullman, WA

Interkingdom Encounters in the Phyllosphere
*8:30 – 11:30 a.m. * Garden Salon 2*
Section: Epidemiology / Ecology / Environmental Biology
Organizers: Maria Brandl, USDA-ARS, Albany, CA; Vicky Toussaint, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC
Moderators: Maria Brandl, USDA-ARS, Albany, CA; Vicky Toussaint, Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC
Sponsoring Committee: Phyllosphere

The ecology of microbes on plant surfaces has been viewed mainly through the behavior of single organisms. However, plant microbial communities are composed of members as diverse as belonging to different kingdoms, and interactions between these members contribute to shaping the ecology of the phyllosphere. A more integrated view of phyllosphere ecology will enhance our understanding of the epidemiology of leaf pathogens and help devise more efficient strategies for control of plant diseases. This symposium will present an opportunity to learn more about the role of interkingdom interactions in microbial dynamics on plants, as revealed by traditional and genomic approaches.

8:30 a.m. S-47. Phages Don't Have It Easy. BOTOND BALOGH, University of Florida, Gainesville, FL
9:00 a.m. S-48. *Pseudomonas syringae* Exploits Programmed Cell Death in Fungi for Competitive Gain and Modulation of Its Epiphytic Behavior by Plants. STEVEN E. LINDOW, University of California, Berkeley, CA
9:30 a.m. S-49. Very Small Sheep: How Tydeid Mites Interact with Powdery Mildews and Plant Hosts. DAVID M. GADOURY, Cornell University, Geneva, NY
10:00 a.m. Break
10:30 a.m. S-50. *Lysobacter–Magnaporthe* Interactions: A Model for Bacterial Pathogenesis of Fungi. DONALD Y. KOBAYASHI, Rutgers University, New Brunswick, NJ
11:00 a.m. S-51. Protozoa and Enteric Pathogens: More Than a Grazing Game. MARIA T. BRANDL, USDA, ARS, Albany, CA

International Movement of Ornamental and Forestry Diseases
*8:30 a.m. – 12:00 p.m. * Royal Palm 1-3*
Section: Diseases of Plants
Organizers: Warren Copes, USDA-ARS, Poplarville, MS; Cristi Palmer, Rutgers University, Princeton, NJ; Karl Steddom, Texas Cooperative Extension, Overton, TX
Moderators: Warren Copes, USDA-ARS, Poplarville, MS; Karl Steddom, Texas Cooperative Extension, Overton, TX
Sponsoring Committees: Diseases of Ornamental Plants, Forest Pathology

This symposium will serve as a forum to facilitate dialogue regarding the global movement of ornamental and forest pathogens. Invited speakers will highlight the impact and significance regarding the global movement of several new and emerging diseases.

8:30 a.m. S-52. Introduced Pathogens and Their Impact on Ornamentals and Forestry in the United States – Part 1. KERRY BRITTON, USDA National Forest Service, Arlington, VA
8:45 a.m. S-53. Introduced Pathogens and Their Impact on Ornamentals and Forestry in the United States – Part 2. KERRY BRITTON, USDA National Forest Service, Arlington, VA
9:00 a.m. S-54. Movement of Pathogens on Forestry Plants Shipped Between Canada and the United States. SHANE SELA, Canadian Forestry Service, Canada
9:15 a.m. S-55. Movement of Pathogens on Ornamentals Shipped Between Canada and the United States. SHANE CELA, Canadian Forestry Service, Canada
9:30 a.m. S-56. Case Study 1: Ralstonia solanacearum on Geranium. MIKE KLOPMEYER, Ball Horticulture Company, West Chicago, IL
9:45 a.m. S-57. Case Study 2: Hosta Viruses and Movement from Holland. BEN LOCKHART, University of Minnesota, St. Paul, MN
10:00 a.m. Break
10:30 a.m. S-58. Case Study 3. International Movement of Phytophthora – Part 1. STEVE JEFFERS, Clemson University, Clemson, SC
10:45 a.m. S-59. Case Study 3. International Movement of Phytophthora – Part 2. STEVE JEFFERS, Clemson University, Clemson, SC
11:00 a.m. S-60. The U.S. Ornamental Horticulture Industry Perspective on International Plant Pathogen Movement and Steps to Mitigate Spread—Greenhouse Crops. LIN SCHMALE, Society of American Florists, Alexandria, VA
11:15 a.m. S-61. The U.S. Ornamental Horticulture Industry Perspective on International Plant Pathogen Movement and Steps to Mitigate Spread—Nursery Crops. MARC TEFFEAU, American Nursery Landscape Association, Washington, D.C.
11:30 a.m. Discussion

Navigating the Maze of Online Community Resources
*8:30 – 10:30 a.m. * Pacific Salon 3*
Section: Professionalism / Service / Outreach
Organizers: Ian King, University of California, Riverside, CA; Melissa Yoder, University of California, Riverside, CA; Brooke Edmunds, North Carolina State University, Raleigh, NC
Moderator: Ian King, University of California, Riverside, CA
Sponsoring Committees: SON ad hoc Student, APS Graduate Student

Online resources are becoming increasingly important for nematologists and plant pathologists alike. In the past 5 years there has been an exponential growth in the addition of sequence, image, and ecological data to publicly available databases. This has made finding and then navigating the mazes of available information more daunting. This symposium is designed to highlight some of the most useful online resources available. Invited speakers will discuss the development and provide practical demonstrations for quick and efficient navigation to and extraction of information from these databases. How to submit data and possible future directions will also be addressed. The session will conclude with a panel discussion in an effort to create an open dialogue.

8:30 a.m. S-62. Nematode.net: Update on Methods for Data Navigating and Comparative Genomics of Nematodes. MITREVA MAKEDONKA, Washington University School of Medicine, St. Louis, MO
8:45 a.m. S-63. The Plant Management Network: An Electronic Resource Serving Practitioners and Educators in Applied Plant Science. DENNIS GROSS, Texas A&M University, College Station, TX
9:00 a.m. S-64. Making WormBase, WormBook, and Textpresso Truly about Nematode Worms Rather than C. Elegans. PAUL STERNBERG, California Institute of Technology, Pasadena, CA
9:15 a.m. S-65. Nematol: The Nematode Tree of Life Database. W. KELLEY THOMAS, University of New Hampshire, Durham, NH
9:30 a.m. S-66. *Phytophthora* Database: A Cyber-Infrastructure for Detecting, Monitoring, and Managing *Phytophthora*. SEOGCHAN KANG, Penn State University, University Park, PA
9:45 a.m. S-67. Comprehensive Keys to Nematodes at Species and Genus Levels Using INTKEY. MIKE HODDA, Commonwealth Scientific and Industrial Research Organization (CSIRO), Canberra, Australia
10:00 a.m. Discussion

MONDAY SYMPOSIA

New Products and Services
*8:30 – 11:30 a.m. * Royal Palm 4-6*
Section: Plant Disease Management
Organizers: Ryan Bounds, Syngenta Crop Protection, Visalia, CA; Brian Olson, Dow AgroSciences, Geneva, NY

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

8:30 a.m. Bim Inoculation Machines, New Tools for Efficient Disease Resistance Screening, JUDIT MONIS, STA Laboratories, Gilroy, CA
8:45 a.m. FreshSeal CHC Reduces Decay and Shrivel of Tomato and Pepper. HUATING DOU, BASF Corporation, Dinuba, CA
9:00 a.m. F500®, a Broad-spectrum Strobilurin Fungicide with Utility in Seed Treatment. HENDRIK YPEMA, BASF Corporation, Res Triangle Park, NC
9:15 a.m. The Work of the Fungicide Resistance Action Committee (FRAC) as a Service to Industry. ANDY LEADBEATER, Syngenta Crop Protection, Basel Switzerland
9:30 a.m. Soil Smart Sensors. JENNIFER WASHBURN, Onset Computer Corp.
9:45 a.m. Difenoconazole – a New Triazole for the US Market. ALLISON TALLY, Syngenta Crop Protection, Greensboro, NC
10:00 a.m. Break
10:30 a.m. Syngenta Fungicide Registration Update. RYAN BOUNDS, Syngenta Crop Protection, Visalia, CA
10:45 a.m. Regulatory Update for Fenbuconazole, Mancozeb, and Quinoxyfen Fungicides. BRIAN OLSON, Dow AgroSciences, Geneva, NV
11:00 a.m. Recent and Pending Bayer CropScience Fungicide Product Registrations. GEORGE MUSSON, Bayer CropScience, Res Triangle Park, NC
11:15 a.m. TONIC Fumigant Granule for Ornamental Production. SARAH REITER, AgraQuest

Potato Cyst Nematode Regulatory Information and Implications for the Future
*1:00 – 4:00 p.m. * San Diego*
Section: Plant Disease Management
Organizers: Russ Bulluck, USDA-APHIS-PPQ-C, Raleigh, NC; Earl Flack, PA Department of Agriculture, Harrisburg, PA
Moderators: Russ Bulluck, USDA-APHIS-PPQ-C, Raleigh, NC; Earl Flack, PA Department of Agriculture, Harrisburg, PA
Sponsoring Committees: APS Regulatory and Nematology, Society of Nematology Regulatory

In April 2006, the potato cyst nematode *Globodera pallida* was discovered in Idaho. This symposium will provide information on the situation in Idaho at the present time including information on the infested area, plans for and results of national surveys, and other relevant information.

1:00 p.m. S-98. Current Situation of Potato Cyst Nematodes in Idaho. EOIN DAVIS, USDA-APHIS-PPQ, Idaho Falls, ID
1:15 p.m. S-99. Potato Cyst Nematode Status in the United States. OSAMA EL-LISSY, USDA-APHIS-PPQ, Riverdale, MD
1:30 p.m. S-100. Role of the Technical Working Group in Regulatory Processes—PCN as a Case Study. PHIL BERGER, USDA-APHIS-PPQ, Raleigh, NC
1:45 p.m. S-101. On The Morphological Identification of Pale Cyst Nematode, *Globodera pallida*, Associated with Potato in the United States. ZAFAR HANDOO, USDA-ARS, Beltsville, MD
2:00 p.m. S-102. Molecular Characterization of *Globodera pallida* Associated with Potato in Idaho. ANDREA SKANTAR, USDA-ARS, Beltsville, MD
2:15 p.m. S-103. Detection of Potato Cyst Nematode, *Globodera rostochiensis*, on Potato in Saint-Amable Region, Québec, Canada. FENGCHENG SUN, Canadian Food Inspection Agency, Ottawa, Ontario, Canada
2:30 p.m. S-104. Regulatory Control of PCN: A European Perspective. JON PICKUP, Scottish Agricultural Science Agency, Edinburg, Scotland
2:45 p.m. S-105. Spatial Distribution Patterns and Development of Reliable Sampling Methods for the Potato Cyst Nematodes. C. H. SCHOMAKER, Wageningen University and Research Centre, The Netherlands
3:00 p.m. Break
3:30 p.m. S-106. NemaDecide, a Decision Support System for the Management of Potato Cyst Nematodes. T. H. BEEN, Wageningen University and Research Centre, The Netherlands
3:45 p.m. Panel Discussion

Rhizosphere Communities and Plant Health
*8:30 – 11:45 a.m. * California*
Section: Epidemiology / Ecology / Environmental Biology
Organizers: Koon-Hui Wang, University of Hawaii, Honolulu, HI; Thomas Forge, Agriculture and Agri-Food Canada, Agassiz, BC, Canada
Moderator: Koon-Hui Wang, University of Hawaii, Honolulu, HI
Sponsoring Committees: Society of Nematology - Ecology, APS Nematology

Soil is one of the most fundamental and basic environmental resources. We need a healthy soil to maintain plant health. Beside physical and chemical components, biological component plays a major role in soil health. This session will talk about various groups of rhizosphere microorganism that are pertinent to maintaining plant health, and suppressing soilborne pathogens and nematode pests. One will learn about bioindicators of soil health, cultural practices that can maintain soil health, and challenges of soil health management.

8:30 a.m. S-68. Impacts of Soil Health Management on Nematodes and Soilborne Diseases. GEORGE ABAWI, Cornell University, Geneva, NY; Beth K Gugino, Cornell University, Geneva, NY

9:00 a.m. S-69. Nematode Assemblages as Indicators for Plant Health. HOWARD FERRIS, University of California, Davis, CA

9:30 a.m. S-70. Manipulation of Rhizosphere Bacteria to Induce Suppressive Soils. MARK MAZZOLA, USDA-ARS, Wenatchee, WA

10:00 a.m. Break

10:30 a.m. S-71. Linking Arbuscular Mycorrhizal Fungi with Plant Health: Mechanisms and Challenges. SHUIJIN HU, North Carolina State University, Raleigh, NC

11:00 a.m. S-72. Soil Health Indicators and the Challenge of Understanding How Organic Mulches Affect Root Health of Berry Crops in the Field. THOMAS FORGE, Agriculture & Agri-Food Canada, Agassiz, BC, Canada

11:30 a.m. Discussion

Listed in alphabetic order by title.

Disease Management – Biocontrol
*1:00 – 4:30 p.m. * Pacific Salon 3*
Section: Plant Disease Management
Moderators: Sebastian Kiewnick, Agroscope Changins-Waedenswil, Waedenswil, Switzerland; Ekaterini Riga, Washington State University, Prosser, WA

1:00 p.m. AO-38. Molecular analysis of *Nimbya* spp., potential agents for biological control of alligatorweed in Australia, and their relationship to other species in the genus. R. L. GILBERT (2), A. Mitchell (4), M. J. Priest (3), G. M. Gurr (1). (1) Charles Sturt University, Orange Campus, Orange, NSW, Australia; (2) NSW Department of Primary Industries, Orange Agricultural Institute, Orange, NSW, Australia; (3) NSW Department of Primary Industries, Orange, NSW, Australia; (4) NSW Department of Primary Industries, Wagga Agricultural Institute, Wagga Wagga, NSW, Australia

1:15 p.m. AO-39. Indigenous streptomyces isolated from soils in the Lower Rio Grande Valley of Texas inhibit fungal pathogen activity. A. A. GARZA (1), C. R. Little (1), A. L. Davelos Baines (1). (1) University of Texas-Pan American, Edinburg, TX

1:30 p.m. SO-40. Foraging and infection decisions in entomopathogenic nematodes. G. N. STEVENS (1), E. E. Lewis. (1) UC Davis, Davis, CA

1:45 p.m. AO-41. A broad-spectrum antagonistic activity of the biocontrol agent *Pseudomonas synxantha* BG33R. G. C. FANG (1), V. C. Waldrop (1), W. P. Wechter (3), D. A. Kluepfel (2). (1) Clemson University, Clemson, SC; (2) USDA, ARS, CPGRU, University of California-Davis, Davis, CA; (3) USDA, ARS, U.S. Vegetable Laboratory, Charleston, SC

2:00 p.m. SO-42. The potential of the fungus, *Muscodor albus*, as a bio-control agent against economically important plant parasitic nematodes of potatoes in Washington State. E. RIGA (1), L. Lacey (2), N. Guerra (1). (1) Washington State University, IAREC, Prosser, WA; (2) USDA-ARS, Wapato, WA

2:15 p.m. AO-43. Characterization of three bacteriocins associated with *Xanthomonas perforans*. M. MARUTANI (2), A. P. Hert (2), T. M. Momol (1), J. B. Jones (2). (1) North Florida Research and Education Center, Quincy, FL; (2) University of Florida, Gainesville, FL

2:30 p.m. AO-44. Evaulation of attenuated mutants of *Xanthomonas perforans* for utilization in control of *X. euvesicatoria*. A. P. HERT (2), M. Marutani (2), T. M. Momol (1), J. B. Jones (2). (1) North Florida Research and Education Center, University of Florida, Quincy, FL; (2) University of Florida, Gainesville, FL

2:45 p.m. AO-45. Monitoring an aflatoxin biocontrol agent in commercial cotton crops using pyrosequencing. M. K. DAS (1), K. C. Ehrlich (2), P. J. Cotty (1). (1) USDA-ARS, University of Arizona, Tucson, AZ; (2) USDA-ARS, SRRC, New Orleans, LA

3:00 p.m. Break

3:30 p.m. AO-46. Endophytic chitinase-producing yeasts with potential for biological control of wilt disease of tomato caused by *Fusarium oxysporum* f. sp. *Lycopersici*. K. A. EL-TARABILY (2), F. McKenna (1). (1) Natural Science Center Inc., Steele, AL, ; (2) United Arab Emirates University, Al-Ain, United Arab Emirates

3:45 p.m. SO-47. Importance of multitrophic interactions for the efficacy of *Paecilomyces lilacinus* strain 251 to control root-knot nematodes. S. KIEWNICK (1). (1) Agroscope Changins-Waedenswil, Research Station ACW, Plant Protection Ecotoxicology and Soil Zoology, Waedenswil, Switzerland

4:00 p.m. SO-48. Nematicidal activity of *Muscodor albus*. D. R. JIMENEZ (1), D. C. Manker (1). (1) Agraquest Inc., Davis, CA

4:15 p.m. SO-49. Effects of two summer crops and population densities of *Meloidogyne arenaria* race 1 on amplification of *Pasteuria penetrans*. G. M. KARIUKI (1), D. Dickson (1). (1) University of Florida, Gainesville, FL

Disease Management - Chemical Control
*8:00 – 11:45 a.m. * Pacific Salon 2*
Sections: Plant Disease Management
Moderators: Terry Wheeler, Texas Agricultural Experiment Station; Jim Mertely, University of Florida, Wimauma, FL

8:00 a.m. AO-50. Use of phosphonates for control of Phytophthora root rot of blueberry. P. M. BRANNEN (2), S. Nesmith (3), P. Harmon (1). (1) University of Florida, Gainesville, FL; (2) University of Georgia, Athens, GA; (3) University of Georgia, Griffin, GA

8:15 a.m. AO-51. Development of Revus 2.09SC (a.i. mandipropamid) in the U.S. for control of downy mildews on leafy vegetables. T. HARP (3), A. Cochran (1), D. Tory (3), P. Kuhn (3), L. Payan (2), D. Laird (2), A. Tally (2). (1) Syngenta Crop Protection, Basel, Switzerland; (2) Syngenta Crop Protection, Greensboro, NC; (3) Syngenta Crop Protection, Inc., Vero Beach, FL

8:30 a.m. AO-52. Status of methyl bromide alternatives for ornamental crop production in Florida and California. E. N. ROSSKOPF (2), J. S. Gerik (3), N. Kokalis-Burelle (2), G. T. Church (1), B. McSorley (4). (1) Texas A&M, Chillicothe, TX; (2) USDA, ARS, Fort Pierce, FL; (3) USDA, ARS, Parlier, CA; (4) University of Florida, Gainesville, FL

8:45 a.m. AO-53. Seasonal variation of wheat disease control in the greenhouse by azoxystrobin. C. J. KLITTICH (1), S. L. Ray (1). (1) Dow AgroSciences, Indianapolis, IN

9:00 a.m. AO-54. Unintended enhancement of strawberry diseases by fungicides and adjuvants. J. C. MERTELY (2), D. Legard (1), N. Peres (2). (1) California Strawberry Commission, Watsonville, CA; (2) University of Florida, GCREC, Wimauma, FL

9:15 a.m. SO-55. Effect of fumigation through drip irrigation on *Rotylenchulus reniformis* for drip tape separated by two meters. T. A. WHEELER (1). (1) Texas Agricultural Experiment Station

9:30 a.m. SO-56. Agri-Terra, a new material for the management of plant–parasitic nematodes: field studies. E. C. MCGAWLEY (1). (1) LSU, Baton Rouge, LA

9:45 a.m. SO-57. Defining nematode management zones in cotton. C. OVERSTREET (1), M. Wolcott (1), G. B. Padgett (2). E. Burris (3). (1) LSU Agcenter, Baton Rouge, LA; (2) LSU Agcenter, Winnsboro, LA; (3) LSU Agcenter, St. Joseph, LA

10:00 a.m. Break

10:30 a.m. SO-58. Effects of soil physical characteristics on Sting Nematode impacts to Florida strawberry. J. W. NOLING (1). (1) University of Florida, Citrus Research & Education Center, Lake Alfred, FL

10:45 a.m. AO-59. Investigating mechanisms of fire blight control by Prohexadione-calcium. M. J. MCGRATH (2), M. M. Kennelly (1), G. W. Sundin (2). (1) Kansas State University, Manhattan, KS; (2) Michigan State University, East Lansing, MI

11:00 a.m. AO-60. Preventative control of fairy ring caused by *Lycoperdon perlatum* in creeping bentgrass. G. L. MILLER (1), M. D. Soika (1), L. P. Tredway (1). (1) North Carolina State University, Raleigh, NC

11:15 a.m. AO-61. Detection of strobilurin resistant *Venturia pirina* populations in northern California. T. L. PITMAN (1), R. Elkins (2), W. D. Gubler (1). (1) University of California, Davis, CA, ; (2) UCCE ANR Lake County Lakeport, CA

11:30 a.m. AO-62. Reduced sensitivity of *Ascochyta rabiei* isolates to azoxystrobin and pyraclostrobin. K. A. WISE (1), C. A. Bradley (1), J. S. Pasche (1), N. C. Gudmestad (1). (1) North Dakota State University, Fargo, ND

Diseases of Cereal / Field / Fiber Crops
*1:00 – 4:15 p.m. * Pacific Salon 2*
Section: Plant Disease Management
Moderator: Mizuho Nita, Kansas State University, Manhattan, KS

1:00 p.m. AO-63. Phenotypic and genetic variation among soybean rust isolates. S. J. Anderson (3), C. L. Stone (3), J. L. Boore (2), B. A. Neelam (1), R. M. Stephens (1), D. G. Luster (3), R. D. Frederick (3), K. F. PEDLEY (3). (1) Advanced Biomedical

Computing Center, NCI-Frederick, Frederick, MD; (2) DOE Joint Genome Institute, Walnut Creek, CA; (3) USDA-ARS, Foreign Disease-Weed Science Research Unit, Ft. Detrick, MD

1:15 p.m. AO-64. Integrated management of Fusarium head blight (FHB) and deoxynivalenol concentration. M. NITA (1), E. De Wolf (1), L. V. Madden (5), P. A. Paul (5), G. E. Shaner (3), T. Adhikari (2), S. Ali (2), J. Stein (4). (1) Kansas State University, Manhattan, KS; (2) North Dakota State University, Fargo, ND; (3) Purdue University, West Lafayette, IN; (4) South Dakota State University, Brookings, SD; (5) The Ohio State University, Wooster, OH

1:30 p.m. AO-65. Etiology and management of Fusarium hardlock of cotton in Florida. B. LEITE (1), J. Marois (1), D. Wright (1), D. Mailhot (1), E. Osekre (1). (1) University of Florida, Quincy, FL

1:45 p.m. AO-66. Identification of resistance gene combinations conferring durable blast resistance in Colombia. F. J. CORREA VICTORIA (1). (1) CIAT, Cali, Colombia

2:00 p.m. SO-67. Long- and short-term tillage effects on *Heterodera glycines* reproduction. P. A. DONALD (1), D. D. Tyler (2). (1) ARS USDA, Jackson, TN; (2) University of Tennessee, Jackson, TN

2:15 p.m. SO-68. The multi-year, cumulative effects of monocropping cotton resistant to the southern root-knot nematode, *Meloidogyne incognita*. R. F. DAVIS (1), R. C. Kemerait (2). (1) USDA-ARS, CPMRU, Tifton, GA; (2) University of Georgia, Tifton, GA

2:30 p.m. AO-69. Spatial and temporal analysis of Asian soybean rust spread to central U.S. in 2006. A. S. DIAS (1), O. Pérez-hernández (1), X. Yang (1). (1) Iowa State University, Ames, IA

2:45 p.m. AO-70. Evaluation of advanced interspecific cotton genotypes for resistance to *Rotylenchulus reniformis*. T. R. FASKE (1), J. L. Starr (1), C. W. Smith (2). (1) Texas A&M University, College Station, TX; (2) Texas A&M University, College Station, TX

3:00 a.m. Break

3:30 p.m. AO-71. Effect of *African cassava mosaic virus* (ACMV), genus *Begomovirus* infection on the nutritional components of cassava (Manihot esculenta Crantz). T. T. OBEN (2), G. I. Atiri (2), J. A. Hughes (1). (1) Asian Vegetable Research and Development Center, Tainan, Taiwan; (2) Department of Crop Protection and Environmental Biology, University of Ibadan, Ibadan, Oyo State, Nigeria

3:45 p.m. SO-72. Development, reproduction, and root galling of *Meloidogyne incognita* populations on several cotton cultivars. S. A. ANWAR (1), M. V. McKenry (2), N. Javed (3). (1) HEC-Foreign Professor, University of Agriculture, Faisalabad, Pakistan; (2) University of California, Riverside,

CA; (3) Department of Plant Pathology, University of Agriculture, Faisalabad, Pakistan

4:00 p.m. AO-73. Influence of the soil texture on the interaction between *Meloidogyne incognita* and *Thielaviopsis basicola* on cotton. J. JARABA-NAVAS (1), C. S. Rothrock (1), T. L. Kirkpatrick (1). (1) University of Arkansas, Hope, AR

Diseases of Fruit Crops
*8:00 a.m. – 12:00 p.m. * Pacific Salon 6&7*
Section: Plant Disease Management
Moderatos: Craig Austin, Plant Pathology, Cornell University, Geneva, NY; Richard Lee, USDA ARS NCGRCD, Riverside, CA

8:00 a.m. AO-74. Evaluation of dormant applications of fungicides plus the bark-penetrating adjuvant Pentra-Bark for control of apple scab. M. A. ELLIS (2), W. Stringfellow (1). (1) Quest Products Corp., Louisburg, KS; (2) The Ohio State University OARDC, Wooster, OH

8:15 a.m. AO-75. Season-long photosynthesis in tart cherry: Effects of leaf spot and copper fungicides. B. R. GRUBER (1), P. S. McManus (1). (1) University of Wisconsin-Madison, Madison, WI

8:30 a.m. AO-76. Increased grapevine powdery mildew in shaded vineyard regions: Association with reduced leaf temperature and UV radiation. C. N. AUSTIN (2), A. N. Lakso (1), R. C. Seem (2), D. G. Riegel (2), D. M. Gadoury (2), W. F. Wilcox (2). (1) Cornell University, Geneva, NY; (2) Cornell University, Geneva, NY

8:45 a.m. AO-77. Management of non-persistent captan- and fenhexamid-resistant *Botrytis cinerea* populations using sustainable rotation programs in California strawberries. H. SU (1), H. Forster (1), M. Vilchez (2), J. E. Adaskaveg (2), W. Gubler (1). (1) University of California, Davis, CA; (2) University of California, Riverside, CA

9:00 a.m. AO-78. Streptomycin resistance in *Erwinia amylovora* in California and a new bactericide for management of fire blight of pears. J. E. ADASKAVEG (3), L. Wade (1), H. Forster (2). (1) Arysta Life Sciences, Cary, NC; (2) University of California, Davis, CA; (3) University of California, Riverside, CA

9:15 a.m. AO-79. Psyllids as a tool in evaluating the efficiency of different management practices for control of citrus huanglongbing disease. K. L. Manjunath (5), R. Harakava (4), C. Ramadugu (1), S. Halbert (2), P. Yamamoto (3), R. F. LEE (5). (1) University of California, Riverside, CA; (2) Division of Plant Industry, Gainesville, FL; (3) Fundecitrus, Araraquara, SP, Brazil; (4) Instituto Biologico, Sao Paulo, SP, Brazil; (5) USDA ARS NCGRCD, Riverside, CA

9:30 a.m. AO-80. The use of various pre-harvest practices for the managment of “Sour Rot” and “Non-Botrytis Slip Skin” of Red Globe table grapes. S. ROONEY-LATHAM (1), C. N. Janousek (2), W. Gubler (2). (1) California Department of Food and Agriculture, Plant Pest Diagnostics Branch, Sacramento, CA; (2) UC Davis; Davis, CA

9:45 a.m. SO-81. Evaluation of whey powder to control powdery mildew of grape. A. N. GADINO (1), M. A. Yoshimura (1), W. D. Gubler (2). (1) California Polytechnic State University, San Luis Obispo, CA, (1) California Polytechnic State University, San Luis Obispo, CA; (2) University of California, Davis, CA

10:00 a.m. Break

10:30 a.m. AO-82. Pathogenicity of *Penicillium digitatum* is associated with the suppression of the defense-related hydrogen peroxide burst in citrus fruit. D. MACARISIN (2), M. Wisniewski (2), L. Cohen (1), A. Eick (1), G. Rafael (1), S. Droby (1). (1) ARO, The Volcani Center, Bet Dagan, Israel, (2) USDA-ARS, Kearneysville, WV

10:45 a.m. AO-83. The call of the wild: Using wild germplasm to uncover the basis for ontogenic resistance in grapevine (*Vitis* spp.). C. T. GEE (2), D. K. Kosma (1), T. W. Thannhauser (3), M. A. Jenks (1), D. M. Gadoury (2), L. Cadle-Davidson (4). (1) Purdue University, West Lafayette, IN; (2) Cornell University, Geneva, NY; (3) Functional and Comparatives Proteomics Center, USDA-ARS US Plant and Soil Nutrition Lab, Ithaca, NY; (4) Grape Genetic Research Unit, USDA-ARS, Geneva, NY

11:00 a.m. **Round up**, Postharvest. Scott Adkins, USDA-ARS, Ft. Pierce, FL

11:30 a.m. AO-84. Factors associated with *Erisyphe necator* airborne conidia concentration above a grape canopy. O. CARISSE (1), R. Bacon (1). (1) Agriculture and AgriFood Canada, St-jean-Richeliev, Canada

11:45 a.m. AO-85. A characterization of grapevine trunk diseases in France from data generated by the National Grapevine Wood Disease Survey. L. Fussler (1), N. Kobes (1), M. Maumy (4), F. Bertrand (4), J. Grosman (2), S. SAVARY (3). (1) DRAF-SRPV Alsace, Strasbourg , France; (2) DRAF-SRPV, Cité Administrative de la Part Dieu, Lyon, France; (3) INRA, UMR Santé Végétale, Villenave d’Ornon cedex, France; (4) IRMA, Université Louis Pasteur, Cedex, France

Diseases of Vegetable Crops
*1:00 – 2:30 p.m. * Pacific Salon 4&5*
Section: Plant Disease Management
Moderators: Christian Wyenandt, Rutgers University, Rutgers Agricultural Research and Development Center, Bridgeton, New Jersey; Judy Thies, U.S. Vegetable Laboratory, USDA, ARS, Charleston, SC

1:00 p.m. SO-86. Management of root-knot nematode and Pythium root rot in pepper. J. A. THIES (1), D. W. Dickson (2), E. Rosskopf (3), M.

Mendes (2). (1) U.S. Vegetable Laboratory, USDA, ARS, Charleston, SC; (2) University of Florida,Gainesville, FL; (3) USHRL, USDA, ARS, Ft. Pierce, FL

1:15 p.m. AO-87. Evaluation of selected commercial pepper cultivars for resistance to *Phytophthora capsici*. B. CANDOLE (1), P. Conner (1). (1) University of Georgia, Dept. of Horticulture, Tifton, GA

1:30 p.m. AO-88. Managing powdery mildew with resistant squash and pumpkin cultivars. M. T. MCGRATH (1), J. F. Davey (1). (1) Cornell University, Ithica, NY

1:45 p.m. AO-89. Potential sources of resistance in watermelon plant introductions (PI) to watermelon vine decline in Florida. C. S. KOUSIK (1), S. A. Adkins (2), P. D. Roberts (3). (1) USDA-ARS, US Vegetable Laboratory, Charleston, SC; (2) USDA-ARS, USHRL, Ft. Pierce, FL; (3) University of Florida, SWFREC, Immokalee, FL

2:00 p.m. AO-90. Relationship between skin separation and Phytophthora-resistance in bell pepper cultivars and breeding lines. C. A. WYENANDT (2), W. L. Kline (1), D. L. Ward (2), J. F. Sudal (2), N. L. Maxwell (2). (1) Rutgers University, Millville, NJ; (2) Rutgers University, Bridgeton, NJ

2:15 p.m. AO-91. Relationship between percent mortality predictions for bean leaf beetle overwintering populations and incidence of *Bean pod mottle virus*. J. K. STEDMAN (1), E. Byamukama (1), A. Robertson (1), F. W. Nutter (1). (1) Iowa State University, Ames, IA

Fungal Mycotoxins
*1:00 – 4:15 p.m. * Pacific Salon 6&7*
Section: Epidemiology / Ecology / Environmental Biology
Moderators: Nancy Keller, University of Wisconsin, Madison, WI; Hamed Abbas, USDA-ARS, Stoneville, MS

1:00 p.m. AO-92. The occurrence of mycotoxins in corn (maize) plant debris. H. K. ABBAS (2), C. Accinelli (6), R. M. Zablotowicz (4), C. A. Abel (3), A. H. Bruns (2), Y. Dong (5), T. W. Shier (1). (1) College of Pharmacy University of Minnesota, St. Paul, MN; (2) USDA-ARS, CG&PRU, Stoneville, MS; (3) USDA-ARS, SIMRU, Stoneville, MS; (4) USDA-ARS, SWSRU, Stoneville, MS; (5) Univ. Minnesota, St. Paul, MN; (6) University of Bologna, Bologna, Italy

1:15 p.m. AO-93. Aflatoxin-producing fungi from maize fields at varying elevation in the State of Sonora, Mexico. A. ORTEGA-BELTRAN (1), R. Jaime-Garcia (1), P. J. Cotty (2). (1) University of Arizona, Tucson, AZ; (2) USDA-ARS, University of Arizona, Tucson, AZ

1:30 p.m. AO-94. *Aspergillus* Section Flavi communities associated with Kenyan maize. C. PROBST (3), F. Schulthess (1), L. Lewis (2), P. J. Cotty (4). (1) International Centre of Insect Physiology and Ecology, Nairobi, Kenya, Africa; (2) National

Center for Environmental Health, Centers for Disease Control and Prevention, Chamblee, GA; (3) The University of Arizona, Tucson, AZ; (4) USDA-ARS, The University of Arizona, Tucson, AZ

1:45 p.m. AO-95. Sugarcane serves as a reservoir for non-native aflatoxin producing fungi in the Rio Grande Valley of Texas. N. P. GARBER (1), P. J. Cotty (2). (1) The University of Arizona, Tucson, AZ, ; (2) USDA-ARS, Dept. of Plant Sciences, The University of Arizona, Tucson, AZ

2:00 p.m. AO-96. Characterisation of a novel trichothecene-responsive wheat gene. G. S. ERARD (1), K. I. Ansari (2), C. K. Ng (1), D. Egan (1), F. M. Doohan (1). (1) University College Dublin, Dublin, Ireland; (2) University of Texas, Arlington, TX

2:15 p.m. AO-97. Conservation of the aflatoxin regulatory protein LaeA in *Aspergillus flavus*. S. P. Kale (2), L. Milde (1), N. P. KELLER (1), J. Bok (1). (1) University of Wisconsin, Madison, WI; (2) Xavier University of Louisiana, New Orleans, LA

2:30 p.m. AO-98. Fusarium head blight disease of wheat: Mechanisms involved in the response of wheat to the mycotoxin deoxynivalenol. J. M. BRENNAN (1), S. Walter (1), K. Ansari (1), A. Chanemougasoundharam (1), M. Khan (1), D. Egan (1), G. Leonard (1), F. M. Doohan (1). (1) School of Biology and Environmental Sciences, Agricultural and Food Science Centre, University College Dublin, Ireland

2:45 p.m. AO-99. NADH oxidase *nadA*, a link between aflatoxin and oxidative stress in *Aspergillus flavus*. C. A. SMITH (1), M. Punelli (2), M. Reverberi (2), G. A. Payne (1). (1) NC State University, Raleigh, NC; (2) Universita “La Sapienza”, Roma, Italy

3:00 a.m. Break

3:30 p.m. AO-100. Evidence of extensive recombination in the aflatoxin gene cluster of *Aspergillus flavus*. G. G. MOORE (1), J. H. Ramirez-Prado (1), B. W. Horn (2), I. Carbone (1). (1) North Carolina State University, Raleigh, NC; (2) National Peanut Research Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Dawson, GA

3:45 p.m. AO-101. Timing of Infection: The effects on Fusarium Head Blight severity and toxin accumulation in wheat kernels. K. T. WILLYERD (2), E. D. De Wolf (1), M. Nita (1), G. A. Kuldau (2). (1) Kansas State University, Manhattan, KS, (2) Penn State, University Park, PA

4:00 p.m. AO-102. Genetics, biosynthesis, and evolution of the polyketide T-toxin produced by the fungus *Cochliobolus heterostrophus* race T. P. INDERBITZIN (1), G. Turgeon (1). (1) Cornell University, Ithaca, NY

Host Resistance - Molecular Genetics

*8:00 a.m. – 11:30 a.m. * Pacific Salon 4&5*

Section: Molecular/Cellular Plant– Microbe Interactions

Moderator: Joshua Cobb, Brigham Young University, Provo, UT

8:00 a.m. AO-103. Distinct transcriptional responses of rice to closely related vascular and non-vascular bacterial pathogens suggests mechanisms of tissue-specific pathogenesis. D. O. NINO-LIU (2), B. Yang (1), T. Bancroft (1), R. Caldo (4), R. Wise (1), D. Nettleton (1), F. White (3), A. Bogdanove (1). (1) Iowa State University, Ames, IA; (3) Kansas State University, Manhattan, KS; 5) Monsanto Company, San Diego, CA

8:15 a.m. AO-104. The response regulator HrpY of *Dickeya dadantii* 3937 regulates virulence genes not linked to the hrp cluster. M. Yap (2), H. Kim (1), A. O. CHARKOWSKI (1). 1) University of Wisconsin, Madison, WI; (2) Genetics and Biochemistry Branch, National Institute of Health, NIDDK, Bethesda, MD

8:30 a.m. AO-105. Biological and biochemical effects of peptides selected for affinity to the *Xylella fastidiosa* cell surface. P. A. Bruening (2), G. BRUENING (2), M. Francis (1), E. L. Civerolo (1). (1) USDA-ARS San Joaquin Valley Agricultural Sciences Center, Parlier, CA; (2) University of California, Davis, CA

8:45 a.m. AO-106. Evaluation of plant activators for management of tomato bacterial speck and host response over three field seasons. M. A. BORSICK HERMAN (1), H. W. Lange (1), C. D. Smart (1). (1) Cornell University, Geneva, NY

9:00 a.m. AO-107. The identification of recessive resistance effective against powdery mildew or downy mildew of grapevine. L. CADLE-DAVIDSON (1). (1) USDA-ARS, Grape Genetics Research Unit, Geneva, NY

9:15 a.m. AO-108. Induction of the jasmonic acid pathway and elevation of proteinase inhibitor II (*PINII*) expression as a response to tomato grafting. C. L. RIVARD (1), F. J. Louws (1). (1) North Carolina State University, Raleigh, NC

9:30 a.m. AO-109. Pathogen derived resistance through Agrobacterium mediated production of putative tomato transformants with constructs of varying tospoviral origin. J. N. COBB (1), P. J. Maughan (1), B. D. Geary (1), D. Gonsalves (2), S. Tripathi (2), J. Suzuki (2), M. Stafford (1). (1) Brigham Young University, Provo, UT, ; (2) USDA-ARS, Hilo, HI

10:00 a.m. Break

10:30 a.m. **Round-up**. D. Weller, USDA-ARS, Pullman, WA

11:00 a.m. AO-110. Approaches to broadening resistance of soybean to the soybean cyst nematode. B. F. MATTHEWS (1), V. Klink (1). (1) USDA-ARS, Beltsville, MD

11:15 a.m. AO-111. Response of sugarbeet cultivars to three species of Fusarium associated with sugarbeet yellows. P. BURLAKOTI (1), V. Rivera-Varas (1), R. Nelson (1), G. Secor (1), M. Khan (1). (1) NDSU, Fargo, ND

11:30 a.m. AO-112. Management of Downy mildew disease in Pearl Millet by inducing crosslinking of cell wall Hydroxyproline rich glycoproteins – a sustainable proposition. H. SHETTY (1). (1) University of Mysore, India

11:45 a.m. AO-113. Mapping Quantitative Trait Loci (QTL) for seedling drought tolerance and ashy stem blight resistance in cowpea (*Vigna unguiculata*). W. MUCHERO (1), J. D. Ehlers (1), P. A. Roberts (1). (1) University of California-Riverside, Riverside, CA

Molecular Biology – Viruses I & II
*10:30 a.m. – 2:30 p.m. * Pacific Salon 1*
Section: Molecular/Cellular Plant–Microbe Interactions
Moderators: 10:30 am Session - W. Allen Miller, Iowa State University, Ames, IA,; Richard Nelson, The Samuel Roberts Noble Foundation, Ardmore, OK
Moderators: 1:00 p.m. Session Rosemarie Hammond, USDA ARS BA MPPL, Beltsville, MD; Drake Stenger, USDA-ARS

Viruses I

10:30 a.m. AO-114. Complementation of *Saguaro cactus virus* cell-to-cell movement by a single movement protein of *Red clover necrotic mosaic virus*. Z. WENG (1), Z. Xiong (1). (1) University of Arizona, Tucson, AZ

10:45 a.m. AO-115. The N terminal *Soybean mosaic virus* (SMV) CI is required for SMV virulence and is a symptom determinant on Rsv3 genotype soybean. C. ZHANG (1), A. L. Eggenberger (1), M. R. Hajimorad (3), S. Tsang (2), J. H. Hill (1). (1) Iowa State Univ., Ames, IA; (2) Univ. of Illinois, Urbana, IL, (3) University of Tennessee, Knoxville, TN

11:00 a.m. AO-116. Cap-independent translation via diverse elements in the 3´ untranslated regions of plant viral RNAs. W. MILLER (1), Z. Wang (1), K. Treder (1), J. Kraft (1). (1) Iowa State University, Ames, IA

11:15 a.m. AO-117. The population genetics of *Pepino mosaic virus* in North America greenhouse tomatoes. K. LING (1). (1) USDA-ARS, U.S. Vegetable Laboratory, Charleston, SC

11:30 a.m. AO-118. Molecular variability of *Grapevine leafroll-associated virus-2* in Washington State vineyards. S. JARUGULA (1), M. J. Soule (1), R. A. Naidu (1). (1) Washington State University, Irrigated Agric. Res. & Extn. Center, Prosser, WA

11:45 a.m. AO-119. Use of *Brome mosaic virus* for virus-induced gene silencing in rice, fescue and switchgrass. R. S. NELSON (1), X. Ding (1), K. Ballard (1), S. R. Chaluvadi (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK

MONDAY TECHNICAL SESSIONS

Viruses II

1:00 p.m. AO-120. PKV, an AGC group VIIIa protein kinase, is a key regulator of symptoms associated with viroid infection. R. W. HAMMOND (1), Y. Zhao (1). (1) USDA ARS BA MPPL, Beltsville, MD

1:15 p.m. AO-121. GFP expression from a Sonchus yellow net nucleorhabdovirus replicon. U. Ganesan (1), J. N. Bragg (1), M. Deng (1), S. K. Marr (1), A. O. JACKSON (1). (1) UC Berkeley, Berkeley, CA

1:30 p.m. AO-122. *Wheat streak mosaic virus* P1, not HC-Pro, facilitates disease synergism and suppression of post-transcriptional gene silencing. D. STENGER (1), B. Young (1), F. Qu (2), T. Morris (2), R. French (1). (1) USDA-ARS; (2) University of Nebraska, Lincoln, NE

1:45 p.m. AO-123. Optimizing *Lettuce infectious yellows virus* cDNA inoculation systems for protoplast and plant infection. J. WANG (1), M. Turina (1), L. Stewart (1), B. W. Falk (1). (1) University of California, Davis, CA

2:00 p.m. AO-124. Differential requirements for ribosomal proteins by plant virus. C. YANG (1), S. A. Whitham (1). (1) Iowa State University, Ames, IA

2:15 p.m. AO-125. Evaluation of the global genome of *Tomato leaf curl virus* for controlling geminiviruses via gene silencing. L. CHING-YI (1), W. Tsai (2), S. Green (2), F. Jan (1). (1) Department of Plant Pathology, National Chung Hsing University, Taichung, Taiwan; (2) Asian Vegetable Research and Development Center - The World Vegetable Center, Tainan, Taiwan

Nematode Systematics

*8:00 – 9:00 a.m. * Golden West*

Section: Biology of Plant Pathogens

Moderator: Robin Giblin-Davis, University of Florida, Fort Lauderdale, FL

8:00 a.m. SO-126. Evolutionary ecology of aging in *caenorhabditis elegans* nurture and nature. E. P. CASWELL-CHEN (1), H. Caswell (2). (1) Univ. of California, Davis, CA; (2) Woods Hole Oceanographic Institution, Woods Hole, MA

8:15 a.m. SO-127. Differences in induced nematicide-resistance between free-living and plant-parasitic nematodes. Y. LIN (1), T. Tsay (1), P. Chen (1). (1) Dept. of Plant Pathology, National Chung Hsing University, Taichung, Taiwan

8:30 a.m. SO-128. Behavior as a measurement of exposure to chemicals in a plant-parasitic nematode. N. E. SCHROEDER (1). (1) University of Wisconsin-Madison, Madison, WI

8:45 a.m. SO-129. Three new nematode associates from sycones of *Ficus colubrinae* in La Selva, Costa Rica. R. M. GIBLIN-DAVIS (1), Y. Zeng (2), W. Ye (3), B. J. Center (2), N. Kanzaki (4), A. Esquivel (5), T. Powers (6). (1) Fort Lauderdale Research and Education Center, University of Florida, Fort Lauderdale, FL; (2) University of Florida, Fort Lauderdale, FL; (3) North Carolina Department of Agriculture & Consumer Services, Raleigh, NC; (4) Forest Pathology Laboratory, FFPRI, Tsukuba, Ibaraki, Japan; (5) Universidad Nacional Escuela de Ciencias Agrarias, Heredia, Costa Rica; (6) University of Nebraska, Lincoln, NE

Regulatory / Professionalism

*3:30 – 4: 30 p.m. * Pacific Salon 1*

Section: Professionalism / Service / Outreach

Moderators: Mary Burrows, Montana State University, Bozeman, MT; Clive Bock, University of Florida, FL

3:30 p.m. AO-130. Large-scale surveys for multiple pest species; the search for citrus canker and huanglongbing in Florida. S. R. PARNELL (1), T. Riley (2), T. R. Gottwald (1). (1) USDA Agricultural Research Service (ARS), Ft. Pierce, FL; (2) USDA Animal and Plant Health Inspection Service (APHIS), Orlando, FL

3:45 p.m. AO-131. Where the rubber meets the road: Timely information delivery to farmers with and without the internet. M. E. BURROWS (1), W. Lanier (1). (1) Montana State University, Bozeman, MT

4:00 p.m. AO-132. Crop and food biosecurity: Results of European research. M. L. GULLINO (1), F. Suffert (5), H. Dehne (10), J. Thomas (7), I. Barker (4), A. Gamliel (2), M. Bonifert (9), J. Stack (6), J. Fletcher (8), K. Abd-Elsalam (3). (1) AGROINNOVA - University of Torino, Italy; (2) ARO Volcani Center, Israel; (3) Agricultural Research Center, Giza, Egypt; (4) CSL, United Kingdom; (5) INR A, Rennes, France; (6) Kansas State University, Manhattan, KS; (7) NIAB, United Kingdom; (8) Oklahoma State University; (9) REC, Budapest; (10) University of Bonn, Germany

4:15 p.m. AO-133. Characteristics of citrus canker symptom assessment. C. H. BOCK (3), P. E. Parker (1), A. Z. Cook (1), T. R. Gottwald (2). (1) USDA-APHIS-PDDML, Edinburg, TX 78541; (2) USDA-ARS, Ft. Pierce, FL; (3) University of Florida, Ft. Pierce, FL

SON Graduate Student Papers

*10:30 a.m. – 4:00 p.m. * Hampton*

Moderators: Gregory Noel, University of Illinois, Urbana, IL; Ed Platzer, University of California, Riverside, CA

10:30 a.m. SO-134. The influence of morning glory, hemp sesbania, and johnsongrass on reproduction of *Rotylenchulus reniformis* on cotton and soybean. M. J. PONTIF (1). (1) LSU, Baton Rouge, LA

10:45 a.m. SO-135. Control of the soybean cyst nematode using anaerobically digested liquid swine manure. J. XIAO (1), J. Zhu (2), S. Chen (2), W. Ruan (1), C. Miller (2). (1) Department of Ecology,

College of Life Science, Nankai, University, Tianjing, China; (2) Southern Research and Outreach Center, University of Minnesota, Waseca, MN

11:00 a.m. SO-136. Nematodes against nematodes: Assessing entomopathogenic nematodes (Steinernematidae, Heterorhabditidae) for the control of the citrus nematode *Tylenchulus semipenetrans* (Tylenchulidae) in Arizona. J. GRESS (1), S. Stock (2). (1) University of Arizona, Tucson, AZ; (2) University of Arizona, Tucson, AZ

11:15 a.m. SO-137. Effects of inoculum type, inoculum level, inoculation date, and assessment date on evaluating resistance to *Meloidogyne arenaria* in peanut. W. DONG (1), C. C. Holbrook (2), P. Timper (2), T. B. Brenneman (1). (1) University of Georgia, Tifton, GA; (2) USDA-ARS, Tifton, GA

11:30 a.m. SO-138. Multifaceted bio-control methods against *Meloidogyne chitwoodi*, and *Leptinotarsa decemlineata*, pests of potatoes in Washington State. D. R. HENDERSON (1), E. Riga (1), W. E. Snyder (1). (1) Washington State University, Pullman, WA

11:45 a.m. SO-139. Pathogenicity of *Pratylenchus penetrans* and *Meloidogyne hapla* on onion. W. PANG (1), S. L. Hafez (1), S. Palanisamy (1). (1) University of Idaho, Moscow, ID

12:00 p.m. Break

1:00 p.m. SO-140. Effect of *Galleria mellonella* hosts on phase variation in *Photorhabdus luminescens*. G. C. BAILEY (1), B. J. Adams (1). (1) Brigham Young University, Provo, UT

1:15 p.m. SO-141. Down-regulation of Arabidopsis calcium-dependent protein kinase genes by cyst nematode infection. J. JIN (1), M. Mazarei (2), M. J. E. Wubben II (3), T. J. Baum (1). (1) Iowa State University, Ames, IA; (2) University of Tennessee, Knoxville, TN; (3) USDA-ARS Crop Science Research Laboratory, Genetics and Precision Agriculture Unit, Mississippi State, MS

1:30 p.m. SO-142. Long-term effects of weed management practices and cover cropping on the nematode community in a commercial vineyard in the Salinas Valley, California. S. R. PARKER (1), D. A. Kluepfel (1). (1) USDA, Agricultural Research Service.

1:45 p.m. SO-143. Isolation and functional analysis of an annexin-like parasitism gene of the beet cyst nematode, *Heterodera schachtii*. N. PATEL (1), C. Li (1), R. S. Hussey (2), T. J. Baum (3), E. L. Davis (1). (1) North Carolina State University, Raleigh, NC; (2) University of Georgia, Athens, GA; (3) Iowa State University, Ames, IA

2:00 p.m. SO-144. Comparison of oogenesis in *Meloidogyne hapla* in the presence and absence of fertilization. V. P. THOMAS (1), V. M. Williamson (1). (1) University of California, Davis, CA

MONDAY TECHNICAL SESSIONS

2:15 p.m. SO-145. Phylogenetic implications of three-dimensional reconstruction of the stomatostylet and anterior epidermis in *Aphelenchus avenae*. E. J. RAGSDALE (1), J. Crum (2), M. H. Ellisman (2), J. G. Baldwin (1). (1) University of California, Riverside, CA; (2) National Center for Microscopy and Imaging Research, University of California, San Diego, CA

2:30 p.m. SO-146. Engineering plants for nematode resistance. B. C. YADAV (1), K. Subramaniam (2). (1) Biological Sciences and Bioengineering, Indian Institute of Technology Kanpur, Uttar Pradesh, India; (2) Biological Sciences and Bioengineering, Indian Institute of Technology Kanpur, Uttar Pradesh, India

2:45 p.m. SO-147. T-RFLP approaches to nematode assemblage analysis. S. DONN (1), T. J. Daniell (1), B. S. Griffiths (1), R. Neilson (1). (1) SCRI, Dundee, UK

3:00 p.m. Break

3:30 p.m. SO-148. Detection and quantification of root-lesion nematode *Pratylenchus vulnus* using real time PCR. J. QIU (1), B. B. Westerdahl (1), V. M. Williamson (1). (1) University of California, Davis, CA

3:45 p.m. SO-149. Histological characterization of root-knot nematode resistance in cowpea and its relation to reactive oxygen species modulation. S. DAS (1), J. D. Ehlers (1), T. J. Close (1), P. A. Roberts (1). (1) University of California, Riverside, CA

Turf Diseases
*8:00 – 10:00 a.m. * Pacific Salon 1*
Section: Disease of Plants
Moderators: John Kaminski, University of Connecticut, Storrs, CT; Philip Harmon, University of Florida, Gainesville, FL

8:00 a.m. AO-150. Characterization and pathogenicity of *Pythium* species associated with Pythium root dysfunction in North Carolina. J. P. KERNS (1), L. P. Tredway (1). (1) North Carolina State University Raleigh, NC

8:15 a.m. AO-151. Cross-infectivity of *Magnaporthe oryzae* isolates causing gray leaf spot in perennial ryegrass and kikuyugrass truf. J. KERN (1), W. Uddin (1), F. Wong (2). (1) Penn State University, University Park, PA; (2) University of California, Riverside, CA

8:30 a.m. AO-152. Reassessment of vegetative compatibility of *Sclerotinia homoeocarpa* using nitrate non-utilizing mutants. Y. JO (1), S. Chang (1), G. Jung (1). (1) University of Massachusetts, Amherst, MA

8:45 a.m. AO-153. Rapid population shift of *Sclerotinia homoeocarpa* in response to fungicide applications on turfgrass. Y. JO (2), M. Boehm (1), G. Jung (2). (1) The Ohio State University, Columbus, OH; (2) University of Massachusetts, Amherst, MA

9:00 a.m. AO-154. Reduction of dollar spot on turfgrass with soluble silicon. G. GREGOIRE (1), E. Rondeau (1), D. Tremblay (1), R. R. Belanger (1), Y. Desjardins (1). (1) Centre de Recherche en Horticulture, Universite Laval, Quebec, Canada

9:15 a.m. AO-155. Thiophanate-methyl and propiconazole *in vitro* sensitivity of *Sclerotinia homoeocarpa* isolates collected from golf course putting greens, fairways, and roughs. P. L. KOCH (2), Y. Jo (1), G. Jung (1). (1) University of Massachusetts, Amherst, MA; (2) University of Wisconsin, Madison, WI

9:30 a.m. AO-156. Geographic distribution and genetic diversity of *Waitea circinata* var. *circinata* isolated from annual bluegrass in the U.S. C. CHEN (1), K. A. de la Cerda (1), J. E. Kaminski (2), G. W. Douhan (1), F. P. Wong (1). (1) University of California, Riverside, CA; (2) University of Connecticut, Storrs, CT

9:45 a.m. AO-157. Mating-type distribution of *Pyricularia grisea* associated with turfgrass in California. K. A. DE LA CERDA (1), K. L. Huryn (1), G. W. Douhan (1), F. P. Wong (1). (1) University of California, Riverside, CA

TUESDAY SYMPOSIA

Listed in alphabetic order by title.

Approaches for Predicting Establishment and Expansion of Exotic Invasive Forest Pathogens
*1:00 – 4:00 p.m. * California*
Section: Epidemiology / Ecology / Environmental Biology
Organizers: Ned Klopfenstein, USDA Forest Service, Moscow, ID; Jennifer Juzwik, USDA Forest Service, St. Paul, MN; Mo-Mei Chen, University of California, Berkeley, CA
Moderators: Ned Klopfenstein, USDA Forest Service, Moscow, ID; Jennifer Juzwik, USDA Forest Service, St. Paul, MN

Approaches to predict potentially invasive forest pathogens could help avoid enormous environmental and economic impacts to forest ecosystems. Phylogeography, population genetics, and climate modeling can contribute to predictions of invasive potential for exotic forest pathogens. The most powerful predictions will likely integrate biological, ecological, and physiographic information.

1:00 p.m. S-147. Principles of Invasion Biology: A Foundation to Predict Pathogen Invasiveness. ROBERT C. VENETTE, USDA Forest Service–Northern Research Station, St. Paul, MN
1:30 p.m. S-148. Disjunct Plants Between North America and Eastern Asia as a Potential Source of Invasive Pathogens. QINFENG GUO, USDA Forest Service–SRS, Asheville, NC
2:00 p.m. S-149. Predicting Potential Invasive by Phylogenetic Analyses of Intercontinental Relationships Among Plant Hosts and Pathogens. BRYCE A. RICHARDSON, USDA Forest Service–RMRS, Moscow, ID
2:15 p.m. S-150. Applications of Phylogeographic Analysis to Predict Sources of Potentially Invasive Forest Pathogens. Mee-Sook Kim, USDA Forest Service, Moscow, ID
2:30 p.m. Break
3:00 p.m. S-151. Phytogeography and Ecology of Pine Rusts: A Basis for Insights into Invasive Forest Pathogens. MO-MEI CHEN, University of California, Berkeley, CA
3:30 p.m. Discussion

Collaboration Between Industry and Researchers to Improve Management of Viral Diseases of Ornamentals—A Model for Other Crops
*8:00 – 11:15 a.m. * Pacific Salon 3*
Section: Biology of Plant Pathogens
Organizers: Mike Tiffany, Agdia, Inc. Elkhart, IN; Margery Daughtrey, Cornell University, Ithaca, NY; Jan Hall, The Paul Ecke Ranch, Encinitas, CA
Moderator: Mike Tiffany, Agdia, Inc. Elkhart, IN
Sponsoring Committees: Plant Pathogen and Disease Detection, Diseases of Ornamental Plants, Virology
Financial Sponsors: Proven Winners, Agdia Inc., Goldsmith Seeds

Researchers have been working with members of the ornamental industry to characterize new viral pathogens infecting ornamental crops, investigating the viral–host interrelationships in order to improve the detection of viral pathogens, and to better understand the effect on viral detection when plants are subjected to tissue culture techniques.

8:00 a.m. S-107. Prevention of Viral Diseases in Ornamental Production Environment. MIKE KLOPMEYER, Ball Horticulture Company, West Chicago, IL
8:30 a.m. S-108. New and Emerging Viruses of Ornamental Plants—When Is Virus Infection a Problem? JOHN HAMMOND, USDA-ARS-FNPRU, Beltsville, MD
9:00 a.m. S-109. New and Emerging Viral Diseases of Perennial Plants. BEN LOCKHART, University of Minnesota, St. Paul, MN
9:30 a.m. S-110. Management of Tobamovirus in Ornamental Production. SCOTT ADKINS, USDA-ARS, Ft. Pierce, FL
10:00 a.m. Break
10:30 a.m. S-111. Detection and Characterization of a New Tymovirus of Ornamental Plants. DEBORAH M. MATHEWS, University of California, Riverside, CA
11:00 a.m. Discussion

DMI Resistance, Part 2: Case Studies and Recommendations for Various Crop Groups
*1:00 – 5:00 p.m. * Garden Salon 2*
Section: Plant Disease Management
Organizers: Allison Tally, Syngenta, Greensboro, NC; Gilberto Olaya, Syngenta, Vero Beach, FL; Frank Wong, University of California, Riverside, CA
Moderator: Allison Tally, Syngenta, Greensboro, NC
Sponsoring Committees: North American FRAC, Resistance

This session follows the DMI Resistance Part 1 and is intended to be four crop-specific sessions back to back. These are (i) turf; (ii) trees, nuts, and vines; (iii) peanuts and sugarbeets (Cercospora); and (iv) vegetables and grapes (powdery mildew). The crop experts and industry reps would attend the appropriate session(s) of their specialty. It is open to anyone in APS to attend, but the focus is on case studies and future recommendations on resistance management. Except for a brief presentation of some case studies, the forum is intended to be a round table discussion and not the formal/typical presentations.

1:00 p.m. Introduction: ALLISON TALLY, Syngenta Crop Protection, Greensboro, NC
1:05 p.m. S-152. DMI Resistance Management for Anthracnose in Turf. FRANK WONG, University of California, Riverside, CA
1:10 p.m. S-153. DMI Resistance Management of Dollar Spot in Turf. RICHARD LATIN, Purdue University, West Lafayette, IN
1:15 p.m. Discussion – Gilberto Olaya, Syngenta Crop Protection, Vero Beach, FL – moderator

1:55 p.m. Break
2:05 p.m. S-154. DMI Resistance Management for Apple Scab. DAVE ROSENBERGER, Cornell University, Highland, NY
2:10 p.m. S-155. DMI Resistance Management for Pecan Scab in Pecans. KATY STEVENSON, University of Georgia, Tifton, GA
2:15 p.m. Discussion – Brian Olson, Dow AgroSciences, Geneva, NY – moderator
2:55 p.m. Break
3:05 p.m. S-156. DMI Resistance Management for Cercospora leafspot on peanuts. KATY STEVENSON, University of Georgia, Tifton, GA
3:10 p.m. S-157. DMI Resistance Management for Cercospora in Sugarbeets. GARY SECOR, North Dakota State University, Fargo, ND
3:15 p.m. Discussion – Jim Bloomberg, Bayer Crop Science, Research Triangle Park, NC
3:55 p.m. Break
4:05 p.m. S-158. DMI Resistance Management for Powdery Mildew in Grapes. DOUG GUBLER, University of California, Davis, CA
4:10 p.m. S-159. DMI Resistance Management for Powdery Mildew in eastern Grapes. WAYNE WILCOX, Cornell University, Geneva, NY
4:15 p.m. S-160. DMI Resistance Management for Powdery Mildew in Vegetables. MARGARET McGRATH, Cornell University, Riverhead, NY
4:20 p.m. Discussion – Allison Tally, Syngenta Crop Protection, Greensboro, NC

Effector Molecules in Diverse Host–Parasite Interactions
*1:00 – 3:30 p.m. * San Diego*
Section: Molecular / Cellular Plant–Microbe Interactions
Organizer: Eric Davis, North Carolina State University, Raleigh, NC
Moderators: Eric Davis, North Carolina State University, Raleigh, NC; Lynda Ciuffetti, Oregon State University, Corvallis, OR
Sponsors: APS Program, SON Program

The discovery of the effector molecules that pathogens use to infect a plant host has increased dramatically with the application of contemporary molecular technologies and genomics. While the discovery of molecular mechanisms unique to bacterial, viral, fungal, oomycete, and nematode infection of plants may be expected, common themes such as host defense silencing, molecular mimicry, transcriptional regulation, and selective protein degradation exist across this diverse spectrum of plant pathogens. This symposium groups experts in bacterial, viral, fungal, oomycete, and nematode effectors in one session to directly compare and contrast the infection strategies of these different pathogens.

1:00 p.m. S-161. Responses of Plants to Viral Protein and Nucleic Acid Effectors. STEVE WHITHAM, Iowa State University, Ames, IA
1:30 p.m. S-162. Xanthomonas XopD TTSS Effector Is a Repressor of Hormone-Induced Transcriptional

Visit APS Central – Your Professional Home

APS invites you to take a break and stop by APS Central, located right as you enter the Grand Foyer, 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, as well as important society information will be on display.

While you are there, be sure to pick up your free meeting postcard, provided by the APS Office of Public Relations and Outreach (OPRO)! APS will mail the postcards for you if you drop them off in the mailbox provided.

We'll see you there!

Responses. MARY BETH MUDGETT, Stanford University, Stanford, CA

2:00 p.m. S-163. Functional Analyses of Putative Effectors Controlling Biotrophic Invasion by the Rice Blast Fungus. BARBARA VALENT, Kansas State University, Manhattan, KS

2:30 p.m. S-164. Oomycete RXLR Effectors: Structural Basis of Avirulence and Virulence in Phytophthora Infestans AVR3a. JORUNN BOS, Ohio State University, Wooster, OH

3:00 p.m. S-165. Cyst Nematode Parasitism: Three Glands, Many Effectors, Big Effects. THOMAS BAUM, Iowa State University, Ames, IA

Emerging Technologies for the Detection and Regulation of Mycotoxin Contamination
*8:00 – 10:00 a.m. * Pacific Salon 2*
Section: Plant Disease Management
Organizer: David Schmale, Virginia Tech, Blacksburg, VA
Moderator: David Schmale, Virginia Tech, Blacksburg, VA
Sponsoring Committee: Mycotoxicology

The contamination of food and feed with mycotoxins continues to pose a significant threat to the health of humans and domestic animals. This symposium will present a number of new and emerging technologies to rapidly detect and quantify mycotoxins in real-world situations. Some of these new technologies have the potential to be employed in remote locations. The regulation of mycotoxins in widely cultivated crops poses a number of significant social and political challenges.

8:00 a.m. Introduction. DAVID SCHMALE, Virginia Tech, Blacksburg, VA

8:05 a.m. S-112. The Multiple Challenges of Mycotoxin Detection and Quantification in Silages. GRETCHEN KULDAU, Penn State University, University Park, PA

8:25 a.m. S-113. Enabling Growers and Producers to Conduct On-Farm Mycotoxin Analyses. STEPHANIE TINSLEY, Romer Labs, Union, MO

8:45 a.m. S-114. Social and Political Challenges in the Regulation of Mycotoxin Contamination. ERIK DOHLMAN, USDA, Washington, D.C.

9:05 a.m. S-115. Applying New Technologies for the Detection of Mycotoxigenic Fungi. CHARLES WOLOSHUK, Purdue University, West Lafayette, IN

9:25 a.m. Discussion

Faces of the Future in Nematology
*8:00 – 10:00 a.m. * Golden West*
Section: Professionalism/ Service/ Outreach
Organizers: Brenda Schroeder, Washington State University, Pullman, WA; Erin Rosskopf, USDA-ARS, USHRL, Fort Pierce, FL
Moderators: Brenda Schroeder, Washington State University, Pullman, WA; Carolee Bull, USDA ARS, Salinas, CA
Sponsoring Committees: Early Career Professionals, Scientific Programs Board

This session is designed to acknowledge the "up and comers" in a plant pathology research area. The chosen speakers will have the opportunity to present their current work as well as the future direction of their programs and their discipline and this year that will be Nematology. In addition, the speakers will publish a two-page, peer-reviewed symposium proceedings paper, where they can highlight their philosophy and futuristic thinking about the direction of their discipline.

8:00 a.m. S-116. The effects of *Brassica* crops on plant parasitic nematodes, free living nematodes, and soil microbial dynamics when used in combination with reduced rates of synthetic nematicides. EKATERINI RIAG, Washington State University, Prosser, WA

8:30 a.m. S-117. Sustainable Approaches to the Management of Plant-parasitic Nematodes and Disease Complexes. ANDREAS WESTPHAL, Purdue University, West Lafayette, IN

9:00 a.m. S-118. Nematode Parasitism Genes as RNAi Targets for Engineering Novel Nematode Resistant Crops. GUOZHONG HUANG, University of Georgia, Athens, GA

9:30 a.m. S-119. Research Collaborations Can Improve the Use of Organic Amendments for Plant-parasitic Nematode Management. INGA ZASADA, USAD-ARS, Beltsville, MO

Free Trade: Challenges to Plant Health
*8:00 – 11:00 a.m. * California*
Section: Diseases of Plants
Organizers: Jim Steadman, University of Nebraska, Lincoln, NE; Jackie Fletcher, Oklahoma State University, Stillwater, OK
Moderators: Jim Steadman, University of Nebraska, Lincoln, NE; Beth Carroll, Syngenta Crop Protection, Inc, Greensboro, NC
Sponsoring Committees: Public Policy Board, Crop Biosecurity, Office of International Programs, Emerging Diseases and Pathogens

Perspectives on free trade effects on diagnostics, regulatory scrutiny, freer and safer trade, food security, and global trade. Also a perspective from Mexico.

8:00 a.m. S-120. Regulatory Scrutiny, Plants for Planting, and Free Trade. SHIRLEY WAGER-PAGE, USDAAPHIS, Riverdale, MD

8:30 a.m. S-121. Dilemma of Safer and Freer Trade in Florida. WAYNE DIXON, Bureau of Entomology, Nematology and Plant Pathology, Gainesville, FL

9:00 a.m. S-122. Perspective on Free Trade from a Trading Partner. MARC GILKEY, USDA-APHIS, Mexico City, Mexico

9:30 a.m. S-123. Diagnostics—Are We Prepared? JAMES STACK, Kansas State University, Manhattan, KS

10:00 a.m. S-124. Global Trade and Plant Health. DENNIS AVERY, Hudson Institute, Churchville, VA

Information Technologies for Multi-Scale Disease Forecasting and Surveillance Systems
*8:00 – 11:00 a.m. * San Diego*
Section: Epidemiology / Ecology / Environmental Biology
Organizers: Roger Magarey, and Asimina Mila, North Carolina State University, Raleigh, NC
Moderators: Roger Magarey and Asimina Mila, North Carolina State University, Raleigh, NC
Sponsoring Committee: Epidemiology

Recently, the introduction of soybean rust has spurred development in new internet technologies that have enabled the deployment of a pest information platform (PIPE) with a level of sophistication not previously achieved for an invasive agricultural pest in the United States. With appropriate federal or industry funding, it is likely that the PIPE system will be expanded to other commodities and pests. In this symposium, we look at the current application and future of information technologies for disease forecasting and surveillance systems for both exotic and endemic plant pathogens. Presentations will be a synthesis of the latest developments in the components of the PIPE including information architecture, data collection, modeling, interpretation, and dissemination with speakers from different forecasting and surveillance systems. Each speaker will make recommendations either for collaboration or research to improve each component. The symposium concludes with a discussion of individual recommendations to improve disease forecasting systems, focusing on new research initiatives and collaboration between government, university, and industry partners.

8:00 a.m. S-125. Architecture of Pest Information Platforms: Past, Present, and Future. SCOTT ISARD, Pennsylvania State University, University Park, PA
8:30 a.m. S-126. Field and Diagnostic Data Collection: Part 1, University Sources. JIM STACK, Kansas State University, Manhattan, KS
8:45 a.m. S-127. Field and Diagnostic Data Collection: Part 2, Industry Sources. WILLIAM DOLEZAL, Pioneer Hi-Breed International, Inc., Johnston, IA
9:00 a.m. S-128. Field and Diagnostic Data Collection: Part 3, Government Sources. ROGER MAGAREY, North Carolina State University, Raleigh, NC
9:15 a.m. S-129. The Operational Deployment of Models: Why Some Fail and Others Succeed. ERICK DEWOLF, Kansas State University, Manhattan, KS
9:30 a.m. S-130. The Interpretation of Model Output: Making Sense of It All. ASIMINA MILA, North Carolina State University, Raleigh, NC
9:45 a.m. S-131. Dissemination to Stakeholders. DON HERSHAM, University of Kentucky, Princeton, KY
10:00 a.m. Break
10:30 a.m. S-132. California Systems to Disseminate Disease Modeling Information. JOYCE STRAND, University of California, Davis, CA

10:45 a.m. S-133. Challenges and Opportunities for Internet-based Disease Information Systems. GARY BERGSTROM, Cornell University, Ithaca, NY

Management of Nematodes in Cotton
*8:00 – 9:30 a.m. * Pacific Salon 1*
Section: Plant Disease Management
Organizers: James Starr, Texas A&M University, College Station, TX; Robert Nichols, Cotton Incorporated, Cary, NC
Moderator: James Starr, Texas A&M University, College Station, TX
Sponsoring Committees: SON Industry, SON Resistance

Plant-parasitic nematodes cause the greatest economic losses of any group of diseases in cotton. This symposium will provide a comprehensive overview of the subject, including the effects of rotation of cotton with major agronomic crops, innovations in the combined use of soil factors and nematode population assessments to guide chemical treatment, and the newest information about releases of germplasm and genetic markers to facilitate development of cultivars with high levels of resistance to root-knot and reniform nematodes.

8:00 a.m. S-134. Cultural Practices for Management of Plant Parasitic Nematodes on Cotton. STEVE KOENNING, North Carolina State University, Raleigh, NC
8:20 a.m. S-135. Novel and Conventional Strategies for Managing Nematodes in Cotton with Nematicides. TERRY L. KIRKPATRICK, University of Arkansas, Hope, AR
8:40 a.m. S-136. Molecular Markers and Mapping of Root-Knot Nematode Resistance in Cotton. PHILIP A. ROBERTS, University of California, Riverside, CA
9:05 a.m. S-137. Progress in Development of Reniform Nematode Resistance in Cotton. FOREST ROBINSON, USDA-ARS, College Station, TX

Potato Viruses and Potato Seed Certification in the 21st Century
*1:00 – 4:30 p.m. * Royal Palm 1-3*
Section: Plant Disease Management
Organizer: Alexander Karasev, University of Idaho, Moscow, ID
Moderator: Alexander Karasev, University of Idaho, Moscow, ID
Sponsoring Committee: Virology
Financial Sponsor: APH-APHIS Virus Working Group, Noble Foundation, California Crop Improvement Association

Potato seed certification is an integral part of a sustainable potato production system all over the world. It was put in place to protect a vegetatively propagated crop from debilitating diseases caused by a range of potato viruses. Devised originally as a means to increase yields and maximize growers' return on investment, potato seed certification now provides for other modern concerns of the society, e.g., reduction in chemical treatment of potato crop and, thus, to overall food quality. Recent discussions of the pros and cons of genetically modified organisms (GMOs) highlighted the added value of the existing seed potato certification schemes for production of organically grown food. This symposium will address the modern state of potato certification, its relations to recent developments in plant virology, biotechnology, potato genetics, and breeding, as well as changing social environment, i.e., society's health concerns. We will try to trace the development and operation of contemporary certification procedures, present an overview of existing production threats, and discuss future directions of the potato seed certification in the 21st century. Potato is a major crop, ranked fourth in production worldwide behind rice, wheat, and corn.

1:00 p.m. S-166. Potato Breeding and Certification in North America. JONATHAN WHITWORTH, USDA-ARS, Aberdeen, ID
1:30 p.m. S-167. Evolution of Potato Virus Y: Changing Pathogenicity. JAMES LORENZEN, International Institute of Tropical Agriculture, Kampla, Uganda
2:00 p.m. S-168. PVY in the U.S. Seed Potato Crop is Changing: Do We Blame it on the Virus, the Vectors, or the Crop? STEWART GRAY, USDA-ARS, Ithaca, NY
2:30 p.m. S-169. Specific Detection of Strains and Variants of Potato Virus Y Infecting Potatoes. CAMILLE KERLAN, INRA, Le Rheu, France
3:00 p.m. Break
3:30 p.m. S-170. Virus Detection Using Array-Based Technologies. KEITH PERRY, Cornell University, Ithaca, NY
4:00 p.m. S-171. Methods of Seed Production for Less Developed Regions in the World. LUIS SALAZAR, Agdia, Inc., Elkhart, IN

Public Policy 101
*1:00 – 5:00 p.m. * Pacific Salon 6-7*
Section: Professionalism / Service / Outreach
Organizers: Jacqueline Fletcher, Oklahoma State University, Stillwater, OK; Richard Stuckey, Surprise, AZ
Moderators: Jacqueline Fletcher, Oklahoma State University, Stillwater, OK; Richard Stuckey, Surprise, AZ
Sponsors: Public Policy Board, Office of Public Relations & Outreach, Society of Nematology

Participants will gain a working knowledge of the U.S. government law and public policy making process that affect plant pathology and how to interact effectively with the decision making process.

1:00 p.m. S-172. Introduction and Recent PPB Accomplishments. JACQUE FLETCHER, Oklahoma State University, Stillwater, OK
1:15 p.m. S-173. How Laws Are Made. KELLYE EVERSOLE, Eversole Associates, Bethesda, MD
1:45 p.m. S-174. Getting the Message Across: Communicating with Congress. DANIEL DOOLEY, Dooley Herr & Peltzer, LLP, Visalia, CA
2:05 p.m. S-175. Getting the Message Across: Communicating With U.S. Administration.

2:25 p.m. S-176. Getting the Message Across: Communicating With State Government. HANK GICLAS, Western Growers' Association
2:45 p.m. S-177. Getting the Message Across: Perspectives of a PPB Intern. KIMBERLY WEBB, STA Laboratories, Longmont, CO
3:00 p.m. Break
3:30 p.m. Panel Discussion
4:15 p.m. Q & A and Audience Discussion
4:45 p.m. Writing an Effective Letter or Position Paper

Systematics and Phylogeny: The Tree of Life, Dorylaimia, Triplonchida, and the Origin of Nematodes
*1:00 – 4:00 p.m. * Golden West*
Section: Biology of Plant Pathogens
Organizer: Paul De Ley, University of California, Riverside, CA
Moderator: Thomas Powers, University of Nebraska, Lincoln, NE
Sponsoring Committee: SON Systematics

This session will review systematics, phylogeny, and biogeography of Dorylaimia and Triplonchida, two nematode groups that include virus-transmitting plant parasites. In collaboration with the National Science Foundations' assembling the Tree of Life project on nematodes, selected speakers will also address aspects of cultivation and genomics of both groups, as well as evolutionary affinities of the entire phylum Nematoda.

1:00 p.m. S-178. Dorylaimia, Triplonchida, and the Nematode Tree of Life Project. PAUL DE LEY, University of California, Riverside, CA
1:15 p.m. S-179. Roots and Shoots: Rooting Nematoda with Credible Outgroup Taxa and Replicating Internal Structure with Multigene Datasets. MARK BLAXTER, University of Edinburgh, Edinburgh, U.K.
1:30 p.m. S-180. Phylogeny and Biogeography of Triplonchida. MARTIJN HOLTERMAN(1) & OLEKSANDR HOLOVACHOV(2), (1) Wageningen University, Wageningen, The Netherlands, (2) University of California, Riverside, CA
1:45 p.m. S-181. The Who, What, and Why of Trichodoridae and Longidoridae. ROBERT T. ROBBINS(1) & WILFRIDA DECRAEMER(2), (1) University of Arkansas, Fayetteville, AR, (2) Royal Museum of Natural History, Brussels, Belgium
2:00 p.m. S-182. Molecular Phylogeny of Dorylaimia. PETER MULLIN(1) & MARTIJN HOLTERMAN(2), (1) Minneapolis, MN, 2) Wageningen University, Wageningen, The Netherlands
2:15 p.m. S-183. Morphological Cladistics and Classification of Dorylaimia. REYES PEÑA SANTIAGO(1) & AUGUST COOMANS(2), (1) Universidad de Jaén, Jaén, Spain , (2) Ghent University, Ghent, Belgium
2:30 p.m. S-183. Methods of Culturing Predatory Nematodes. ANWAR BILGRAMI, Cape May County, Cape May Court House, NJ
2:45 p.m. S-184. Systematics and Phylogeography of Mononchida. ALDO ZULLINI(1) & PETER MULLIN(2), (1) Universita Milano-Bicocca, Milan, Italy, (2) Minneapolis, MN
3:00 p.m. Break
3:30 p.m. S-185. Comparative Mitochondrial Genomics and Molecular Phylogeny of the Mermithida. BRADLEY HYMAN, University of California-Riverside, Riverside, CA
3:45 p.m. S-186. Systematics and Phylogeography of Mermithida. GEORGE POINAR JR.(1) & EDWARD G. PLATZER(2), (1) Oregon State University, Corvallis, OR, (2) University of California-Riverside, Riverside, CA

Triazole (DMI) Resistance, Part I: A Broad Issue Affecting Plant Disease Control
*8:30 a.m. – 12:00 p.m. * Garden Salon 2*
Section: Plant Disease Management
Organizers: Frank Wong, University of California, Riverside, CA; Wayne Wilcox, Cornell University, Geneva, NY
Sponsoring Committee: Pathogen Resistance

The sterol demethylation inhibitor (DMI) fungicides are the largest group of antifungal chemicals that are used in agriculture and pharmaceuticals. Introduced over three decades ago, they remain a cornerstone of fungal pathogen control, but the development of resistance has complicated their use. This symposium will focus on the mode of action and resistance for the triazole fungicides, the largest group of the DMIs, regulatory issues for the registration and re-registration of this group, and provide a lead in for a second symposium on the impact and management strategies for resistance and the control of diseases of economically important crops.

8:30 a.m. S-138. DMI Discovery and Evolution of the Most Successful Chemical Fungicide Class, KLAUS STENZEL, Bayer CropScience, Monheim, Germany
9:00 a.m. S-139. DMI Mode of Action and Practical Resistance Development, WOLFRAM KOELLER, Cornell University, Geneva, NY
9:30 a.m. S-140. Recent Advances in Understanding the Molecular Mechanisms of DMI Resistance, ULRICH GISI, Syngenta Crop Protection Research, Basel, Switzerland
10:00 a.m. Break
10:30 a.m. S-141. Federal Aspects of DMI Regulation and Re-registration, PAUL LEWIS, Environmental Protection Agency, Washington, DC
11:00 a.m. S-142. Overcoming Regulatory Hurdles for the DMI Fungicides, RAY BRINKMEYER, Dow AgroSciences, Indianapolis, IN
11:30 a.m. Discussion Q&A

TUESDAY SYMPOSIA

University Responsibilities for Public Science Literacy: From K to Gray
*10:30 a.m. – 12:30 p.m. * Golden West*
Organizer: David G. Gilchrist, University of California, Davis, CA
Moderator: David G. Gilchrist, University of California, Davis, CA

The Need (from Editorial in Science by Alan Lescher, 12 January 2007)

- Society is exhibiting increased disaffection, skepticism, and concern over scientific issues that threaten to compromise the ability of the scientific enterprise to serve its broad societal mission and weaken societal support for science
- Therefore, scientists must engage more fully with the public about scientific issues and the concerns that society has about them

Challenges to Multi-disciplinary Academic Departments like Plant Pathology

- Engaging the public effectively is an acquired skill, and preparation for outreach strategies has seldom been part of scientific training programs – how do we effectively train scientists to deliver outreach content without scaring/boring students or the public?
- Scientific reward system needs to support efforts to interact with the general public concerning their work and its implications
- Education is ongoing issue – need for student/public information/communication cannot be relegated to 3 yr grant cycles. If garnering public trust is an issue, than rapid turnaround of education programs is ineffective. Long-term programs and infrastructures need to be in place with the ability to draw on experts for current content and topical information

10:30 a.m. S-143. A University-Based Model for Engaging Multiple Stakeholders in Secondary Level Biological Science Outreach. Barbara Soots, University of California, Davis, CA

11:00 a.m. S-144. Bridging the Science and Society Gulf to Non-Science and Science Majors at the Undergraduate Level. David Rizzo, University of California, Davis, CA

11:30 a.m. S-145. Nontraditional Challenges and Opportunities for Plant Pathologists in Graduate Education for Society Outreach. James D. MacDonald, University of California, Davis, CA

12:00 p.m. S-146. Science Challenges at the Secondary Level: From Science in the Classroom to Voter Initiatives and Voter Trust. Joan Vreeburg, El Molino High School. Santa Rosa, CA

TUESDAY TECHNICAL SESSIONS

Listed in alphabetic order by title.

Disease Detection I & II
*8:00 a.m. – 2:45 p.m. * Pacific Salon 4&5*
Section: Disease of Plants
Moderators: 8:15 a.m. Session - Carol Buell, TIGR, Rockville MD; Charles Barnes, USDA-ARS Cereal Disease Laboratory, St. Paul, MN
1:00 p.m. Session - Peter Bonants, Plant Research International, Wageningen, The Netherlands; Wenbin Li, USDA-APHIS-PPQ-CPHST, Beltsville, MD

Disease Detection I

8:00 a.m. AO-158. A comprehensive genome-based diagnostics resource and pipeline for identification of threatening plant pathogens. C. R. BUELL (3), G. Diaz (2), J. Hamilton (4), J. Lang (2), J. Leach (2), A. Lévesque (1), T. Powers (5), N. Tisserat (2), M. van Sluys (6). (1) Agriculture and Agri-Food Canada; (2) Colorado State University, Fort Collins, CO; (3) TIGR, Rockville MD; (4) The Institute for Genomic Research; (5) University of Nebraska, Lincoln, NE; (6) University of Sao Paulo, Sao Paula, Brazil

8:15 a.m. AO-159. A Bayesian approach to assess the accuracy of diagnostic test based on plant disease measurement. D. MAKOWSKI (1), (1) INRA, Thiverval-Grignon, France

8:30 a.m. AO-160. Long distance dispersal of *Phakopsora pachyrhizi* spores in rain, comparing data from 2005 and 2006. C. W. BARNES (1), L. J. Szabo (1). (1) USDA-ARS Cereal Disease Laboratory, St. Paul, MN

8:45 a.m. AO-161. Detection and quantification of *Rhizoctonia solani* AG-1 IA, the rice sheath blight pathogen, in rice using real-time PCR. R. J. SAYLER (2), Y. Yang (1). (1) Penn State, University Park, PA; (2) University of Arkansas, Fayetteville, AR

9:00 a.m. AO-162. Development of a loop-mediated isothermal amplification method (LAMP) for detection of the bacterial wilt pathogen *Ralstonia solanacearum*. R. KUBOTA (1), A. M. Alvarez (1), B. G. Vine (1), D. M. Jenkins (1). (1) University of Hawaii, Honolulu, HI

9:15 a.m. SO-163. Do exotic and invasive plant-parasitic nematodes exist in California's agricultural production sites? J. CHITAMBAR (1), K. Dong (1), S. A. Subbotin (1), R. Luna (1). (1) California Department of Food and Agriculture, Sacramento, CA

9:30 a.m. AO-164.Sensitivity and specificity of a Taqman real-time PCR assay for detection of *Pantoea stewartii*. J. T. TAMBONG (1), K. N. Mwange (1). (1) Agriculture and Agri-Food Canada, Ottawa, Ontario Canada

9:45 a.m. AO-165. PCR-based detection of *Sclerotinia minor*. D. L. SMITH (1), M. A. Cubeta (1), T. Toda (1), B. B. Shew (1). (1) Dept. Plant Path., NC State University, Raleigh, NC

10:00 a.m. Break

10:30 a.m. AO-166. Detection of Asian soybean rust disease gradients in soybean using high resolution satellite imagery. F. W. NUTTER (1), K. Ahmad (1), J. Basart (1), N. VanRij (2). (1) Iowa State University, Ames, IA; (2) Cedara Department of Agriculture, South Africa

10:45 a.m. AO-167. Development of microelectronic chip technology for detection and differentiation of *Plum pox virus*. Z. LIU (1), V. Mavrodieva (1), L. Levy (1). (1) USDA-APHIS-PPQ-CPHST, National Plant Germplasm and Biotechnology Laboratory, Beltsville, MD

11:00 a.m. AO-168. Use of psyllids in early identification of huanglongbing disease of citrus. K. L. MANJUNATH (1), S. Halbert (2), C. Ramadugu (4), S. Webb (3), R. F. Lee (1). (1) USDA ARS NCGRCD, Riverside, CA; (2) Division of Plant Industry, Gainesville, FL; (3) University of Florida, Gainesville, FL; (4) Dept. of Botany and Plant Sciences, University of California, Riverside, CA

11:15 a.m. AO-169. Critical analysis of combined PCR diagnostics used in Federal surveys for *Phytophthora ramorum*. K. A. ZELLER (1), E. N. Twieg (1), D. D. Picton (1), R. M. Devries (1), L. Levy (1). (1) USDA-APHIS-PPQ-CPHST-NPGBL, Beltsville, MD

Disease Detection II

1:00 p.m. AO-170. Quantitative multiplex detection of plant pathogens using PRI-lock probes and universal, ultra-high-throughput real-time PCR on OpenArrays™. P. BONANTS (1), M. Szemes (2), R. van Doorn (1), C. Schoen (1). (1) Plant Research International, Wageningen, The Netherlands; (2) Univ Bristol, UK

1:15 p.m. AO-171. Development of a PCR assay for the detection of *Xanthomonas campestris* pv. *musacearum* in bananas. M. L. LEWIS IVEY (3), G. Tusiime (2), M. Mwangi (1), S. A. Miller (3). (1) International Institute of Tropical Agriculture, Kampala, Uganda; (2) Makerere University, Kampala, Uganda; (3) OARDC/The OSU, Wooster, OH,

1:30 p.m. AO-172. An innovative method for detecting slow growing seed-borne fungi of peanut. M. A. ELWAKIL (2), E. M. El-Sherif (1), M. A. El-Metwally (1). (1) Agricuture Research Center, Giza, Cairo; (2) Mansoura University, ELMansoura, Egypt

1:45 p.m. AO-173. Detection and identification of phytobacteria using PCR/Electrospray ionization-mass spectrometry. E. Postnikova (2), C. Baldwin (3), C. A. Whitehouse (3), A. Sechler (2), N. Schaad (2), R. Sampath (1), V. Harpin (1), F. Li (1), R. Melton (1), L. Blin (1), J. Drader (1), S. Hofstadler (1), W. L. SCHNEIDER (2). (1) Ibis Biosciences Inc., Carlsbad, CA; (2) USDA

Foreign Disease Weed Science Research Unit, Fort Detrick, MD; (3) United States Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD

2:00 p.m. AO-174. Disposable electrode system for direct detection of *Ralstonia solanacearum* DNA. D. M. JENKINS (1), S. Fares (1), C. Song (1), A. Alvarez (1), J. Irvine (1). (1) University of Hawaii, Honolulu, HI

2:15 p.m. AO-175. Sample effects on detection of *Candidatus* Liberibacter species in host plants by TaqMan real-time PCR. W. LI (1), E. Twieg (1), L. Levy (1). (1) USDA-APHIS-PPQ-CPHST, National Plant Germplasm and Biotechnology Laboratory, Beltsville, MD

2:30 p.m. SO-176. A molecular assay for reliable quantification of soybean cyst nematode in plants. X. GAO (1), A. Colgrove (1), K. Lambert (1), T. Niblack (1). (1) University of Illinois, Urbana, IL

Disease Management - IPM

*1:00 – 5:00 p.m. * Pacific Salon 2*

Section: Plant Disease Management

Moderators: Russell Ingham, Oregon State University, Corvallis, OR; Antoon Ploeg, Univ. California, Riverside, CA

1:00 p.m. AO-177. Utilization of plant growth promoting and nodule producing bacteria for the management of root rotting fungi and root knot nematode. S. EHTESHAMUL-HAQUE (2), G. Parveen (2), V. Sultana (1), J. Ara (3). (1) University of Karachi, Karachi, Pakistan; (2) Department of Botany, University of Karachi, Karachi, Pakistan; (3) Department of Food Science & Technology, University of Karachi, Karachi, Pakistan

1:15 p.m. AO-178. Modelling for durable resistance of canola to blackleg: Combining management strategies for a collective disease control at a regional scale. E. PELZER (3), J. Aubertot (3), L. Bousset-Vaslin (2), M. Jeuffroy (3), M. Salam (1). (1) Centre for Cropping Systems, Department of Agriculture and Food, Northam, Western Australia, Australia; (2) INRA, UMR INRA, Le Rheu, France; (3) INRA, UMR d'Agronomie INRA/AgroParisTech, Thiverval-Grignon, France

1:30 p.m. AO-179. Components of *Tomato spotted wilt virus* (TSWV) risk index and weather variables associated with spotted wilt severity of peanut. R. O. OLATINWO (1), J. O. Paz (1), G. Hoogenboom (1), R. C. Kemerait (1), J. P. Beasley (1), S. L. Brown (1). (1) University of Georgia, Tifton, GA

1:45 p.m. AO-180. Tillage system effects on sudden death syndrome, *Heterodera glycines*, and soybean yield in a Mollisol. A. SEYB (1), L. Xing (1), T. J. Vyn (1), J. Seo (1), S. Abney (2), A. Westphal (1). (1) Purdue University, West Lafayette, IN; (2) USDA-ARS, Purdue University, West Lafayette, IN

2:00 p.m. AO-181. The effects of plant essential oils and particle films on tomato spotted wilt and thrips in 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; (2) University of Florida, Quincy, FL; (3) Università degli Studi della Basilicata, Potenza, Italy

2:15 p.m. AO-182. Impact of rolling and phosphorous acid on root rot of dry peas in the Pacific Northwest. L. D. PORTER (1), V. A. Coffman (1). (1) USDA-ARS, Prosser, WA

2:30 p.m. SO-183. Using green manure crops to suppress Columbia root-knot nematode (*Meloidogyne chitwoodi*) in potato in the San Luis Valley. R. INGHAM (1), M. Dillon (2), N. David (3), J. Delgado (4). (1) Oregon State University, Corvallis, OR; (2) Colorado State University, Center, CO; (3) Oregon State University, Hermiston, OR; (4) USDA ARS, Fort Collins, CO

2:45 p.m. AO-184. A neural network approach to using synoptic forecasts in a statewide potato late blight expert system. K. M. BAKER (2), P. Wharton (1), W. W. Kirk (1). (1) Michigan State University, East Lansing, MI; (2) Western Michigan University, Kalamazoo, MI

3:00 p.m. Break

3:30 p.m. SO-185. Using biointensive practices to manage two interacting pathogens. A. E. MACGUIDWIN (1), D. L. Knuteson (2). (1) University of Wisconsin-Madison, Madison, WI; (2) University of Wisconsin-Madison, Madison, WI

3:45 p.m. SO-186. Effect of different winter cover crops, used as biofumigants, on *Meloidogyne incognita* population levels and yield and infestation of summer-grown tomato. A. T. PLOEG (1). (1) Univ. California, Riverside, CA

4:00 p.m. SO-187. Control strategies for the root-knot nematode *Meloidogyne hapla* in organic farming. J. HALLMANN (1), F. Rau (2), H. Buck (2), M. Puffert (3). (1) Federal Biological Research Centre for Agriculture and Forestry, Germany; (2) Ökoring Niedersachsen, Bahnhofstr, Visselhövede, Germany; (3) Landwirtschaftskammer Nordrhein-Westfalen, Gartenbauzentrum Münster-Wolbeck, Münster, Germany

4:15 p.m. AO-188. Disease management in The Land greenhouse. Y. HUANG (1), W. Hammer (1), F. Petitt (1). (1) Walt Disney World, Lake Buena Vista, FL

4:30 p.m. SO-189. Cover crops and organic mulches for nematode, weed, and plant health management. K. WANG (1), R. McSorley (1), R. N. Gallaher (2). (1) University of Florida, Gainesville, FL; (2) Agronomy, University of Florida, Gainesville, FL

4:45 p.m. SO-190. What form of oilseed radish (*Raphanus sativus*) is best for managing *Meloidogyne hapla*? H. MELAKEBERHAN (1), S. Mennan (2), M. Ngouajio (3), T. Dudek (4). (1) Agricultural Nematology Laboratory, CANR, Michigan State

University, East Lansing, MI; (2) Ondokuz Mayis University, Samsun, Turkey; (3) Horticulture, MSU, East Lansing, MI

Fungal Genetics I & II

*8:00 a.m. – 2:45 p.m. * Royal Palm 4-6*

Section: Molecular/Cellular Plant–Microbe Interactions

Moderators: 8:00 a.m. Session - Laura Wakefield, Cornell University, Geneva, NY; Maria Ordonez, USDA, St. Paul, MN
1:00 p.m. Session - Baozhu Guo, USDA-ARS Crop Protection and Management Unit, Tifton, GA

Fungal Genetics I

8:00 a.m. AO-191. Differential gene expression pre- and post-sporulation in the grapevine powdery mildew pathogen. L. WAKEFIELD (1), D. Gadoury (1), R. Seem (1), L. Cadle-Davidson (2), M. Cadle-Davidson (2), I. Dry (3). (1) Cornell University, Geneva, NY; (2) USDA Grape Genetics Research Unit, Geneva, NY; (3) University of Adelaide, Urrbrae, Glen Osmond, Australia

8:15 a.m. AO-192. Variability among *A. flavus* isolates in response to borates. D. H. PLATT (1), P. J. Cotty (1). (1) USDA-ARS, University of Arizona, Tucson, AZ

8:30 a.m. AO-193. EDM2, a novel transcriptional regulator mediating disease resistance in *Arabidopsis thaliana*. T. Tsuchiya (1), Y. Wei (1), T. EULGEM (1). (1) University of California, Riverside, CA

8:45 a.m. AO-194. Dynamics of fungicide resistant alleles in field populations of *Mycosphaerella graminicola*. B. A. FRAAIJE (1). (1) Rothamsted Research, Plant Pathogen Interactions Division, Harpenden, Hertfordshire, UK

9:00 a.m. AO-195. Adaptation to fungicides in *Monilinia fructicola* isolates with different fungicide sensitivity phenotypes. C. LUO (1), G. Schnabel (1). (1) Clemson University, Clemson, SC

9:15 a.m. AO-196. Analysis of differentially expressed transcripts of canola (*Brassica napus* L.) in response to infection by the fungal pathogen *Sclerotinia sclerotiorum*. B. YANG (1), S. Srivastava (1), M. Deyholos (1), N. Kav (1). (1) University of Alberta, Edmonton, Alberta, Canada

9:30 a.m. AO-197. Tolerance of *Aspergillus flavus* to copper. G. R. CRISP (1), P. J. Cotty (1). (1) USDA-ARS, Department of Plant Sciences, University of Arizona, Tucson, AZ

10:00 a.m. Break

10:30 a.m. AO-198. Two biotrophic fungi, *Puccinia* and *Meliola* species, and a new coelomyete from the cerrado. R. C. Pereira-Carvalho (1), S. S. Barreto (1), L. P. Santos (1), J. C. DIANESE (1). (1) Universidade de Brasília, Brasília, DF, Brazil

10:45 a.m. AO-199. Characterization of spontaneous mutants of *Aspergillus flavus* exhibiting incomplete differentiation. M. C. MCDONALD (1), P. J. Cotty (1). (1) USDA-ARS, The University of Arizona, Tucson, AZ

11:00 a.m. AO-200. Influence of quinic acid catabolism on the growth and aggressiveness of *Rhizoctonia solani* AG-3. F. E. BARTZ (1), S. M. Tavantzis (2), M. A. Cubeta (1). (1) North Carolina State University, Raleigh, NC; (2) University of Maine, Orono, ME

11:15 a.m. AO-201. Mitochondrial genomics in the *Peronosporales*; implications for phylogenetics and development of molecular markers. F. N. MARTIN (1). (1) USDA-ARS, Salinas, CA

11:30 a.m. AO-202. The role of cell surface organization in the virulence of *Fusarium graminearum*. W. R. RITTENOUR (1), S. Harris (1). (1) University of Nebraska-Lincoln, Lincoln, NE

11:45 a.m. AO-203. Virulence and molecular genetic variation of *Puccinia triticina* in North America. M. E. ORDONEZ (1), J. Kolmer (1). (1) USDA-ARS Cereal Disease Laboratory, St. Paul, MN

Fungal Genetics II

1:00 p.m. AO-204. Genetic diversity and host preference of *Verticillium dahliae* isolates from Iran. Z. BANIHASHEMI (1), I. Hadizadeh (1), M. Roozbeh (1). (1) Shiraz University, Shiraz, Iran

1:15 p.m. AO-205. Expression of defense-related genes in maize developing kernels in late stages. M. Luo (3), J. Liu (1), R. Lee (3), B. GUO (2). (1) The Institute for Genomic Research, Rockville, MD; (2) USDA-ARS Crop Protection and Management Unit, Tifton, GA; (3) University of Georgia, Tifton, GA

1:30 p.m. AO-206. Evolution of RXLR effector proteins in the *Phytophthora infestans* species complex. C. D. GARZON (2), R. Oliva (1), M. D. Coffey (3), S. Kamoun (2). (1) International Potato Center, Quito, Ecudor; (2) Ohio State University, Wooster, OH; (3) University of California, Riverside, CA

1:45 p.m. AO-207. The role of hormones in mediating the barley response to *Fusarium culmorum*. F. M. DOOHAN (1), M. R. Khan (1), J. M. Brennan (1). (1) UCD, Belfield, Dublin, Ireland

2:00 p.m. AO-208. Confirmation of artificial endophyte inoculation in maize (*Zea mays*) and tomato (*Lycopersicon esculentum*) by scanning electron microscopy and PCR amplification of ITS sequences. A. CHAMBERS (1), B. Geary (1), S. Black (2), N. Candelaria (1). (1) Brigham Young University; (2) Utah Valley State College, Orem, UT, Provo UT

2:15 p.m. AO-209. The *Alternaria brassicicola Aso1* gene is required for anastomosis and pathogenicity on cabbage. T. K. MITCHELL (1), K. D. Craven (2), C. Lawrence (3), C. Yangrae (3). (1) North Carolina State University, Raleigh, NC; (2) Samual Roberts Noble Foundation, Ardmore, OK; (3) Virginia Bioinformatics Institute, Blacksburg, VA

2:30 p.m. AO-210. Genome wide transcriptional response of *Magnaporthe grisea* to environmental signals and cyclic AMP during infection structure development. Y. OH (2), N. Donofrio (2), H. Pin (2), S. Coughlan (1), T. Mitchell (2), R. Dean (2). (1) Agilent Technologies, Inc. Wilmington, DE ; (2) Fungal Genomics Lab, North Carolina State University, Raleigh, NC

Host Resistance - Molecular Genetics
*8:00 – 11:45 a.m. * Windsor*
Section: Molecular/Cellular Plant–Microbe Interactions
Moderators: Paola Veronese, North Carolina State University, Raleigh, NC: Martin Van de Mortel, Iowa State University, Ames, IA

8:00 a.m. AO-211. Linkage between a *Xanthomonas campestris* pv. *phaseoli* resistance SCAR marker and flower and seed color in common bean. R. W. DUNCAN (1), M. Lema (2), S. P. Singh (2), R. L. Gilbertson (1). (1) Department of Plant Pathology, University of California, Davis, CA; (2) University of Idaho, Kimberly, ID

8:15 a.m. AO-212. Genetic dissection of resistance and avirulence genes in the model pathosystem, *Magnaporthe oryzae*. L. Wang (1), F. Lin (1), J. Ma (1), S. Feng (1), Q. Yang (1), C. Zhai (1), L. Hua (1), Q. PAN (1). (1) College of Natural Resources & Environment, South China Agricultural University, Guangzhou, China

8:30 a.m. AO-213. Gene expression in a soybean cultivar containing the *Rpp3* gene for resistance to *Phakopsora pachyrhizi*. M. VAN DE MORTEL (1), K. T. Schneider (3), T. Bancroft (2), D. Nettleton (2), R. D. Frederick (3), T. J. Baum (1), S. A. Whitham (1). (1) Iowa State University, Ames, IA; (2) Department of Statistics, Iowa State University, Ames, IA; (3) Foreign Disease-Weed Science Research Unit, USDA-ARS, Fort Detrick, MD

8:45 a.m. AO-214. A GO annotation database for the rice blast fungus *Magnaporthe grisea*. S. MENG (1), D. E. Brown (1), B. Tyler (2), T. K. Mitchell (1), R. A. Dean (1). (1) Center for Integrated Fungal Research, North Carolina State University, NC; (2) Virginia Bioinformatics Institute, Virginia Tech, Blacksburg, VA

9:00 a.m. AO-215. Toward map-based cloning of an avirulence gene from *Pyrenophora teres*. Z. LIU (1), T. L. Friesen (2), J. D. Faris (2), M. C. Edwards (2). (1) North Dakota State University, Fargo, ND; (2) USDA-ARS Cereal Crops Research Unit, Northern Crop Science Laboratory, Fargo ND

9:15 a.m. AO-216. The *Gastrodia* Anti-Fungal Protein confers increased resistance to Phytophthora root rot and the root-knot nematode in a fruit tree species. A. K. NAGEL (1), A. P. Nyczepir (2), R. Scorza (3), C. Petri (3), G. Schnabel (1). (1) Clemson University, Clemson, SC; (2) USDA-ARS Southeast Fruit & Tree Nut Research Laboratory Byron, CA; (3) USDA-ARS Appalachian Fruit Research Station

9:30 a.m. AO-217. Plastidial oleic acid levels modulate defense signaling by altering resistance (R) gene expression. P. KACHROO (1), A. Chandra-Shekara (1), S. C. Venugopal (1), S. R. Barman (1), A. Kachroo (1). (1) University of Kentucky, Lexington, KY

10:00 a.m. Break

10:30 a.m. AO-218. Natural variation of rice blast resistant gene *Pi-ta* in *Oryza* species. X. WANG (2), Y. Jia (1), D. Wu (2), Q. Shu (2). (1) USDA-ARS Dale Bumpers National Rice Research Center, Stuttgart, AZ; (2) Zhejiang University, HuangZhou, P. R. China

10:45 a.m. AO-219. Functional genomics of Arabidopsis responses to *Verticillium* spp. P. VERONESE (1). (1) North Carolina State University, Raleigh, NC

11:00 a.m. AO-220. Molecular dynamics of interactions of rice with rice blast and sheath blight pathogens. Y. JIA(1), M. H. Jia (1), K. Gubrij (1), G. Wang (2). (1) USDA-ARS Dale Bumpers National Rice Research Center, Stuttgart, AR; (2) The Ohio State University, Columbus, OH

11:15 a.m. AO-221. Pyramiding QTL to increase partial resistance to crown rot in wheat. W. D. BOVILL (1), M. Davis (2), G. B. Wildermuth (2), M. W. Sutherland (1). (1) Centre for Systems Biology, University of Southern Queensland, Toowoomba, Australia; (2) Leslie Research Centre, Queensland Department of Primary Industries and Fisheries, Toowoomba, Australia

11:30 a.m. AO-222. Characterization of *Zhong* and *TC14* wheat lines, two sources of tolerance/resistance to *Barley yellow dwarf virus*-PAV (BYDV-PAV). A. Delaunay (1), F. Chain (3), G. Riault (1), M. Trottet (2), E. JACQUOT (1). (1) INRA, Agrocampus, Le Rheu, France; (2) INRA, Agrocampus-Rennes, Le Rheu, France; (3) Université Laval, Québec, Canada

Phyllosphere - Rhizosphere,
*8:00 a.m. – 12:00 p.m. * Pacific Salon 6&7*
Section: Epidemiology / Ecology / Environmental Biology
Moderators: Patricia Timper, USDA ARS, Tifton, GA; Roy Neilson, SCRI, Dundee, UK

8:00 a.m. SO-223. Consequences of *Melaleuca quinquenervia* invasion of the Florida Everglades: "Notes from the underground" with specific reference to nematodes. D. L. PORAZINSKA (1), P. D. Pratt (2), R. M. Giblin-Davis (1). (1) University of Florida, Fort Lauderdale, FL

8:15 a.m. AO-224. Can we relate oscillations in microbial populations and greenhouse gases to soil health? A. M. SEMENOV (2), A. H. Van Bruggen (1), V. M. Semenov (3), A. M. Kuznetsov (3), A. K. Khodjhaeva (3), T. V. Kuznetsova (3), V. V. Zelenev (4), W. J. Blok (1), T. P. Levchuk (2), E.

V. Semenova (2). (1) Biological Farming Systems Group, Wageningen University, Wageningen, The Netherlands; (2) Dept. Microbiol., Moscow State University, Moscow, Russia; (3) Inst. Physico-chem. Biol. Soil Science, RAS, Puschino, Moscow Reg., Russia; (4) Lab. Microorg. Cult., Inst. Vaccines Serums, RAMS, Moscow, Russia

8:30 a.m. SO-225. DNA extraction from soil fauna. S. Donn (1), B. S. Griffiths (1), R. NEILSON (1), T. Daniell (1). (1) SCRI, Dundee, UK

8:45 a.m. AO-226. Biology of Burgundy truffle (*Tuber aestivum*) mycorrhizae establishment. G. PRUETT (1), J. Bruhn (1), J. Mihail (1). (1) University of Missouri, Columbia, MO

9:00 a.m. AO-227. Vertical distribution of *Aphanomyces cochlioides* in infected sugarbeet fields. M. KHAN (2), R. Nelson (1), P. Burlakoti (1). (1) NDSU, Fargo, ND; (2) North Dakota State University and University of Minnesota, Fargo, ND

9:15 a.m. SO-228. Nematode community structure of natural, non-managed and managed ecosystems. G. W. BIRD (1). (1) Michigan State University, East Lansing, MI

10:00 a.m. Break

10:30 a.m. SO-229. Effect of *Meloidogyne incognita* infection on leaching of nitrogen in cotton. P. TIMPER (1), T. C. Strickland (1), R. K. Hubbard (1). (1) USDA ARS, Tifton, GA

10:45 a.m. AO-230. Characterization of a fungal endophyte present in *Elymus canadensis* (Canada wildrye). C. A. YOUNG (1), K. Burr (1), S. Mittal (1), C. Crane (1), A. Hopkins (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK,

11:00 a.m. AO-231. Field and greenhouse trials relating complex soil environments with accelerated germ responses of *Astragalus utahensis* to *Alternaria* and *Aspergillus* fungi. S. D. ELDREDGE (1), B. D. Geary (1), S. Jensen (2). (1) Brigham Young University, Provo, UT; (2) USDA Forest Service RMRS Shrub Sciences Laboratory

11:15 a.m. AO-232. Spatial distribution in potato fields of five pathogens causing potato tuber decay in storage. Z. ATALLAH (2), M. K. Clayton (1), W. R. Stevenson (2). (1) University of Wisconsin, Madison, WI; (2) University of Wisconsin, Madison, WI

11:30 a.m. AO-233. Survival of *Phytophthora capsici* oospores in soil. M. BABADOOST (1), C. Pavon (1). (1) University of Illinois, Urbana, IL

11:45 a.m. SO-234. 454 Pyrosequencing for metagenomic analysis of nematode diversity. D. L. PORAZINSKA (1), R. M. Giblin-Davis (1), T. O. Powers (2), N. Kanzaki (3), W. Ye (4), K. Morris (5), W. K. Thomas (5). (1) University of Florida, Fort Lauderdale, FL; (2) University of Nebraska, Lincoln, NE; (3) FFPRI, Tsukuba, Japan; (4) North Carolina Department of Agriculture and Consumer Services, Raleigh, NC; (5) University of New Hampshire, Durham, NH

Population Biology - Fungi

*1:00 – 2:45 p.m. * Pacific Salon 1*

Section: Epidemiology / Ecology / Environmental Biology

Moderator: Mike Coffey, University of California, Riverside, CA

1:00 p.m. AO-235. Simulation of potato late blight in the Netherlands: Validation of the BLIGHTSPACE model reveals dichotomy in the epidemiological effects of resistance components. P. SKELSEY (1), G. Kessel (1), W. Rossing (1), W. van der Werf (1). (1) Plant Research International – Wageningen University, Wageningen, The Netherlands

1:15 p.m AO-236. *Rhynchosporium secalis* is composed of host-specialized species that originated recently in northern Europe. P. L. ZAFFARANO (2), C. C. Linde (1), P. C. Brunner (2), B. A. McDonald (2). (1) Australia National University, Canberra, Australia; (2) ETH Zurich, Zurich, Switzerland

1:30 p.m AO-237. Characterization and distribution of *Phytophthora nicotianae* races in NC. C. A. GALLUP (1), K. L. Ivors (1), K. R. Cherry (1), M. C. Garrison (1), H. D. Shew (1). (1) North Carolina State University, Raleigh, NC

1:45 p.m AO-238. Quantitative adaptation of wheat leaf rust populations (*Puccinia triticina*) to a host cultivar and correlations between components of aggressiveness. B. PARIAUD (2), C. Robert (1), H. Goyeau (2), C. Lannou (2). (1) INRA Environnement et grande cultures, Thiverval-Grignon, France; (2) INRA Epidémiologie végétale, Thiverval-Grignon, France

2:00 p.m AO-239. Evaluation of infection potential and sporulation of the three clonal lineages of *Phytophthora ramorum* on two *Rhododendron* cultivars. V. T. MCDONALD (2), N. Grunwald (1). (1) Horticultural Crops Research Lab, USDA ARS, Corvallis, OR; (2) Oregon State University, Corvallis, OR

2:15 p.m AO-240. Molecular phylogeny of the Chromistan Biflagellate Phytophthora infestans and four other closely related taxa using a multigene approach. M. D. COFFEY (1), M. Peiman (1). (1) University of California, Riverside, CA

2:30 p.m AO-241. Host range and population biology of *Colletotrichum acutatum* from fruit and ornamental crops. S. J. MACKENZIE (2), L. W. Timmer (1), N. A. Peres (2). (1) University of Florida - CREC, Lake Alfred, FL; (2) University of Florida - GCREC, Wimauma, FL

TUESDAY TECHNICAL SESSIONS

Systematics/Ecology/Environment: Fastidious Procaryotes
*8:00 a.m. – 12:00 p.m. * Royal Palm 1-3*
Section: Biology of Plant Pathogens
Moderators: Rufina Hernandez-Martinez, University of California, Riverside, CA; Leonardo De La Fuente, Cornell University, Geneva, NY

8:00 a.m. AO-242. Virulence and biofilm formation analysis of *pilU* and *pilT* mutants of *Xylella fastidiosa*. R. HERNANDEZ-MARTINEZ (1), C. Dumenyo (2), H. Azad (1), D. Cooksey (1). (1) University of California, Riverside; (2) Tennessee State University, Nashville, TN

8:15 a.m. AO-243. *Xylella fastidiosa* movement and biofilm formation studied in artificial xylem vessels. L. DE LA FUENTE (1), C. D. Galvani (1), L. Cursino (1), T. J. Burr (1), H. C. Hoch (1). (1) Cornell University, Geneva, NY

8:30 a.m. AO-244. Genetic structure of citrus and coffee isolates of *Xylella fastidiosa* from Brazil. R. P. Almeida (1), J. H. Chau (1), F. E. Nascimento (2), J. S. LOPES (3). (1) University of California-Berkeley, Berkeley, CA; (2) ESALQ/University of Sao Paulo, Piracicaba, Brazil; (3) University of Sao Paulo/ESALQ, Piracicaba, Brazil

8:45 a.m. AO-245. Identification of a phytoplasma causing tomato stolbur disease in Turkey. F. SAHIN (3), N. Ozdemir (2), B. Oral (1), H. Saygili (2), Y. Karsavuran (2), O. F. Bayrak (3). (1) Ataturk University, Erzurum, Turkey; (2) Ege University, Izmir, Turkey; (3) Yeditepe University, Istanbul, Turkey

9:00 a.m. AO-246. Novel molecular technique for rapid cloning of unknown sequences from unculturable Huanglongbing (HLB) associated bacterium, *Candidatus* Liberibacter. H. LIN (1), H. Doddapaneni (2), H. Liao (3), X. Bai (3), X. Zhao (4), J. Wang (1), E. L. Civerolo (1). (1) USDA, ARS; (2) University of California, Davis, CA; (3) Guangxi Academy of Agricultural Sciences, Nanning, P. R. China; (4) Guilin Citrus Research Institute, Guilin, P.R. China

9:15 a.m. AO-247. In depth phylogenetic analysis of *Xylella fastidiosa* isolates found in New Mexico chitalpa and grape. J. J. RANDALL (1), J. D. Kemp (1), N. P. Goldberg (1), S. F. Hanson (1). (1) New Mexico State University, Lascruces, NM

9:30 a.m. AO-248. Two whole genome sequences of *Xylella fastidiosa* almond leaf scorch strains. J. CHEN (2), S. Han (1), E. Civerolo (2), D. C. Stenger (2), M. Van Sluys (3). (1) JGI-LANL, Los Alamos, NM; (2) USDA-ARS, Parlier, CA; (3) Univ. de Sao Paulo, Sao Paulo, Brazil

10:00 a.m. Break

10:30 a.m. AO-249. Competitive binding influences *Xylella fastidiosa* vector load: Confocal and SEM images of GFP-expressing *Xf* in glassy-winged sharpshooter foreguts. E. A. BACKUS (1). (1) USDA ARS, Parlier, CA

10:45 a.m. AO-250. Viable-but-non-culturable: Critical conditions determining life and death of *Ralstonia solanacearum* under different types of stress. S. D. Moreira Ascarrunz (1), H. Honjo (1), T. Natsuaki (1), R. FUKUI (1). (1) Utsunomiya University, Utsunomiya, Tochigi, Japan

11:00 a.m. AO-251. Virulence factors identified in the genome of *Erwinia amylovora* using bioinformatic tools. A. BOCSANCZY (1), D. J. Schneider (2), S. W. Cartinhour (2), G. Declerck (2), S. D. Bentley (3), S. V. Beer (1). (1) Cornell University Ithaca, NY; (2) United States Department of Agriculture-Agricultural Research Service, Ithaca, NY; (3) Wellcome Trust Sanger Inst, Wellcome, Cambs, England

11:15 a.m. AO-252. Biofilm formation in *Erwinia amylovora*: Implications in pathogenicity. J. M. KOCZAN (1), M. McGrath (1), Y. Zhao (2), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI; (2) University of Ill. Champaign-Urbana, IL

11:30 a.m. AO-253. A multi-locus sequence typing scheme for the identification of *Xanthomonas campestris* pv. *Campestris*. E. L. SCHUENZEL (1), A. Sechler (1), N. W. Schaad (1). (1) USDA, Ft. Detrick, MD

11:45 a.m. AO-254. Variation in pathogenicity of *Ralstonia solanacearum* strains in relation to their ability to cause disease during periods of cold temperature. D. J. NORMAN (2), J. M. Yuen (2), A. Mangravita-Novo (2), P. Y. Duan (1), D. W. Gabriel (2). (1) USDA; (2) University of Florida, Apopka, FL

Systematics - Viruses
*1:00 – 5:00 p.m. * Pacific Salon 4&5*
Section: Biology of Plant Pathogens
Moderators: William Wintermantle, USDA-ARS, Salinas, CA; H.S. Prakash, University of Mysore, India

1:00 p.m. AO-255. Does acquisition of necrotic ability increase the fitness of *Potato virus Y* isolates? M. ROLLAND (1), M. Tribodet (1), L. Glais (1), C. Kerlan (1), E. Jacquot (1). (1) INRA, Agrocampus Rennes, LeRhev, France

1:15 p.m. AO-256. Effects of host alternations on biological and molecular properties of a *Barley yellow dwarf virus*-PAV (BYDV-PAV) isolate. A. DELAUNAY (2), S. Morliere (2), F. Chain (4), G. Riault (2), S. Sunderwirth (1), M. Trottet (3), E. Jacquot (2). (1) Centre d'Etude Technique pour l'Amélioration des Céréales, Secobra Recherches, France; (2) INRA, Agrocampus Rennes, Le Rheu, France; (3) INRA, Agrocampus-Rennes, Le Rheu, France; (4) Université Laval, Québec, Canada

1:30 p.m. AO-257. Promiscuous recombination of multiple genotypes of *Citrus tristeza virus* generates extensive diversity. Z. Weng (2), R. Barthelson (2), S. Gowda (1), M. E. Hilf (3), W. O. Dawson (1), D. W. Galbraith (2), Z. XIONG (2). (1)

University of Florida, Lake Alfred, FL; (2) University of Arizona, Tucson, AZ; (3) USDA-ARS-USHRL, Fort Pierce, FL

1:45 p.m. AO-258. In search of predictors of plant resistance durability to virus diseases: The *Beet necrotic yellow vein virus* – rhizomania case. R. ACOSTA-LEAL (1), C. M. Rush (1), B. Bryan (1). (1) Texas Agricultural Experiment Station

2:00 p.m. AO-259. Broad detection of *Tombusvirus* by RT-PCR coupled to single strand conformation polymorphism analysis. R. Harris (1), F. M. OCHOA CORONA (1), B. S. Lebas (1), O. E. Timudo (2), F. Stewart (1), B. Alexander (1). (1) Biosecurity New Zealand, MAF, IDC-PHEL, Auckland New Zealand; (2) Hortresearch, Auckland, New Zealand

2:15 p.m. AO-260. Diagnosis and characterization of *Bean common mosaic virus* strain blackeye cowpea mosaic infect ing cowpea. H.S. PRAKASH (1). (1) University of Mysore, Mysore, India

2:30 p.m. AO-261. *Squash vein yellowing virus* and its effects on watermelon. S. ADKINS (3), T. G. Mccollum (3), J. P. Albano (3), C. K. Kousik (2), P. D. Roberts (5), C. A. Baker (1), S. E. Webb (4). (1) FDACS-Divsion of Plant Industry, Gainesville, FL; (2) USDA-ARS, Charleston, SC; (3) USDA-ARS, Fort Pierce, FL; (4) University of Florida, Gainesville, FL; (5) University of Florida, Immokalee, FL

2:45 p.m. AO-262. *Malvastrum leaf curl Guangdong virus* is a distinct monopartite begomovirus. X. ZHOU (1), J. Wu (1). (1) Institute of Biotechnology, Zhejiang University, Hangzhou, China

3:00 p.m. Break

3:30 p.m. AO-263. *Merremia leaf curl virus* (MeLCV) and *Sweet potato leaf curl virus* (SPLCV): The first whitefly-transmitted monopartite geminiviruses discovered in weed species endemic to the New World. J. K. BROWN (1), J. Bird (2), A. M. Idris (1). (1) Univerity of Arizona, Tucson, AZ, ; (2) University of Puerto Rico, Rio Piedras, PR,

3:45 p.m. AO-264. Molecular diversity of grapevine *Rupestris stem pitting-associated virus* in Washington State vineyards. O. J. ALABI (1), M. J. Soule (1), P. S. Rajakaruna (1), R. A. Naidu (1). (1) Washington State University, Prosser, WA

4:00 p.m. AO-265. Co-infection by two criniviruses alters accumulation of each virus in a host-specific manner. W. M. WINTERMANTEL (1), A. A. Cortez (1), A. G. Anchieta (1). (1) USDA-ARS, Salinas, CA

4:15 p.m. AO-266. Viruses in *Phytophthora infestans*, the late blight pathogen. G. CAI (2), K. Myers (2), B. Hillman (1), W. E. Fry (2). (1) Department of Plant Biology and Pathology, Rutgers University, New Brunswick, NJ; (2) Department of Plant Pathology, Cornell University, Ithaca, NY

4:30 p.m. AO-267. 'A distortion-recovery (tolerance) phenotype' caused by the DI strain of Pepper golden mosaic virus in 'Anaheim' pepper appears to be associated with a non-coding sequence 5´ to the BC1 ORF. A. M. IDRIS (1), J. K. Brown (1). (1) Department of Plant Sciences, University of Arizona, Tucson, AZ

4:45 p.m. AO-268. Functional genomics in soybean: Elucidating the molecular components of soybean defense signaling pathways. A. KACHROO (1), D. Fu (1), L. Xi (1), S. Ghabrial (1). (1) University of Kentucky, Lexington, KY

Author Open House

Tuesday 11:30 a.m. to 1:00 p.m.
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Co-author of The Study of Plant Disease Epidemics

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Congratulations to the recipients of the 2007 APS Foundation Student Travel Awards! The APS Foundation is pleased to provide APS Annual Meeting travel awards of $500 to the following 39 individuals. Special thanks to the members of the APS Graduate Student Committee, chaired by **Brooke Edmunds**, for their assistance in reviewing travel award applications.

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Bindhya Chal Yadav, *Indian Institute of Technology*

WEDNESDAY SYMPOSIA

Listed in alphabetic order by title.

Contributions of Plant Virology to Biotechnology
*8:30 a.m. – 12:00 p.m. * California*
Section: Molecular / Cellular Plant–Microbe Interactions
Organizers: Kai-Shu Ling, USDA-ARS, Charleston, SC; Rosemarie Hammond, USDAARS, Beltsville, MD
Moderators: Kai-Shu Ling, USDA-ARS, Charleston, SC; Rosemarie Hammond, USDAARS, Beltsville, MD
Sponsoring Committees: Biotechnology, Virology
Financial Sponsors: Monsanto Company; Samuel Roberts Noble Foundation, USDA-APHIS Virus Working Group

Modern plant virology has made numerous contributions to the development and/or advancement of biotechnology. This special session is organized to showcase recent progress made in some of these technologies. Plant viruses have provided tools for the development of biotechnology, such as promoters, transcriptional and translational enhancers, and source of genes for disease resistance. The current situation in the field application of virus-resistant transgenic plants and their potential impacts to the environment will be discussed. The study of host plant–virus interaction has shed light and clues to plant regulatory pathways for gene expression or in gene silencing. Virus-based vectors are being used to produce products (e.g., vaccines) and for functional genomic studies. Moreover, designer virus particles are being used as materials for bio- and nano-technology. Each of these exciting topics will be thoroughly reviewed and presented by an expert in their respective field.

8:30 a.m. S-187. Utilization of Viral Genes and Regulatory Elements for Plant Biotechnology. JOHN HAMMOND, USDA-ARS-FNPRU, Beltsville, MD
9:00 a.m. S-188. Application of Transgenic Plants for Virus Resistance and Environmental Risk Assessment. DENNIS GONSALVES, USDA-ARS, Hilo, HI
9:30 a.m. S-189. Induction and Suppression of RNA Silencing in Plant–Virus Interactions. VICKI VANCE, University of South Carolina and National Science Foundation, Columbia, SC
10:00 a.m. Break
10:30 a.m. S-190. Plant Viral-Based Vectors for Production of Biomedicals. ALEXANDER KARASEV, University of Idaho, Moscow, ID
11:00 a.m. VS-191. irus-Induced Gene Silencing (VIGS) for Gene Function Studies in Plants. SAVITHRAMMA DINESH-KUMAR, Yale University, New Haven, CT
11:30 a.m. S-192. Designer Virus Particles as Materials for Bio-And Nano-Technology. JOHN JOHNSON, The Scripps Research Institute, La Jolla, CA

Disease Forecasting Models: What Comes Under the Umbrella of Model Validation?
*8:30 – 11:45 a.m. * Golden West*
Section: Plant Disease Management
Organizers: Forrest W. Nutter, Jr., Iowa State University, Ames, IA; Larry Madden, Ohio State University, Wooster, OH
Moderators: Forrest W. Nutter, Jr., Iowa State University, Ames, IA; Larry Madden, Ohio State University, Wooster, OH

For more than a century, disease forecasting models (warning systems) have played an integral role in the management of plant diseases. The term "model validation" has been used in the broadest possible sense to include a number of related, but inherently different concepts. This symposium will provide a forum for the exchange of information concerning model validation concepts, such as the validation of weather inputs, the validation of pathogen-based warning systems, model validation in terms of the impacts of disease risk predictions on economic outcomes, the validation of pathogen detection tools (PCR, ELISA, etc.), and the most appropriate statistical methods to validate disease forecasting models in terms of overall accuracy, false positives, false negatives, model sensitivity, and model specificity.

8:30 a.m. S-193. Model Validation: What is Under the Umbrella of Validation Concepts for Pathogen/ Disease Detection and Forecasting Models? FORREST W. NUTTER, Jr., Iowa State University, Ames, IA
8:45 a.m. S-194. Use of Autonomous Unmanned Aircraft to Validate and Improve Long-Distance Pathogen Transport Models. DAVID G. SCHMALE, Virginia Tech, Blacksburg, VA
9:10 a.m. S-195. Validation of Weather Inputs for Disease Warning Systems. MARK L. GLEASON, Iowa State University, Ames, IA
9:35 a.m. S-196. Bayesian Statistics and Information Theory with Regards to Model Validation. NEIL McROBERTS, Scottish Agricultural College, Edinburgh, U.K
10:00 a.m. Break
10:30 a.m. S-197. Dollars and Cents: Economic Validation for Disease Forecasting Models. PAUL D. ESKER, Iowa State University, Ames, IA
10:55 a.m. S-198. Validating Methods for Regulatory Use: Method Validation and Proficiency Testing at the National Plant Germplasm and Biotechnology Laboratory. PHILIP BERGER, USDA-APHIS-PPQ, Raleigh, NC
11:20 a.m. S-199. National Effort to Validate Risk Assessment Models for Fusarium Head Blight (FHB) of Wheat. ERICK DE WOLF, The Pennsylvania State University, University Park, PA

The Ecological Complexities of Biological Control: Trophic Cascades, Spatial Heterogeneity, and Behavioral Ecology
*8:30 – 11:30 a.m. * Royal Palm 4-6*
Section: Epidemiology / Ecology / Environmental Biology
Organizers: Glen Stevens, University of California, Davis, CA; Robin Stuart, University of Florida, Lake Alfred, FL
Moderator: Glen Stevens, University of California, Davis, CA
Sponsoring Committee: Society of Nematology - Entomophilic nematode subcommittee

Biological control can be considered an intentional induction of a trophic cascade, i.e., the additions of the consumers of herbivores with the goal of improving or protecting agricultural yield. Despite this broad and well-defined goal, individual decisions are still made by the predators and parasites we release, and the effectiveness of biological control techniques may be influenced by these decisions. The goal of this session is to integrate the ecosystem-scale concept of trophic cascades with the expanding literature on the role of fine-spatial-scale infection and foraging decisions.

8:30 a.m. S-200. Spatial Variation in Top-Down Control, Multiple Enemy Interactions, and the Probability for Trophic Cascades. ROBERT F. DENNO, University of Maryland, University Park, MD
9:00 a.m. S-201. Constraining Complexity to Achieve Effective Biological Control of Diaprepes Abbreviatus in Florida Citrus Orchards. LARRY DUNCAN, University of Florida, Lake Alfred, FL
9:15 a.m. S-202. Spatial Ecology of Food Webs with Entomopathogenic Nematodes. DON STRONG, University of California, Davis, CA
9:30 a.m. S-203. Applications of Spatial and Temporal Ecology to Management of Plant Parasitic Nematodes. BECKY WESTERDAHL, Department of Nematology, University of California, CA
9:45 a.m. Discussion
10:00 a.m. Break
10:30 a.m. S-204. From Trophic Cascades to Biological Control: Does it All Come Down to How Individual Parasites Make Infection Decisions? ED LEWIS, University of California, Davis, CA
10:45 a.m. S-205. A Realistic Appraisal of Attractants Involved in Nematode Orientation to Roots. ROLAND PERRY, Rothamstead Research, Harpenden, Hertfordshire, U.K.
11:00 a.m. S-205. Trophic Phylogeography: A Research Program for Examining Ecosystem Assembly and Functioning Within a Historical Coevolutionary Framework. BYRON ADAMS, Brigham Young University, Provo, UT
11:15 a.m. Discussion

Integrating Diverse Disciplines: Assessing Social & Economic Impact of Our Research and Outreach Program
*8:30 a.m. – 12:00 p.m. * Pacific Salon 1*
Section: Professionalism / Service / Outreach
Organizers: Martin Draper, CSREES, Washington, D.C.; Loren Giesler, University of Nebraska, Lincoln, NE
Moderators: Martin Draper, CSREES, Washington, D.C.; Loren Giesler, University of Nebraska, Lincoln, NE
Sponsoring Committee: Extension

8:30 a.m. S-206. Introduction—New Demands for Integration and Impact Assessment. MARTIN DRAPER, USDA-CSREES, Washington, D.C.
8:35 a.m. S-207. Incorporation of Economic Components in Agricultural Research. DAWN THILMONY, USDA-CSREES, Washington, D.C.
9:05 a.m. S-208. Building the Perfect Integrated Proposal. MARK POTH, USDA-CSREES, Washington, D.C.
9:35 a.m. S-209. High Impact Results from Integrated Projects. DEBORAH CUMMINGS, Battelle Memorial Institute, Columbus, OH
10:00 a.m. Break
10:30 a.m. S-210. Identifying Successes in Integrated Projects. SALLY MILLER, The Ohio State University and OARDC, Wooster, OH
11:00 a.m. S-211. Program Evaluation and IPM – Integrating Outcome Level Measures into Your Reporting and Improving Your Reporting Measures. CAROL PILCHER, Iowa State University, Wentzville, MO
11:30 a.m. Discussion

New Approaches to Elucidating the Mechanisms of Seed Invasion and Transmission
*8:00 – 10:30 a.m. * Royal Palm 1-3*
Section: Biology of Plant Pathogens
Organizers: Wayne Wiebe, Syngenta, Nampa, ID; Lindsey du Toit, Washington State University, Mount Vernon, WA
Moderator: Lindsey du Toit, Washington State University, Mount Vernon, WA
Sponsoring Committee: Seed Pathology

This will be a follow-up to the 2006 Seed Pathology Committee's biology and epidemiology of seed transmission symposium. Topics include the following. (i) Green fluorescent protein (GFP)-marked, motility negative bacterial fruit blotch (Acidovorax) mutants were used to determine the mechanisms of seed infection via watermelon blossoms. Factors influencing movement of these bacteria within the flowers have been elucidated and will be discussed.

(ii) PCR was used for detection and quantification, and GFP tagged strains were used to track populations of bacterial spot on seed and young plants of tomato and pepper. (iii) GFP-marked strains were used to investigate the transmission of Fusarium verticillioides and F. subglutinans from seed to plants and plants to seeds. Results of the studies will be discussed in relation to other published research involving GFP-marked Fusarium strains. (iv) In situ hybridization and

electron microscopy were used to identify the symplastic routes of transmission of Pea early browning virus and Pea seed-borne mosaic virus. The studies included an analysis of the mechanisms of infection of the embryo by the viruses, and the tissues involved. A discussion session will follow the presentations.

8:00 a.m. S-212. Elucidating Mechanisms of Watermelon Seed Infection by *Acidovorax Avenae* Subsp. *Citrulli*. RONALD WALCOTT, University of Georgia, Athens, GA
8:30 a.m. S-213. Detection, Quantification, and Visualization of the Bacterial Spot Pathogen on Seeds and Transplant Seedlings. DIANE CUPPELS, Agriculture and Agri-Food Canada, London, Ontario, Canada
9:00 a.m. S-214. Investigating Seed-to-Seed Transmission of Fusarium Species in Maize Using Fluorescent Protein Markers. GARY MUNKVOLD, Iowa State University, Ames, IA
9:30 a.m. S-215. Symplastic Pathways to Virus Seed Transmission. ANDY MAULE, John Innes Centre, Colney Lane, Norwich, U.K.
10:00 a.m. Discussion

Oomycete Genomes Come of Age
*8:30 a.m. – 12:00 p.m. * San Diego*
Section: Molecular / Cellular Plant–Microbe Interactions
Organizer: Niklaus Grunwald, USDA-ARS, Corvallis, OR
Moderator: Niklaus Grunwald, USDA-ARS, Corvallis, OR
Sponsoring Committee: Genetics

Oomycete protists are among the most notorious plant pathogens affecting agricultural crops and natural ecosystems. Five species, namely *Hyaloperonospora parasitica, Phytophthora capsici, P. infestans, P. ramorum*, and *P. sojae*, have or are undergoing genome sequencing and annotation. Novel opportunities and challenges for comparative, functional and population genomics and genetics are emerging. Already it is evident that the effector secretome of plant-pathogenic oomycetes is much more complex than expected, with perhaps several hundred proteins dedicated to reprogramming host cells. Comprehensive knowledge of the structure and function of pathogen genes and the perturbations they cause in plants is a precondition for understanding the molecular basis of pathogenesis and disease. As molecular analyses become more detailed, novel strategies for manipulating plants toward resistance to oomycete pathogens will become apparent. This symposium will present recent novel insights into the evolution, genetics, and genomics of oomycete plant pathogens based on the recent availability of whole genome sequences.

8:30 a.m. S-216. Genome Dynamics in the Pathogen/Host Arms Race: Initial Analysis of the *Phytophthora Infestans* Genome. CHAD NUSSBAUM, Broad Institute, Cambridge, MA
9:00 a.m. S-217. Genome Sequence of the Vegetable Pathogen *Phytophthora Capsici* Produced with Traditional and Next Generation Technology. KURT LAMOUR, University of Tennessee, Knoxville, TN
9:30 a.m. S-218. Transcriptional Networks Involved in the Development of *Phytophthora Infestans* Spores. H. S. JUDELSON, University of California, Riverside, CA
10:00 a.m. Break
10:30 a.m. S-219. The Pathogenicity Effectors of *Hyaloperonospora parasitica.* JIM BEYNON, Warwick University, Wellesbourne, Warwick, U.K.
11:00 a.m. S-220. Groovy Times: Structure, Evolution, and Function of Oomycete Effectors. JORUNN BOS, Ohio State University, Wooster, OH
11:30 a.m. S-221. Effector Repertoire of *Phytophthora Sojae:* Structural and Functional Genomics. BRETT TYLER, Virginia Bioinformatics Institute, Blacksburg, VA

Stem Rust: A Threat to Global Wheat Production
*8:30 – 11:30 a.m. * Garden Salon 2*
Section: Diseases of Plants
Organizer: David Marshall, USDA-ARS, Raleigh, NC
Moderator: David Marshall, USDA-ARS, Raleigh, NC
Financial Sponsor: USDA-ARS

A new, virulent race of wheat stem rust, Ug99, has evolved in Eastern Africa. Efforts being taken by the USDA-ARS and the International community to combat this very real threat will be discussed. This is an extremely important topic to the National and International agricultural community. It has relatedness to disease epidemiology, disease resistance, pathogen evolution, genetics of resistance, and national and international collaborative research.

8:30 a.m. S-222. The Global Threat Posed by Ug99. RICK WARD, CIMMYT, Mexico City, Mexico
9:00 a.m. S-223. Progress in the Identification and Utilization of Adult-Plant Resistance in CIMMYT Spring Wheats. RAVI SINGH, CIMMYT, Mexico City, Mexico
9:30 a.m. S-224. New Virulence Within Race TTKS (Ug99) of the Stem Rust Pathogen and Effective Resistance Genes. YUE JIN, USDA-ARS, St. Paul, MN
10:00 a.m. Break
10:30 a.m. S-225. Evolution and Adaptation Within Puccinia Graminis. LES SZABO, USDA-ARS, St. Paul, MN
11:00 a.m. Discussion

WEDNESDAY TECHNICAL SESSIONS

Listed in alphabetic order by title.

Disease Control - Chemical
*8:00 – 9:45 a.m. * Pacific Salon 3*
Section: Plant Disease Management
Moderators: John Damicone, Oklahoma State University, Stillwater, OK; David Gent, USDA ARS, Corvallis, OR

8:00 a.m. SO-269. Accuracy of three new agar-based assays to assess fungicide sensitivity in *Monilinia fructicola*. A. AMIRI (1), H. Scherm (2), P. M. Brannen (2), G. Schnabel (1). (1) Clemson University, Clemson, SC ;(2) University of Georgia, Athens, GA

8:15 a.m. AO-270. A rapid method for identifying fungicide resistance. R. DEFORD (1), K. Cox (2), J. Beckerman (1). (1) Purdue University, West Lafayette, IN; (2) New York State Agricultural Experiment Station, Geneva, NY

8:30 a.m. AO-271. Responses of entries from the peanut core collection to fungicide for control of Sclerotinia blight. J. P. DAMICONE (1), C. C. Holbrook (2). (1) Oklahoma State University, Stillwater, OK; (2) USDA/ARS, Tifton, GA

8:45 a.m. AO-272. Temporal changes in the efficacy of fungicides used to manage powdery mildew on cantaloupe in Arizona. M. E. MATHERON (1), M. Porchas (1). (1) University of Arizona, Yuma, AZ

9:00 a.m. AO-273. Molecular mechanisms correlated with reduced azole sensitivity in *Mycosphaerella graminicola*. H. J. COOLS (1). (1) Rothamsted Research, Harpenden, Hertfordshire, United Kingdom

9:15 a.m. AO-274. Non-persistent captan- and fenhexamid-resistance in *Botrytis cinerea* populations in California strawberries. H. FORSTER (1), H. Su (1), M. Vilchez (2), W. Gubler (1), J. E. Adaskaveg (2). (1) University of California, Davis, CA; (2) Department of Plant Pathology, University of California, Riverside, CA

9:30 a.m. AO-275. Streptomycin controls citrus canker in Brazil and Florida and reduces risk of copper phytotoxicity on grapefruit. J. H. GRAHAM (1), R. P. Leite (2), H. D. Yonce (3). (1) University of Florida, Lake Alfred, FL; (2) Instituto Agronômico do Paraná, Londrina, Paraná, Brazil; (3) KAC Agricultural Research, Inc. Deland, FL

Disease Management - Biocontrol
*8:00 – 9:45 a.m. * Pacific Salon 4&5*
Section: Plant Disease Management
Moderators: Yasser Shabana, Plant Pathology Dept., University of Florida, Gainesville, FL; Gregory Noel, USDA, ARS, Urbana, IL

8:00 a.m. SO-276. Impact of certain oil-seed cakes and powder in comparison with oxamyl and urea on *Meloidogyne incognita* infecting eggplant. A. M. EL-SHERIF (1), A. R. Refaei (1), M. E. El-Nagar (2), H. M. Salem (2). (1) Nematology Research Unit, Zoology Department, Mansoura University, EL-Mansoura, Dakhlia, Egypt; (2) Plant Protection Institute, Agricultural Research Center, Giza, Egypt

8:15 a.m. AO-277. Soil fumigation with perlite colonized by the volatile-producing fungus *Muscodor albus*. J. MERCIER (1), S. F. Lego (1), J. I. Jiménez (1), J. Baird (1). (1) AgraQuest Inc., Davis, CA

8:30 a.m. SO-278. The inhibitory effects of *Streptomyces* spp. to plant pathogenic fungi. Y. CHEN (1), P. J. Chen (1), T. Tsay (1). (1) National Chung Hsing University, Taichung, China

8:45 a.m. SO-279. Effect of different green manure crops on the population density of *Meloidogyne chitwoodi* and *Heterodera schachtii*. S. L. Hafez (1), S. PALANISAMY (1). (1) University of Idaho, Parma, ID

9:00 a.m. AO-280. Mass production and application of *Dactylaria higginsii*, a bioherbicide for purple and yellow nutsedges, in solid substrate of plant material. Y. M. SHABANA (2), R. Charudattan (2), W. Klassen (3), E. N. Rosskopf (4), J. P. Morales-Payan (1). (1) University of Puerto Rico, Mayaguez, Puerto Rico; (2) University of Florida, Gainesville, FL; (3) Tropical REC, Homestead, FL; (4) USDA, ARS, USHRL, Ft. Pierce, FL

9:15 a.m. AO-281. Interaction between live, autoclaved, and propylene oxide-treated sclerotia of *Sclerotinia sclerotiorum* and *Coniothyrium minitans*. P. CHITRAMPALAM (1), B. M. Pryor (1). (1) University of Arizona, Tucson, AZ

9:30 a.m. SO-282. Soybean cyst nematode populations suppressed by *Pasteuria nishizawae*. G. R. NOEL (1), S. Bauer (2), N. Atibalentja (2). (1) USDA, ARS, Urbana, IL; (2) Univ. of Illinois, Urbana, IL

Diseases of Fruit & Nut Crops
*8:00 a.m. – 12:00 p.m. * Pacific Salon 6&7*
Section: Disease of Plants
Moderators: Pete Timmer, University of Florida, IFAS, CREC, Lake Alfred, FL; Lusike Wasilwa, Kenya Agricultural Research Institute, Nairobi, Kenya

8:00 a.m. AO-283. Colonization of strawberry flower parts by *Colletotrichum acutatum*. O. PÉREZ-HERNÁNDEZ (1), M. H. Nam (2), M. L. Gleason (1). (1) Iowa State University, Ames, IA; (2) Nonsan Strawberry Experiment Station, Chungnam ARES, Nonsan, Korea

8:15 a.m. AO-284. Infection courts and timing of infection of apple fruit by *Sphaeropsis pyriputrescens* in the orchard in relation to Sphaeropsis rot in storage. Y. K. KIM (1), C. L. Xiao (1). (1) Washington State University, Wenatchee, WA

8:30 a.m. AO-285. Incidence of diseases in wild stands of cranberries in Massachusetts. F. L. CARUSO (1). (1) University of Massachusetts, Cranberry Station, East Wareham, MA

8:45 a.m. AO-286. Characterization of two new and emerging bacterial diseases of citrus in Florida. Y. DUAN (2), X. Sun (1), D. W. Gabriel (3), T. R. Gottwald (2). (1) FDACS-DPI, Gainesville, FL; (2) USDA, ARS, USHRL, Fort Pierce, FL; (3) University of Florida, Gainesville, FL

9:00 a.m. AO-287. Status of citrus diseases in Kenya. L. A. WASILWA (1), V. Kega (1), J. Buigut (1), H. Muli (1), S. Njihia (1). (1) Kenya Agricultural Research Institute, Horticulture and Industrial Crops, Nairobi, Kenya

9:15 a.m. AO-288. Demystifying Botryosphaeria canker, an important and destructive disease of grapevines in California. J. ÚRBEZ-TORRES (1), W. Gubler (1). (1) University of California, Davis, CA

9:30 a.m. AO-289. Determining the pathogenicity of rhizoctonia, pythium, and cylindrocarpon on raspberry roots. A. M. SCHILDER (1), J. M. Gillett (1), B. W. Glass (1). (1) Michigan State University, East Lansing, MI

9:45 a.m. AO-290. Isolates of *Alternaria alternata* doubly pathogenic to rough lemon and tangerines. S. N. Mondal (1), J. E. Stewart (2), T. L. Peever (2), L. W. TIMMER (1). (1) University of Florida, Lake Alfred, FL; (2) Washington State University, Pullman, WA

10:00 a.m. Break

10:30 a.m. AO-291. Population structure of the North American cranberry fruit rot complex. J. J. POLASHOCK (2), F. L. Caruso (3), P. V. Oudemans (1), P. S. McManus (4). (1) Rutgers University, P.E. Marucci Center, Chatsworth, NJ; (2) USDA-ARS Fruit Lab, Chatsworth, NJ, ; (3) Univ. of Massachusetts, East Wareham, MA; (4) Univ. of Wisconsin, Madison, WI

10:45 a.m. AO-292. Biology and ecology of diatrypaceous fungi associated with grapevine decline in California. F. P. TROUILLAS (1), W. D. Gubler (1). (1) University of California, Davis, CA

11:00 a.m. AO-293. Fungal diseases of grapevine common on apples? L. L. GALLEGOS (3), S. Rooney-Latham (1), A. Eskalen (3), R. Elkins (2), W. Gubler (3). (1) California Department of Food and Agriculture, Sacramento, CA; (2)University of California (3) University of California, Davis, CA

11:15 a.m. AO-294. *Spiroplasma citri* infection affects yield and fruit quality in commercial citrus grove in California. A. MELLO (1), J. Fletcher (1), R. K. Yokomi (2). (1) Oklahoma State University, Stillwater, OK; (2) USDA-ARS, Parlier, CA

11:30 a.m. AO-295. Production of internal yellowing symptoms on resistant and susceptible papaya cultivars by *Enterobacter cloacae* at varying inoculum concentrations. K. A. NISHIJIMA (1), R. C. Keith (2), M. M. Fitch (3), M. M. Wall (1), L. S. Sugiyama (1), W. T. Nishijima (4). (1) USDA-ARS-PBARC, Hilo, HI, ; (2) University of Hawaii - Manoa, CTAHR, Hilo, HI (3) USDA-ARS-PBARC, Honolulu, HI, ; (4) University of Hawaii - Manoa, CTAHR, Honolulu, HI,

11:45 a.m. AO-296. Characterization of an isolate of *Apple stem grooving virus* from pear (*Pyrus pyrifolia* var. *Hengshen*) in Taiwan. Z. WU (1), F. Jan (1). (1) Department of Plant Pathology, National Chung Hsing University, Taichung, Taiwan

Forest Pathology

*8:00 – 9:30 am * Pacific Salon 2*

Section: Disease of Plants

Moderators: Mirella Aoun, Laval University, Québec, Canada; Robert James, USDA Forest Service, Coeur D'Alene, ID

8:00 a.m. AO-297. Tissue repair in fusiform rust-infected loblolly and slash pines. C. H. WALKINSHAW (1). (1) USDA Forest Service

8:15 a.m. AO-298. Association of Fusarium with wilt and dieback of *Acacia koa* in Hawaii. R. L. JAMES (2), N. S. Dudley (1), A. Yeh (1). (1) Hawaii Agriculture Research Center; (2) USDA Forest Service, Logan, UT

8:30 a.m. AO-299 Landscape scale variation in *Diplodia* spp. conidia from cones and asymptomatic persistence of Diplodia shoot blight fungi on red pine. I. MUNCK (2), T. Sickley (1), D. Smith (2), G. R. Stanosz (2). (1) Department of Forest Ecology and Management, UW-Madison, WI; (2) Department of Plant Pathology, UW-Madison, WI

8:45 a.m. AO-300. Distribution and risk factors of decay fungi on cherry street trees along Nikko Avenue, Central Japan. J. SHIMIZU (2), Y. Hayashi (1), H. Fukuda (3), F. Kenji (2). (1) Forest Development Technological Institute (retired), Iidabashi, Chiyoda-ku, Tokyo, Japan; (2) Institute of Natural Environmental Studies, the University of Tokyo, Kashiwa-shi, Chiba, Japan; (3) Utsunomiya Kita High School, Utsunomiya-shi, Tochigi, Japan

9:00 a.m. SO-301. Pine wilt disease: The first recognized case of a plant disease induced by a mutualistic nematode-bacterial symbiosis. B. ZHAO (1), X. Liu (1). (1) Nanjing Forestry University, Nanjing, P. R. China

9:15 a.m. AO-302. Identification of genes involved in Dutch elm disease in an *in vitro* system. M. AOUN (1), V. Jacobi (1), D. Rioux (2), L. Bernier (1). (1) Center for Forest Research, Laval University, Québec, Canada; (2) Laurentian Forestry Center, Canadian Forest Service, Québec, Canada

Molecular Biology - Nematodes

*10:30 a.m. – 12:00 p.m. * Pacific Salon 2*

Section: Molecular/Cellular Plant–Microbe Interactions

Moderators: Xiaohong Wang, USDA-ARS, Cornell University, Ithaca, NY; Laura Hudson, Department of Plant Pathology, North Carolina State University, Raleigh NC

10:30 a.m. SO-303. Molecular and functional characterization of parasitism genes of the potato cyst nematode *Globodera rostochiensis*. S. Lu (1), H. Yu

(1), S. Chen (1) H. B. Borchardt-Wier (2), X. WANG (2), (1) Cornell University, Ithaca, NY,; (2) USDA-ARS, Cornell University, Ithaca, NY

10:45 a.m. SO-304. Risk assessment of cyst nematode evolution through genotype flow and parasitism gene evolution. A. Blanchard (1), O. Plantard (1), E. GRENIER (1). (1)Institut National de la Recherche Agronomique, Le Rheu, France

11:00 a.m. AO-305. Analysis of cell wall synthesis in feeding cells formed by root-knot nematodes. L. HUDSON (2), C. Haigler (1), E. Davis (2). (1) Crop Science and Plant Biology, North Carolina State University, Raleigh NC; (2) North Carolina State University, Raleigh NC

11:15 a.m. SO-306. Polymorphism of the *Hsp*90 Gene among populations of *Heterodera glycines* from China, Japan, and the United States. N. ATIBALENTJA (1), G. R. Noel (2). (1)Univ. of Illinois, Urbana, IL; (2) USDA, ARS, Urbana, IL

11:30 a.m. SO-307. A global view of transcriptome and proteome in compatible Arabidopsis-root knot nematode interaction. X. LI (1), Z. Shen (1), R. V. Aroian (1), S. P. Briggs (1). (1) University of California at San Diego, CA

11:45 a.m. SO-308. Construction and preliminary analysis of a specific cDNA library of anterior end of stem nematode (Ditylenchus destructor). Y. Zhou (1), H. JIAN (1). (1) China Agricultural University, Beijing, China

2007 APS-SON POSTERS

Biology of Plant Pathogens

Bacteria / Molecular Genetics

AP-309. Differential expression of genes for extracellular polysacchrides (EPS) and extracellular enzymes in the Rpf mutants of *Xanthomonas oryzae* pv. *oryzae* KACC10859. K. JEONG (1), S. Lee (1), S. Yang (1), B. Lee (2), J. Cha (1). (1) Dept. of Plant Medicine, Chungbuk National University, Cheongju, Chungbuk. Republic of Korea; (2) National Institute of Agricultural Biotechnology, RDA, Suwon. Republic of Korea

AP-310. Characterization of three transporters for the uptake of choline in *Pseudomonas syringae* pv. *tomato* DC3000. C. A. Chen (1), G. A. BEATTIE (1). (1) Dept. of Plant Pathology, Iowa State University, Ames, IA

AP-311. 16S rDNA phylogenetic analysis of isolates of *Rhodococcus fascians*. J. KRAUS (1), E. Sandberg (2), M. L. Miller (1), Q. Huang (3), M. L. Putnam (1). (1) Dept. of Botany and Plant Pathology, Oregon State University, Corvallis, OR; (2) Dept. of Microbiology, Oregon State University, Corvallis, OR; (3) USDA/ARS Floral and Nursery Plants Research Unit, US National Arboretum, Beltsville, MD

AP-312. Investigation of inoculum sources for *Pseudomonas syringae* pv. *Alisalensis*. R. RENTERIA (1), P. H. Goldman (2), C. T. Bull (2). (1) Hartnell Community College, Salinas, CA; (2) USDA/ARS, Salinas, CA

AP-313. *Pantoea agglomerans* causing wilt and leaf spots in *Zea mays* in the Central Highland Valley of Mexico. H. V. SILVA-ROJAS (1), A. Farfán-Gómez (3), B. Alarcón-Zúñiga (2), D. L. Ochoa-Martínez (1), L. X. Zelaya-Molina (2). (1) Colegio de Postgraduados, Campus Montecillo, Texcoco, Edo. de México, México; (2) Universidad Autónoma Chapingo, Texcoco, Edo. de México, México, (3) Universidad Autónoma Metropolitana-Xochimilco, México

AP-314. Molecular diversity and phylogenetic analysis of *Burkholderia* spp. from soils in diverse farming systems in North Carolina. B. LIU (1). (1) PLPA, NCSU, Raleigh, NC

AP-315. Phenotypic subtyping and colonization studies of the maize endophyte *Bacillus mojavensis*. B. OLUBAJO (1), D. M. Hinton (1), C. W. Bacon (1). (1) USDA, ARS, Russell Research Center, Athens, GA

AP-316. Assessing the genetic diversity of *Agrobacterium tumefaciens* in walnut growing regions of California. D. A. KLUEPFEL (1), M. M. Maccree (1), M. Zaid (1), E. T. Gonzalez (1). (1) USDA, Agricultural Research Service, Davis, CA

AP-317. *Ralstonia solanacearum* race 3 biovar 2 strains are not uniquely cold tolerant *in vitro*. T. P. DENNY (1), A. S. Milling (2), V. G. Bhakta (1), C. Allen (2). (1) University of Georgia, Athens, GA, USA; (2) University of Wisconsin, Madison, WI

Fastidious Procaryotes

AP-318. *In vitro* attachment of *Xylella fastidiosa* to polysaccharides. N. KILLINY (1), R. Almeida (1). (1) Dept. of Environmental Science, Policy and Management, University of California, Berkeley, CA

AP-319. *Xylella fastidiosa* hemagglutinins: Identification of cell-cell binding domains and evaluation of their potential for producing *X. fastidiosa* resistant transgenic plants. 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-320. Utilization of genomic variations among *Xylella fastidiosa* strains for improved diagnostic design. H. LIN (2), H. Doddapaneni (2), J. Yao (1), E. L. Civerolo (2). (1) UC Davis, Davis CA; (2) USDA, ARS, Davis, CA

AP-321. Two *rrn* DNAs from periwinkle infected by *Candidatus* Liberibacter asiaticus. X. Deng (1), J. CHEN (2), H. Li (1), E. Civerolo (2). (1) South China Agr. University, Guangzhou, China; (2) USDA-ARS, Parlier, CA

AP-322. Genotypic and phenotypic characterization of *Xylella fastidosa* strains isolated from California, Georgia and Florida. S. LIVINGSTON (3), J. Chen (2), C. Chang (5), D. Hopkins (4), M. Hotchkiss (1), C. Reilly (1), E. Civerolo (2). (1) USDA-ARS, Byron, GA; (2) USDA-ARS, Parlier, CA; (3) University of California, Davis, CA; (4) University of Florida, Apopka, FL; (5) University of Georgia, Griffin, GA

AP-323. Genetic diversity of *Spiroplasma citri* isolates from different geographical regions, plant hosts, and dates of isolation. A. MELLO (1), R. K. Yokomi (2), U. Melcher (1), J. Chen (2), J. Fletcher (1). (1) Oklahoma State University, Stillwater, OK; (2) USDA-ARS, Parlier, CA

AP-324. Phylogenetically diverse phytoplasmas are characterized by genes clustered in repeated sequence variable mosaics, facilitating genome plasticity. R. JOMANTIENE (1), Y. Zhao (2), R. E. Davis (2). (1) Institute of Botany, Vilnius, Lithuania, (2) USDA-ARS, Beltsville, MD

AP-325. *In planta* functional assay identifies phytoplasma genes involved in disease symptom expression. W. WEI (1), X. Shi (1), R. W. Hammond (1), R. E. Davis (1), C. Chang (2), Y. Zhao (1). (1) MPPL-ARS-USDA, Beltsville, MD; (2) Univ. of Georgia, Griffin, GA

AP-326. Flash & Dash Comparative genomics and phylogenetic analyses of newly cloned genomic regions from the Citrus Huanglongbing (HLB)-associated bacterium *Candidatus* Liberibacter. H. DODDAPANENI (1), H. Lin (2), X. Bai (3), X. Zhao (4), E. L. Civerolo (2). (1) USDA-ARS, Parlier, UC Davis, Viticulture and Enology; (2) USDA-ARS. San Joaquin Valley Agricultural Science Center, Parlier,

CA, USA; (3) Guangxi Academy of Agricultural Sciences, P.R. China; (4) Guilin Citrus Research Institute, Guilin, P.R. China

AP-327. Duoplex real-time polymerase chain reaction protocol for the detection of *Candidatus* Liberibacter asiaticus and *Can.* L. americanus in citrus. E. L. SCHUENZEL (3), A. Sechler (3), Z. Wang (2), H. Hu (2), H. Coletta-Filho (1), N. W. Schaad (3). (1) Centro de Citricultura, Instituto Agronômico de Campinas, Brazil; (2) Chongqing University, Chongqing, China; (3) USDA, Ft. Detrick, MD

Fungal Genetics / Systematics / Population Biology

AP-328. Proteomic studies with *Rhizoctonia solani*, comparison of protein extraction methods for two-dimensional gel analysis. D. LAKSHMAN (3), S. Natarajan (2), A. Dhar (1). (1) Advanced Bionutrition Corp., Columbia, MD; (2) USDA-ARS Soybean Genomics and Improvement Laboratory, Beltsville, MD; (3) USDA-ARS, Floral and Nursery Plants Research Unit, Beltsville, MD

AP-329. Identification of two tagged-insertional mutants of *Fusarium graminearum* impaired in asexual reproduction. A. D. ZEARFOSS (1), L. A. Parrott (1), A. G. Kelly (1), J. Xu (2), L. D. Dunkle (3), J. E. Flaherty (1). (1) Coker College, Hartsville, SC, USA; (2) Purdue University, West Lafayette, IN; (3) USDA-ARS, Purdue University, West Lafayette, IN

AP-330. Mating behavior of *Colletotrichum gloeosporioides* isolates from citrus. S. N. Mondal (1), R. N. Reis (1), S. J. MacKenzie (2), L. W. TIMMER (1). (1) UF/IFAS Citrus Research and Education Center, Lake Alfred, FL; (2) UF/IFAS Gulf Coast Research and Education Center, Wimauma, FL

AP-331. Molecular characterization of Korean isolates of *Colletotrichum* spp. from fruits of hot pepper and fruit trees. S. HONG (1), W. Kim (1), H. Choi (1), S. Lee (1). (1) Plant Pathology Division, National Institute of Agricultural Science and Technology, RDA, Suwon, Korea

AP-332. DNA barcoding of ocmycetes with the 5´ end of Cytochrome Oxidase I (COI) gene. G. P. ROBIDEAU (2), C. Lévesque (1). (1) Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada; (2) Carleton University, Ottawa, Ontario, Canada

AP-333. Characterization of *Fusarium oxysporum* isolates causing rapid wilt of birdsfoot trefoil by vegetative compatibility and by sequence analysis at three loci. M. J. WUNSCH (1), A. H. Baker (1), G. C. Bergstrom (1). (1) Dept. of Plant Pathology, Cornell University, Ithaca, NY

AP-334. Molecular characterization of *Fusarium oxysporum* isolates from koa (*Acacia koa*) in Hawaii. B. YANG (2), R. L. James (1), J. Y. Uchida (2), S. Zhong (2). (1) Forest Health Protection, USDA Forest Service, Coeur d'Alene, ID; (2) University of Hawaii at Manoa, Honolulu, HI

AP-335. Multiple gene genealogies and pathogenicity of four *Fusarium* spp. in the *F. solani* complex associated with soybean sudden death syndrome. S. L. GIAMMARIA (1), Z. K. Atallah (2), W. R. Stevenson (2), J. C. Rupe (1). (1) Dept. of Plant Pathology, University of Arkansas, Fayetteville, AR; (2) Dept. of Plant Pathology, University of Wisconsin, Madison, WI

AP-336. Growth, conidial germination and fumonisin production of *Fusarium verticillioides* on cottonseed agar, cotton flower agar and potato dextrose agar. B. LEITE (1), D. Mailhot (1), J. Marois (1), D. Wright (1). (1) University of Florida, Quincy, FL

AP-337. Isolation and characterization of *Rhizoctonia solani* and related fungi causing diseases on vegetables in New York State. M. OHKURA (1), G. S. Abawi (1). (1) Dept. of Plant Pathology, NYSAES, Cornell University, Geneva, NY

AP-338. *Phytophthora inundata* isolated from diseased alfalfa roots in Southern California. H. H. HO (2), C. X. Hong (1), D. C. Erwin (3). (1) Hampton Roads Agricultural Research and Extension Center, Virginia Tech, Virginia Beach, VA; (2) State University of New York, New Paltz, NY; (3) University of California, Riverside, CA

AP-339. The occurrence of at least two haplotypes of *Phytophthora capsici* in Florida. R. D. FRENCH-MONAR (1), J. B. Jones (2), P. D. Roberts (3). (1) Texas A&M University, Amarillo, TX; (2) University of Florida, Gainesville, FL; (3) University of Florida, Immokalee, FL

AP-340. Flash & Dash Assessment of direct colony PCR and SSCP to determine the distribution of pathogenic *Pythium* spp. in Ohio. K. D. BRODERS (1), P. A. Paul (1), A. E. Dorrance (1). (1) The Ohio State University, OARDC, Wooster, OH

AP-341. Effects of ferulic acid on *Aspergillus* species. R. Ruiz (1), H. LORIA (1), A. L. Davelos Baines (1), C. R. Little (1). (1) The University of Texas - Pan American, Edinburg, TX

AP-342. Phylogenetic placement of Erysiphales (powdery mildew fungi) in Ascomycota based on five gene sequences. Y. Liu (1), D. A. GLAWE (2), B. D. Hall (1). (1) University of Washington, Seattle, WA; (2) Washington State Univ./Univ. of Washington, Seattle, WA

AP-343. Ecological speciation within the *Claviceps purpurea* complex. G. W. DOUHAN (2), M. Smith (1), K. Huryn (2), A. Westbrook (1). (1) University of California, Davis, CA; (2) University of California, Riverside, CA

AP-344. Population structure of *Gibberella zeae* from smallholder farms in Nepal. A. M. JAROSZ (1), A. E. Desjardins (2), H. E. Hallen (1). (1) Michigan State University, Dept. of Plant Biology, East Lansing, MI; (2) National Center for Agricultural Utilization Research, U.S. Department of Agriculture, Peoria, IL

AP-345. Salinity – Pathogen Interactions in damping-off development in greenhouse cucumber in Oman. M. L. DEADMAN (2), N. Al Habsi (1), S. Al Jabri (2), Y. M. Al Maqbali (2), A. M. Al Sa'di (2). (1) Ministry of Agriculture and Fisheries, Sultanate of Oman; (2) Sultan Qaboos University, Sultanate of Oman

AP-346. Population structure of *Potebniamyces pyri* in the U.S. Pacific Northwest and evidence of outcrossing in nature inferred with SCAR markers. Q. LIU (2), T. L. Peever (1), C. L. Xiao (2). (1) Washington State University, Dept. of Plant Pathology, Pullman, WA; (2) Washington State University, TFREC, Wenatchee, WA

AP-347. Genetic diversity of *Mycosphaerella fijiensis* from bananas (*Musa* spp.) in Hawaii. B. YANG (2), A. James (1), S. Zhong (2). (1) Centro de Investigación Científica de Yucatán, Mérida, Yucatán, México; (2) University of Hawaii at Manoa, Honolulu, HI

AP-348. Flash & Dash Sterol content analysis of *Mycosphaerella graminicola* isolates with reduced sensitivity to triazole fungicides. T. P. BEAN (1), H. J. Cools (1), B. A. Fraaije (1), J. A. Lucas (1). (1) Rothamsted Research, Harpenden, Herts, United Kingdom

AP-349. Molecular characterization of *Stenocarpella maydis* based on nuclear ribosomal internal transcribed spacer regions between the 18S and 28S nuclear rRNA gene sequences. A. FESSEHAIE (1), C. C. Block (2), L. M. Shepherd (1), M. K. Misra (1). (1) Iowa State University, Ames, IA; (2) USDA-ARS, Ames, IA

AP-350. Flash & Dash Clumping of *Phakopsora pachyrhizi* urediniospores and its significance in spore biology. B. LEITE (1), D. Narvaez (1), J. Marois (1), D. Wright (1). (1) University of Florida, Quincy, FL

AP-351. Genetic diversity and population differentiation of natural populations of *Sclerotinia sclerotiorum* on lentils in eastern Washington. X. Wang (2), W. CHEN (1). (1) USDA-ARS, Pullman, WA; (2) Washington State University, Pullman, WA

AP-352. Cryptic sexuality influences aflatoxigenicity in *Aspergillus parasiticus* and *A. flavus*. J. H. Ramirez-Prado (1), G. G. Moore (1), B. W. Horn (2), I. CARBONE (1). (1) Center for Integrated Fungal Research, Dept. of Plant Pathology, North Carolina State University, Raleigh, NC; (2) National Peanut Research Laboratory, USDA, ARS, Dawson, GA

AP-353. *Cronartium ribicola* genome size determination by flow cytometry of intact, nonviable basidiospores. P. J. ZAMBINO (2), W. C. Davis (1). (1) Dept. of Veterinary Microbiology and Pathology, Washington State University, Pullman, WA; (2) USDA Forest Service, Rocky Mountain Research Station, Moscow, ID

AP-354. A re-evaluation of phylogenetic relationships between the causal agents of carrot black rot, *A. radicina* and *A. carotiincultae*. M. S. PARK (1), B. M. Pryor (1). (1) University of Arizona, Tucson, AZ

AP-355. Genetic structure of populations of the tobacco blue mold pathogen, *Peronospora tabacina* in North America, Central America, the Caribbean and Europe. M. BLANCO-MENESES (1), I. Carbone (1), J. Ristaino (1). (1) North Carolina State University, Raleigh, NC

AP-356. *Phytophthora infestans* identified in archival potato tubers from Hoosfield plot trials of Sir John Bennet Lawes and Joseph Gilbert at Rothamsted, 1876-1901. J. RISTAINO (1), C. Hu (1), B. Fitt (2). (1) North Carolina State University; (2) Rothamsted Research, Harpenden, Herts, UK

AP-357. Identification of leaf rust resistance genes in wheat cultivars by phytopathologic testing and PCR analysis. E. D. KOVALENKO (3), T. M. Kolomiets (2), M. I. Kiseleva (2), A. A. Sherbik (3), H. Bockelman (1). (1) USDA, ARS, Aberdeen, ID; (2) VNIIF; (3) VNIIF, Russia

AP-358. Appearance of the mating type A2 in a population of *Phytophthora infestans* from six species of the Solanaceae family in the Cundinamarca – Colombia. A. M. VARGAS (1), A. J. Bernal (1), S. Restrepo (1). (1) LAMFU, Universidad de los Andes, Bogotá, Colombia

AP-359. Survival analysis of time to abscission of cherry leaves infected with *Blumeriella jaapii*. H. K. NGUGI (1), B. L. Lehman (1). (1) Penn State University, Fruit Research & Extension Center, Biglerville, PA

AP-360. Phylogenetic relationships inferred from translation elongation factor 1-alpha sequences between *Phoma ligulicola* isolates causing disease on pyrethrum and chrysanthemum. S. J. JONES (1), S. J. Pethybridge (1), F. S. Hay (1), C. R. Wilson (2). (1) University of Tasmania, Cradle Coast Campus, Burnie, Australia; (2) University of Tasmania, New Town Research Laboratories, New Town, Australia

AP-361. Evidence of host specificity in *Colletotrichum truncatum*. B. D. GOSSEN (1), G. Peng (1), L. Forseille (1), K. L. Anderson (2). (1) Agriculture and Agri-Food Canada, Saskatoon, SK, Canada; (2) Bayer CropScience, Regina, SK, Canada

AP-362. Visualization of *Peronospora farinosa* infection and growth in quinoa using scanning electron microscopy. L. KITZ (1), G. R. Hooper (1), M. R. Stevens (1), B. D. Geary (1). (1) Brigham Young University, Provo, UT

Postharvest Pathology

AP-363. Occurrence of patulin in fruit juices commercialized in Italy. M. L. GULLINO (1), A. Ciavorella (1), S. Frati (1), D. Spadaro (1). (1) AGROINNOVA - University of Torino, Torino, Italy

AP-364. A preharvest model to predict gray mold risk of pear fruit in long term cold storage. R. A. SPOTTS (1), M. Serdani (1). (1) Oregon State University, Hood River, OR

AP-365. Rapid breakdown of tomato fruit. J. A. BARTZ (1), M. J. Mahovic (1), S. Rideout (2), E. Concelmo (1). (1) University of Florida, Gainesville, FL; (2) Virginia Tech - Eastern Shore AREC, Painter, VA

AP-366. Effects of phenolic antioxidant compounds on ochratoxin A production and growth of ochratoxigenic *Aspergillus* species. J. D. PALUMBO (1), T. L. O'Keeffe (1), N. E. Mahoney (1). (1) USDA, ARS, Albany, CA

AP-367. Baseline levels of aflatoxin contamination of peanuts from western Kenya. C. K. Mutegi (1), H. K. NGUGI (2). (1) Kenya Agricultural Research Institute, Nairobi, Kenya; (2) Penn State University, Fruit Research & Extension Center, Biglerville, PA

Viruses

AP-368. Association of a virus with diseases of Japanese holly fern (*Cyrtomium falcatum*) and leatherleaf fern (*Rumohra adiantiformis*). R. A. VALVERDE (2), S. Sabanadzovic (1). (1) Dept. of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS; (2) Dept. of Plant Pathology and Crop Physiology, Louisiana State University, Baton Rouge, LA

AP-369. Characterization of a flowering cherry isolate of *Cherry necrotic rusty mottle virus* from Japan. R. LI (1), R. Mock (1). (1) USDA-ARS, National Germplasm Resources Laboratory, Beltsville, MD

AP-370. Sequence analysis of a new Carlavirus that infects *Verbena* × *hybrida*. J. KRAUS (1), I. E. Tzanetakis (1), M. L. Putnam (1), R. R. Martin (2). (1) Dept. of Botany and Plant Pathology, Oregon State University, Corvallis, OR; (2) USDA/ ARS Horticultural Crops Research Laboratory, Corvallis, OR

AP-371. Identification and host relations of *Turnip ringspot virus*, a novel comovirus discovered in Ohio. S. KHANDEKAR (1), P. Rajakaruna (2), S. Leisner (1). (1) University of Toledo, Toledo, OH; (2) Washington State University, Posser, WA

AP-372. Characterization of a new potyvirus, Impatiens flower break virus, infecting New Guinea Impatiens. R. JORDAN (1), M. Guaragna (1). (1) Floral & Nursery Plants Research Unit, US National Arboretum, USDA-ARS, Beltsville, MD

AP-373. *Vallota mosaic virus* is closely related to *Ornithogalum mosaic virus*, and distinct from other potyviruses infecting Ornithogalum, Lachenalia, and Cyrtanthus. J. HAMMOND (1), M. D. Reinsel (1), (1) USDA-ARS, USNA, FNPRU; Beltsville, MD

AP-374. Molecular characterization and taxonomy of *Lolium latent virus*, a novel member of the family *Flexiviridae*. A. VAIRA (1), C. J. Maroon-Lango (2), R. Li (3), J. Hammond (4). (1) CNR, Istituto Virologia Vegetale, Torino, Italy; (2) USDA-APHIS, PPQ-PHP-PGQP, Beltsville, MD; (3) USDA-ARS, PSI, NGRL-PDRU, Beltsville, MD; (4) USDA-ARS, USNA, FNPRU, Beltsville, MD

AP-375. Diversity and distribution of Pineapple mealybug wilt-associated viruses (PMWaVs) and pineapple badnaviruses in Hawaii. C. V. Subere (2), D. M. Sether (2), F. Zee (1), J. S. HU (2). (1) USDA ARS PBARC; (2) University of Hawaii, Honolulu, HI

AP-376. Genetic variants of badnavirus-like sequences from pineapple in Hawaii. D. M. Sether (1), J. S. HU (1). (1) University of Hawaii, Honolulu, HI

AP-377. Association of a tobamovirus with a mosaic disease of flowering maple. C. Almeyda-Becerra (1), B. E. LOCKHART (1). (1) University of Minnesota, St. Paul, MN

AP-378. Characterization of a tymovirus occurring in greenhouse-grown tomatoes in Minnesota. B. E. LOCKHART (1). (1) University of Minnesota, St. Paul, MN

AP-379. Four new viruses associated with disease symptoms in roses in the USA. B. E. LOCKHART (1). (1) University of Minnesota, St. Paul, MN

AP-380. Mycovirus-like dsRNA molecule from tomato. S. SABANADZOVIC (1), R. A. Valverde (2), N. Abou Ghanem-Sabanadzovic (3), D. L. Gutierrez (2). (1) Dept. of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS; (2) Dept. of Plant Pathology and Crop Physiology, Louisiana State University AgCenter, Baton Rouge, LA; (3) Dept. of Plant Pathology, University of California, Davis, CA

AP-381. The occurrence of *African cassava mosaic virus* and *East African cassava mosaic Cameroon virus* in natural hosts other than cassava in Nigeria. O. J. ALABI (2), F. O. Ogbe (4), R. Bandyopadhyay (3), A. G. Dixon (3), J. Hughes (1), R. A. Naidu (2). (1) AVRDC-The World Vegetable Center, Shanhua, Tainan, Taiwan ROC; (2) Dept. of Plant Pathology, Washington State University, Irrigated Agric. Res. and Extn. Center, Prosser, WA; (3) International Institute of Tropical Agriculture, Ibadan, Nigeria; (4) National Root Crops Research Institute, Umuahia, Nigeria

AP-382. Suppression of sweetpotato virus disease by a graft-transmissible agent. C. A. CLARK (1), M. W. Hoy (1), C. E. McGregor (2), D. W. Miano (2), D. R. LaBonte (2). (1) Dept. Plant Pathology & Crop Physiology, Louisiana State University AgCenter, Baton Rouge, LA; (2) School of Plant Environmental and Soil Sciences, Louisiana State University AgCenter, Baton Rouge, LA

AP-383. Metagenomics for identification of novel plant viruses. V. MUTHUKUMAR (1), G. B. Wiley (2), M. L. Pierce (1), B. A. Roe (2), U. Melcher (1). (1) Oklahoma State University, Stillwater OK; (2) University of Oklahoma, Norman OK

AP-384. Microarray hybridization for detection of plant viruses from natural settings. V. GROVER (1), M. L. Pierce (1), U. Melcher (1). (1) Oklahoma State University, Stillwater, OK

AP-385. Molecular characterization, phylogenetic analysis and detection of *Plum bark necrosis stem pitting associated virus*. M. ALRWAHNIH (1), J. Uyemoto (1), B. Falk (1), A. Rowhani (1). (1) Dept. of Plant Pathology, University of California, Davis, CA

AP-386. Study of the intra-population profile of *Citrus exocortis viroid* in protoplasts of suspension-cultured tobacco and citrus cells. S. HAJERI (1), J. Ng (1), G. Vidalakis (1). (1) University of California, Riverside, CA

AP-387. Flash & Dash Genomic organization, phylogeny and serology of three grapevine leafroll-associated ampeloviruses. N. ABOU GHANEM-SABANADZOVIC (2), S. Sabanadzovic (1), A. Rowhani (2). (1) Dept. of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS; (2) Dept. of Plant Pathology, University of California, Davis, CA

AP-388. Flash & Dash The diversity of *Barley yellow dwarf virus* and *Cereal yellow dwarf virus* genomes. W. A. MILLER (1), R. J. Beckett (1), S. Gray (2). (1) Iowa State University, Ames, IA; (2) USDA/ARS Cornell University, Ithaca, NY

AP-389. Genomic sequences of isolates of *Citrus tristeza virus* that overcome resistance expressed by *Poncirus trifoliate*. S. J. HARPER (1), T. E. Dawson (2), M. N. Pearson (1). (1) School of Biological Sciences, University of Auckland, Auckland, New Zealand; (2) The Horticulture and Food Research Institute of New Zealand, Kerikeri, New Zealand

AP-390. "Exclusion phenomenon" in *Ustilago maydis virus H1*: Not all that exclusive. P. D. VOTH (3), M. A. Turner (1), B. E. Lockhart (2), G. May (1). (1) Dept. of Ecology, Evolution, and Behavior, University of Minnesota, St. Paul, MN; (2) Dept. of Plant Pathology, University of Minnesota, St. Paul, MN; (3) Plant Biological Sciences Graduate Program, University of Minnesota, St. Paul, MN

Diseases of Plants

Biological Control/ IPM

AP-391. Development of reduced trichothecene formulations of *Myrothecium verrucaria* for use as a bioherbicide. M. A. WEAVER (1), R. E. Hoagland (1), C. D. Boyette (1). (1) USDA ARS Stoneville, MS

AP-392. The impact of long-term land management programs on the severity of root galling in tomato by *Meloidogyne* species. D. O. CHELLEMI (2), G. Church (1). (1) Texas Agricultural Experiment Station; (2) USDA, ARS, Fort Pierce, FL

AP-393. A web-based interactive system for risk management of potato late blight in potato canopies in Michigan. P. S. WHARTON (1), W. W. Kirk (1), K. M. Baker (2), L. Duynslager (1). (1) Michigan State University, East Lansing, MI; (2) Western Michigan University, Kalamazoo, MI

AP-394. Contributions of copper sprays, pruning stubs, training system and cultivar towards management of Pseudomonas-incited cankers on sweet cherry. J. E. CARROLL (1), T. L. Robinson (1), T. J. Burr (1). (1) Cornell University, Geneva, NY

AP-395. Survey of *Fusarium* spp. associated with *Spartina* spp. from Atlantic states and their pathogenicity to *S. alterniflora*. W. H. ELMER (1). (1) The Connecticut Agricultural Experiment Station, New Haven, CT

Cereal, Field and Fiber Crops

AP-396. Impact of cereal and non-cereal hosts on trichothecene producing genotypes of *Fusarium graminearum*. R. R. BURLAKOTI (1), S. Ali (1), G. A. Secor (1), S. M. Neate (1), M. McMullen (1), T. Adhikari (1). (1) North Dakota State University, Fargo, ND

AP-397. Relationships among severity of *Wheat streak mosaic virus*, grain yield, and soil water content across the landscape. F. WORKNEH (1), D. C. Jones (1), C. M. Rush (1). (1) Texas Agricultural Experiment Station, Bushland, TX

AP-398. Geographic distribution of *Rhizoctonia* and *Pythium* species in soils from dryland cereal cropping systems in eastern Washington. K. L. SCHROEDER (1), P. A. Okubara (1), T. C. Paulitz (1). (1) USDA-ARS, Root Disease and Biological Control Research Unit, Pullman, WA

AP-399. A wheat genotype sensitive to Ptr ToxA and resistant to *Pyrenophora tritici-repentis* (Tan spot) races 1 and 2. S. ALI (1), T. Adhikari (1), T. Friesen (2), S. Meinhardt (1), J. Rasmussen (1). (1) North Dakota State University, Fargo, ND

AP-400. Crown rust development and selection for virulence in *Puccinia coronata* f. sp. *avenae* in an oat multiline variety. M. CARSON (1). (1) USDA-ARS Cereal Disease Lab, St. Paul, MN

AP-401. Prevalence of races of *Phytophthora nicotianae* in North Carolina. A. L. MILA (1), W. Gutierrez (2). (1) North Carolina State University, Raleigh, NC; (2) USDA, APHIS, Raleigh, NC

AP-402. Naturally infected and inoculated cotton flowers: A Fusarium hardlock investigation. B. LEITE (1), J. Marois (1), D. Wright (1), D. Mailhot (1), E. Osekre (1). (1) University of Florida, Quincy, FL

AP-403. Interaction of temperature and soil moisture in root rot of soybean. P. W. MEYER (1), J. E. Kurle (1). (1) Department of Plant Pathology, University of Minnesota, St. Paul, MN

AP-404. Comparison of inoculation strategies to assess biological interactions between sorghum lines and fungi. D. L. FUNNELL (1), J. F. Pedersen (1). (1) Grain, Forage and Bioenergy Research, USDA-ARS, University of Nebraska, Lincoln, NE

AP-405. *Bean pod mottle virus* movement in insect feeding resistant soybeans. J. E. MOLINEROS (1), M. G. Redinbaugh (2), R. B. Hammond (1), A. E. Dorrance (3), L. V. Madden (1). (1) The Ohio State University/OARDC, Wooster, OH; (2) USDA-ARS, The Ohio State University/OARDC, Wooster, OH; (3) The Ohio State University, Wooster, OH

AP-406. Flash & Dash Effect of resistance to the soybean cyst nematode on soybean sudden death syndrome development and *Heterodera glycines* reproduction. S. L. GIAMMARIA (1), J. C. Rupe (1), R. T. Robbins (1). (1) Dept. of Plant Pathology, University of Arkansas, Fayetteville, AR

AP-407. Incidence of seed borne *Fusarium* spp. in commercial maize (*Zea mays*) seed lots. C. RODRIGUEZ (1), A. E. Robertson (1), C. Kanobe (1). (1) Iowa State University, Ames, IA

AP-408. Effects of *Sugarcane yellow leaf virus* infection on sugarcane in Louisiana. M. P. GRISHAM (3), G. Eggleston (2), J. W. Hoy (1), R. P. Viator (3). (1) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA; (2) USDA-ARS-SRRC Commodity Utilization Unit, New Orleans, LA; (3) USDA-ARS-SRRC Sugarcane Research Laboratory, Houma, LA

AP-409. Flash & Dash Races of *Puccinia striiformis*, the stripe rust pathogen in the United States in 2006. X. CHEN (1), L. N. Penman (2), K. L. Richardson (1). (1) USDA-ARS and Washington State University, Pullman, WA; (2) Washington State University, Pullman, WA

AP-410. Hardlock symptom types, fiber quality and molecular identification of *Fusarium* isolates. B. LEITE (2), J. Marois (2), D. Wright (2), D. Maihot (2), E. Alves (1). (1) Universidade Federal de Lavras; (2) University of Florida, Quincy, FL

AP-411. Sugar beet storability and the influence of *Beet necrotic yellow vein virus*. C. A. STRAUSBAUGH (4), E. Rearick (1), S. Camp (2), J. J. Gallian (5), A. T. Dyer (3). (1) Amalgamated Research Inc., Twin Falls, ID; (2) Amalgamated Sugar Co., Paul, ID; (3) Montana State University, Bozeman, MT; (4) USDA-ARS NWISRL, Kimberly, ID; (5) University of Idaho, Res. & Ext. Center, Twin Falls, ID

AP-412. Root lesion nematode (*Pratylenchus nelgectus*) found in wheat fields in Montana. W. A. JOHNSON (1), R. H. Johnston (1), A. T. Dyer (1). (1) Montana State University, Bozeman, MT

AP-413. Phenotypic interaction of two *Soybean mosaic virus* strains. A. SHI (1), P. Chen (1), A. Hou (1). (1) Department of Crop, Soil, and Environmental Sciences, University of Arkansas, Fayetteville, AR

AP-414. Influence of irrigation method on incidence and severity of bacterial wilt of dry beans in Nebraska. R. M. HARVESON (1), C. D. Yonts (1). (1) University of Nebraska, Scottsbluff, NE

AP-415. The identification and validation of QTLs conferring resistance to spot blotch and common root rot in barley. J. H. BOVILL (1), A. Lehmensiek (1), B. McNamara (3), G. B. Wildermuth (3), G. Platz (2), E. Mace (2), M. W. Sutherland (1). (1) Centre for Systems Biology, University of Southern Queensland, Toowoomba, QLD, Australia; (2) Hermitage Research Station, Queensland Dept. of Primary Industries and Fisheries, Warwick, QLD, Australia; (3) Leslie Research Centre, Queensland Dept. of Primary Industries and Fisheries, Toowoomba, QLD, Australia

AP-416. Cloning and sequencing of an SSR marker associated with resistance to Sclerotinia blight in peanut. K. D. CHENAULT (1). (1) USDA-ARS, Stillwater, OK

AP-417. Soybean cyst nematode reproduction on navy, kidney, and black bean. S. POROMARTO (1), B. D. Nelson (1). (1) Dept. Plant Pathology, North Dakota State University, Fargo, ND

AP-418. Monitoring *Fusarium* populations in no-till wheat cropping systems utilizing quantitative real-time PCR. A. C. HOGG (1), R. H. Johnston (1), A. T. Dyer (1). (1) Montana State University, Bozeman, MT

AP-419. Roles of stolbur phytoplasma and *Reptalus panzeri* (Cixiinae, Auchenorrhyncha) in the epidemiology of maize redness in Serbia. J. Jovi (2), T. Cvrkovi (2), M. Mitrovi (2), S. Krnjaji (2), M. G. REDINBAUGH (4), R. C. Pratt (3), R. E. Gingery (4), S. A. Hogenhout (3), I. Toševski (1). (1) CABI Bioscience, Delémont, Switzerland; (2) Institute for Plant Protection and Environment, Zemun, Serbia; (3) Ohio State University, OARDC, Wooster, OH; (4) USDA, ARS Corn and Soybean Research, Wooster, OH

AP-420. *Acremonium zeae*, a protective endophyte of maize, produces dihydroresorcylide and 7-hydroxydihydroresorcylides. S. M. Poling (1), D. T. WICKLOW (1), K. D. Rogers (2), J. B. Gloer (2). (1) National Center for Agricultural Utilization Research, ARS, USDA, Peoria, IL; (2) Dept. of Chemistry, University of Iowa, Iowa City, IA

AP-421. Fusarium head blight infection and deoxynivalenol production by *Fusarium graminearum* in wheat. P. GAUTAM (1), R. Dill-Macky (1). (1) University of Minnesota, St. Paul, MN

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AP-422. Molecular marker characterization and detached seedling leaf evaluation of wheat powdery mildew differentials. J. S. ENGLE (1), D. S. Marshall (1), G. Brown-Guedira (1), L. Whitcher (1). (1) USDA/ARS/PSRU, Raleigh, NC

AP-423. Host range and mycotoxin production by isolates of *Fusarium equiseti* originating from ginseng fields. R. S. GOSWAMI (2), Z. K. Punja (1). (1) SFU, Burnaby, BC, Canada, (2) Simon Fraser University, Burnaby, BC, Canada

AP-424. Root girdling and distortion of ginseng seedlings caused by *Fusarium oxysporum*. Z. K. PUNJA (2), C. A. Wan (1), R. S. Goswami (1). (1) SFU, Burnaby, BC, Canada, (2) Simon Fraser University, Burnaby, BC, Canada

AP-425. Identification of *Colletotrichum* species responsible for anthracnose of Korean ginseng. M. SHIN (1), J. Kim (1), J. Min (1), Y. Kim (3), Y. Bae (2), H. Kim (1). (1) Chungbuk National Univ. Korea; (2) National Institute of Crop Science, Korea; (3) Seoul National Univ., Seoul, Korea

AP-426. Reaction of dry bean genotypes to root rot caused by *Fusarium graminearum*. V. N. BILGI (1), C. A. Bradley (1), S. Ali (1), S. D. Khot (1), J. B. Rasmussen (1). (1) Department of Plant Pathology, North Dakota State University, Fargo, ND

AP-427. Genotype B of *Cadophora gregata* reduces quantity and quality of soybean yield. G. M. TABOR (1), G. L. Tylka (1), C. R. Bronson (1). (1) Iowa State University, Ames, IA

AP-428. Spread of sudden death syndrome in soybean fields and characteristics of *Fusarium virguliforme*, the causal agent, in Minnesota. D. K. MALVICK (1). (1) University of Minnesota, St. Paul, MN

AP-429. The role of environment and seedling pathogens on rice stand establishment. M. A. EBERLE (1), C. S. Rothrock (1), R. L. Sealy (1). (1) University of Arkansas, Fayetteville, AR

AP-430. Survey for seedling and crown diseases of *Rhodiola rosea* in Alberta, Canada. S. HWANG (1), K. Ampong-Nyarko (1), G. D. Turnbull (1), R. J. Howard (2), D. Cole (1). (1) Alberta Agriculture and Food, Crop Diversification Centre North, Edmonton, Alberta, Canada; (2) Alberta Agriculture and Food, Crop Diversification Centre South, Brooks, Alberta, Canada

AP-431. Evaluation of *Wheat streak mosaic virus* (Genus: *Tritimovirus*; Family: *Potyviridae*) on spring wheat yield and agronomic traits. M. LANGHAM (1), K. Glover (1). (1) South Dakota State University, Plant Science Department, Brookings, SD

AP-432. Barley Root Rot agents in different areas of Russia. M. I. KISELEVA (1), E. D. Kovalenko (1). (1) VNIIF, Russia

Detection and Diagnosis

AP-433. New weed hosts for *Iris yellow spot virus*. R. SAMPANGI (1), K. Druffel (2), K. Mohan (1), H. Pappu (2). (1) University of Idaho; (2) WSU, Pullman, WA

AP-434. Improved extraction of pathogen DNA from soil and plant samples using Pressure Cycling Technology Sample Preparation System (PCT SPS). P. A. Okubara (2), C. Li (1), K. L. SCHROEDER (2), N. P. Lawrence (1). (1) Pressure BioSciences, Inc., West Bridgewater, MA; (2) USDA-ARS, Root Disease and Biological Control Research Unit, Pullman, WA

AP-435. A new spore trap that utilizes electrostatic deposition and scanning electron microscopy. R. W. SCHNEIDER (1), E. Durr (1), C. G. Giles (1). (1) Dept. Plant Pathology, Louisiana State University, Baton Rouge, LA

AP-436. Differentiation and identification of species within the *Aspergillus* section *Nigri* by using an automated rep-PCR approach. E. R. PALENCIA (1), M. Klich (3), C. W. Bacon (2). (1) Department of Plant Pathology, University of Georgia, Athens, GA; (2) USDA, ARS, Russell Research Center, Athens, GA; (3) USDA, ARS, Southern Regional Research Center, New Orleans, LA

AP-437. Variation between ELISA and RT-PCR in detecting *Tomato ringspot virus* in Pennsylvania apples. W. MSIKITA (1), R. Welliver (1), T. Jones (1). (1) Pennsylvania Department of Agriculture, Harrisburg, PA

AP-438. Validation of primer design for plant virus diagnostics using the Web-interface pathway Primer3-mFOLD-BLASTn. F. M. OCHOA CORONA (2), J. Tang (1), B. S. Lebas (1), B. Alexander (1). (1) Biosecurity New Zealand, MAF, Auckland, New Zealand; (2) Biosecurity New Zealand, MAF, IDC-PHEL, Auckland, New Zealand

AP-439. Real-time RT-PCR assay for detection and differentiation of *Citrus tristeza virus* isolates. M. Saponari (1), R. K. YOKOMI (1). (1) USDA, ARS, CDPG, Parlier, CA

AP-440. PCR-based detection of *Spiroplasma citri* associated with citrus stubborn disease. R. K. YOKOMI (2), A. Mello (1), M. Saponari (2), J. Fletcher (1). (1) Entomol. & Plant Path. Dept, Oklahoma State Univ., Stillwater, OK; (2) USDA, ARS, CDPG, Parlier, CA

AP-441. Development of a nested-PCR assay for detection of *Colletotrichum acutatum in vitro*. M. H. NAM (3), O. Pérez-Hernández (2), H. G. Kim (1), M. L. Gleason (2). (1) Department of Applied Biology, Chungnam National University, Daejon, 305-764, Korea; (2) Department of Plant Pathology, Iowa State University, Ames, IA; (3) Nonsan Strawberry Experiment Station, Chungnam ARES, Nonsan, Korea

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AP-442. A nested PCR assay for detection of *Colletotrichum acutatum* on symptomless strawberry leaves. M. H. NAM (2), O. Pérez-Hernández (1), M. L. Gleason (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA; (2) Nonsan Strawberry Experiment Station, Chungnam ARES, Nonsan, Korea

AP-443. Competition between benzimidazole-sensitive and -resistant isolates of *Monilinia fructicola* detected with real-time PCR. Y. LUO (1), H. C. Reyes (1), D. P. Morgan (1), T. J. Michailides (1). (1) Dept. of Plant Pathology, Univ. of California-Davis, Kearney Agricultural Center, 9240 S. Riverbend Ave., Parlier, CA

AP-444. Searching for *Phytophthora ramorum*: Three years of surveying New York State and Northeastern nurseries for the sudden oak death pathogen. K. L. SNOVER-CLIFT (1), P. Clement (1), S. Jensen-Tracy (1). (1) Cornell University, Ithaca, NY

AP-445. The discovery of *Plum pox virus* in New York State. K. L. SNOVER-CLIFT (2), P. Clement (2), R. Jablonski (3), M. Tiffany (1). (1) Agdia, Inc. Elkhart, IN; (2) Cornell University, Ithaca, NY; (3) NYS Department of Agriculture and Markets, Albany, NY

AP-446. Aster yellows incidence and distribution within commercial small grains fields in Minnesota. L. M. Atkinson (3), C. R. HOLLINGSWORTH (2), J. E. Larsen (1), D. A. Samac (4), C. D. Motteberg (3). (1) Dept. of Plant Pathology, Univ. of Minnesota, St. Paul, MN; (2) Northwest Research & Outreach Center and Dept. of Plant Pathology, Univ. of Minnesota, Crookston, MN; (3) Northwest Research & Outreach Center, Crookston, MN; (4) USDA-ARS and Dept. of Plant Pathology, Univ. of Minnesota, St. Paul, MN

AP-447. A PCR-based method for differentiating races of *Verticillium dahliae*. S. J. KLOSTERMAN (2), K. V. Subbarao (1). (1) Department of Plant Pathology, University of California, Davis, Salinas, CA; (2) United States Dept. of Agriculture, Agricultural Research Service, Salinas, CA

AP-448. Improved ELISA detection of *Xylella fastidiosa* in woody plant tissue using sap extracted by a pressure chamber. J. M. FRENCH (2), J. J. Randall (1), R. J. Heerema (2), S. F. Hanson (1), N. P. Goldberg (2). (1) Entomology, Plant Pathology, and Weed Science Department, New Mexico State University, Las Cruces, NM; (2) Extension Plant Sciences Department, New Mexico State University, Las Cruces, NM

AP-449. Detection of *Xanthomonas axonopodis* pv. *glycines* and survey on seed contamination in soybean seed using PCR assay. S. S. HONG (1), Y. Y. Hong (1), B. B. Lee (1), S. S. Park (1). (1) Yeongnam Agricultural Research Institute of NICS, RDA, Milyang, Korea

AP-450. Production and characterization of antibodies to the NSs protein of *Iris yellow spot virus*.H. PAPPU (1), K. Druffel (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA

AP-451. Development of diagnostic molecular markers for rapid identification of *Xanthomonas oryzae* pv. *oryzae* and *X. oryzae* pv. *oryzicola* using conventional and multiplex PCR. J. M. LANG (1), J. Hamilton (2),G. Diaz (1), M. Van Sluys (3), N. Tisserat (1), R. Buell (2), J. E. Leach (1). (1) Colorado State University, Fort Collins, CO; (2) The Institute for Genomic Research, Rockville, MD; (3) Universidade de Sao Paolo, Sao Paolo, Brazil

AP-452. An immunofluorescence assay to detect soybean rust urediniospores. F. BAYSAL (2), A. Dorrance (2), M. L. Lewis Ivey (2), D. Luster (4), R. Frederick (4), J. Czarnecki (3), M. Boehm (1), S. A. Miller (2). (1) Department of Plant Pathology, The Ohio State University, Columbus, OH; (2) Department of Plant Pathology, The Ohio State University, Ohio Agricultural Research and Development Center, Wooster, OH; (3) Naval Medical Research Center, Biological Defense Research Directorate, Silver Spring, MD; (4) USDA ARS Foreign Diseases and Weed Science Research Unit, Frederick, MD

AP-453. Pierce's disease detected in New Mexico grapevines. J. J. RANDALL (1), M. Radionenko (1), J. M. French (2), N. P. Goldberg (2), S. F. Hanson (1). (1) Entomology, Plant Pathology, and Weed Science Department, New Mexico State University, Las Cruces, NM; (2) Extension Plant Sciences Department, New Mexico State University, Las Cruces, NM

AP-454. The usefulness of the COXI-COXII spacer region for the development of assays for specific detection of Phytophthora species. P. URIBE (1), F. N. Martin (1). (1) USDA/ARS, Salinas, CA

AP-455. Differentiation of *Barley mild mosaic virus* strains by RT-PCR analysis in Korea G. B. JONSON (1), J. Park (1), M. Kim (1), J. Hyun (1), J. Kim (1). (1) Honam Agricultural Research Institute, NICS, RDA, Iksan City, Jeollabuk-Do, Korea

AP-456. A rapid method for diagnosing *Xanthomonas axonopodis* pv. *citri* in citrus packing facilities. B. A. SCHOEDEL (1), X. Sun (2), T. Riley (3), G. Bonn (2), D. Jones (2). (1) Agdia, Inc., Elkhart, IN; (2) Florida Dept. of Agriculture & Consumer Services Div. of Plant Industry; (3) USDA APHIS PPQ CHRP, Orlando, FL

AP-457. Direct real-time confirmation of citrus canker from ImmunoStrips. J. E. RASCOE (1), B. A. Schoedel (1), T. Riley (2). (1) Agdia, Inc., Elkhart, IN; (2) USDA APHIS PPQ CHRP, Orlando, FL

AP-458. Quantitative TaqMan real-time PCR assay for *Stenocarpella maydis*, the causal agent of *Diplodia* ear and stalk rot of maize. A. FESSEHAIE (1), C. C. Block (2), L. M. Shepherd (1), M. K. Misra (1). (1) Iowa State University, Ames, IA; (2) USDA-ARS, Ames, IA

AP-459. Evaluation of LNA, MGB and non-modified DNA probes to improve the detection limit of TaqMan real-time PCR assay for *Pantoea stewartii* subsp. *Stewartii.* A. FESSEHAIE (1), C. C. Block (2), L. M. Shepherd (1), M. K. Misra (1). (1) Iowa State University, Ames, IA; (2) USDA-ARS, Ames, IA

AP-460. Duplex TaqMan real-time PCR assay for quantitative detection of *Pantoea stewartii* subsp. *stewartii* and *Stenocarpella maydis.* A. FESSEHAIE (1), C. C. Block (2), L. M. Shepherd (1), M. K. Misra (1), (1) Iowa State University, Ames, IA; (2 USDA-ARS, Ames, IA

AP-461. Melt-curve analysis of PCR products using new species-specific primers for identification of *Septoria citri*, an export quarantine pathogen of California citrus. H. FORSTER (1), G. Driever (2), J. Adaskaveg (2). (1) Department of Plant Pathology, University of California, Davis, CA; (2) Department of Plant Pathology, University of California, Riverside, CA

AP-462. Validation of confirmatory real-time PCR diagnostic assays for detecting *Phytophthora ramorum*. K. A. ZELLER (1), R. M. DeVries (1), L. Levy (1). (1) USDA-APHIS-PPQ-CPHST-NPGBL, Beltsville, MD

AP-463. Validation of potato cyst nematode (PCN) molecular identification methods and development of laboratory work instructions for a national survey. M. K. NAKHLA (1), K. J. Owens (1), L. Carta (3), A. Skantar (2), L. Levy (1). (1) USDA-APHIS-PPQ-CPHST, National Plant Germplasm and Biotechnology Laboratory, Beltsville, MD 20705; (2) USDA-ARS Molecular Plant Pathology Laboratory, Beltsville, MD 20705; (3) USDA-ARS, Nematology Laboratory, Beltsville, MD 20705

AP-464. Development of *Potyvirus* group-specific PCR primers for the improved detection of potyviruses infecting imported germplasm. M. K. NAKHLA (1), K. J. Owens (1), L. Levy (1). (1) USDA-APHIS-PPQ-CPHST, National Plant Germplasm and Biotechnology Laboratory, Beltsville, MD

AP-465. A summary of National Survey and Compliance Testing for *Phytophthora ramorum* by NPGBL – 2005–2006. K. A. ZELLER (1), E. N. Twieg (1), D. D. Picton (1), S. S. Negi (1), K. J. Owens (1), R. M. DeVries (1), L. Levy (1). (1) USDA-APHIS-PPQ-CPHST-NPGBL, Beltsville, MD

AP-466. Development of PCR assay using species-specific primers for *Phytophthora sojae* based on the DNA sequence of its transposable element. J. Y. SONG (4), N. Jeon (1), S. Li (2), H. Kim (1), G. L. Hartman (3). (1) Chungnam National University, Daejeon, Korea; (2) USDA-ARS, Stoneville, MS; (3) USDA-ARS, Urbana, IL; (4) University of Illinois, Urbana, IL

AP-467. Detection of *Xanthomonas campestris* pv. *campestris* in cabbage seeds after hot water treatment. H. KOENRAADT (1). (1) Naktuinbouw, Roelofarendsveen, The Netherlands

AP-468. A new protocol for extraction of double-stranded RNA from plants. R. R. MARTIN (2), I. E. Tzanetakis (1). (1) Dept of Botany and Plant Pathology, Oregon State Univ., Corvallis, OR; (2) USDA-ARS Horticultural Crops Res Lab, Corvallis, OR

AP-469. Detection of *Ralstonia solanacearum* race 4, with micro-sized, bio-indicator plants in the Zingiberaceae family. M. L. PARET (1), A. de Silva (1), A. M. Alvarez (1). (1) University of Hawaii, Honolulu, HI

Diseases of Fruits & Nuts

AP-470. Delineation of fungal species in the genus *Pseudocercosporella* in the sooty blotch and flyspeck complex. N. TATALOVI (1), J. C. Batzer (1), M. M. Díaz Arias (3), M. L. Gleason (1), B. Oertel (2). (1) Department of Plant Pathology, Iowa State University, Ames, IA; (2) Universitat Bonn, Bonn, Germany; (3) University of Costa Rica, San José, Costa Rica

AP-471. First report of Fusarium wilt, caused by *Fusarium oxysporum*, on roselle in the USA. R. C. PLOETZ (1), A. J. Palmateer (1), D. Geiser (2), J. Juba (2).(1) University of Florida, Homestead, FL; (2) Pennsylvania State University, University Park, PA

AP-472. Withdrawn

AP-473. An undescribed virus of blackberry from Mississippi. S. SABANADZOVIC (1), N. Abou Ghanem-Sabanadzovic (2). (1) Department of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS; (2) Department of Plant Pathology, University of California, Davis, CA

AP-474. Glomerella spp. associated to anthracnose on avocado fruits in Mexico. G. D. AVILA-QUEZADA (1), H. V. Silva-Rojas (2), D. Teliz-Ortiz (2), L. X. Zelaya-Molina (3). (1) Centro de investigacion en alimentacion y desarrollo A.C., Chihuahua, Mexico; (2) Colegio de Postgraduados, Campus Montecillo, Edo. de Mexico, Mexico; (3) Universidad Autónoma Chapingo, Edo. de Mexico

AP-475. Incidence of postharvest gray mold on 'Mollar de Elche' pomegranates. L. PALOU (1), C. Montesinos-Herrero (1), M. del Río (1). (1) Centre de Tecnologia Postcollita, Institut Valencià d'Investigacions Agràries (IVIA), Montcada, València, Spain

AP-476. Phenology of sooty blotch and flyspeck fungi on apples in Iowa. A. J. SISSON (1), J. C. Batzer (1), K. B. Duttweiler (1), M. L. Gleason (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA

AP-477. Biogeography of the sooty blotch and flyspeck complex on apples in the eastern half of the U.S. M. M. DÍAZ ARIAS (2), J. C. Batzer (1), M. L. Gleason (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA; (2) University of Costa Rica, San José, Costa Rica

AP-478. Histogenesis of myrtle knots induced by *Pseudomonas savastanoi*. A. T. SAAD (1), M. Temsah (2), L. T. Hanna (1). (1) American University of Beirut, Beirut, Lebanon; (2) Lebanese University, Beirut, Lebanon

AP-479. Completing Koch's postulates for newly discovered species in the sooty blotch and flyspeck complex. K. Hemnani (1), M. M. Díaz Arias (2), J. C. BATZER (1), M. L. Gleason (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA; (2) University of Costa Rica, San José, Costa Rica

AP-480. Detection of sooty blotch and flyspeck fungi colonizing reservoir host plants in the Midwest U.S. K. Hemnani (1), J. C. BATZER (1), M. M. Díaz Arias (3), M. L. Gleason (1), E. A. Wahle (4), B. Oertel (2). (1) Department of Plant Pathology, Iowa State University, Ames, IA; (2) Universitat Bonn, Bonn, Germany; (3) University of Costa Rica, San José, Costa Rica; (4) University of Illinois Extension, Edwardsville, IL

AP-481. Evaluation of Armillaria root rot resistance using tissue culture grown cherry seedlings. S. I. HOLLOSY (1), G. Lang (1), R. Hammerschmidt (1). (1) Michigan State University, East Lansing, MI

AP-482. The etiology of apple replant disease in South Africa. Y. Tewoldemedhin (2), M. Mazzola (1), A. MCLEOD (2). (1) USDA-ARS,Wenatchee, WA; (2) Department of Plant Pathology, University of Stellenbosch, Matieland, South Africa

AP-483. Towards an advisory system for grapevine powdery mildew in cooler climates. M. M. MOYER (1), D. M. Gadoury (1), R. C. Seem (1), W. F. Wilcox (1). (1) Cornell University, New York State Agricultural Experiment Station, Geneva, NY

AP-484. Mode and timing of infection of d'Anjou pear fruit by *Potebniamyces pyri* in the orchard in relation to Phacidiopycnis rot in storage. Q. LIU (1), C. L. Xiao (1). (1) Washington State University, TFREC, Wenatchee, WA

AP-485. Survey for citrus huanglongbing (Greening) and its Asian citrus psyllid vector in Texas. J. DA GRAÇA (1), M. Skaria (1), P. Haslem (1), J. French (1), M. Setamou (1). (1) Texas A&M University-Kingsville Citrus Center, Weslaco, TX

AP-486. A comparison of fungicide resistance monitoring techniques currently in use for *Venturia inaequalis*. V. PHILION (1). (1) IRDA, Saint-Bruno, Québec

AP-487. Clarifying the species status of *Pythium* and *Phytophthora* on grapevine in South Africa. C. Spies (1), M. Mazzola (2), A. MCLEOD (1). (1) Department of Plant Pathology, University of Stellenbosch, Stellenbosch, South Africa; (2) USDA-ARS, Wenatchee, WA

AP-488. Pathogenicity and inoculum sources of *Geotrichum candidum* causing sour rot of peaches and nectarines in California. M. A. YAGHMOUR (2), R. M. Bostock (2), J. E. Adaskaveg (3), C. H. Crisosto (1), T. J. Michailides (1). (1) University of California, Kearney Ag. Center, Parlier, CA; (2) University of California, Davis, CA; (3) University of California, Riverside, CA

AP-489. Susceptibility of *Prunus* rootstock seedlings to *Xylella fastidiosa* strains isolated from almond in California. J. CHEN (1), C. Ledbetter (1), R. Groves (2). (1) USDA-ARS, Parlier, CA; (2) University of Wisconsin, Madison, WI

AP-490. Identification of a novel *Crinivirus* infecting strawberry. I. E. TZANETAKIS (1), R. R. Martin (2). (1) Dept of Botany and Plant Pathology, Oregon State Univ., Corvallis, OR; (2) USDA-ARS Horticultural Crops Res Lab, Corvallis, OR

Diseases of Ornamentals

AP-491. Hunting for *Phytophthora ramorum* and other species of *Phytophthora* in suburban waterways in South Carolina. Y. A. WAMISHE (1), S. N. Jeffers (1), J. Hwang (1). (1) Dept. Entomology, Soils, and Plant Sciences, Clemson University, Clemson, SC

AP-492. Development of a rapid and affordable method to assess resistance among hosta cultivars to petiole rot caused by *Sclerotium rolfsii* var. *delphinii*. Z. XU (1), M. L. Gleason (1), D. S. Mueller (1). (1) Department of Plant Pathology, Iowa State University, Ames, IA

AP-493. Association of sclerotial size with differential overwinter survival of *Sclerotium rolfsii* and *Sclerotium rolfsii* var. *delphinii*. Z. XU (2), M. L. Gleason (2), D. S. Mueller (2), C. A. Bradley (4), J. W. Buck (5),M. Benson (3), J. E. Monteiro (1). (1) Dept. of Exact Sciences, ESALQ, University of Sao Paulo, Piracicaba, Brazil; (2) Dept. of Plant Pathology, Iowa State University, Ames, IA; (3) Dept. of Plant Pathology, North Carolina State University, Raleigh, NC; (4) Dept. of Plant Pathology, North Dakota State University, Fargo, ND; (5) Dept. of Plant Pathology, University of Georgia, Griffin, GA

AP-494. Survival and spread of *Rhodococcus fascians* in greenhouse grown herbaceous perennials. M. L. MILLER (1), M. L. Putnam (1), J. Kraus (1). (1) Botany and Plant Pathology Dept., Oregon State University, Corvallis, OR

AP-495. A new foliar disease of pyrethrum caused by *Microsphaeropsis* sp. S. J. PETHYBRIDGE (1), S. J. Jones (1), F. S. Hay (1). (1) University of Tasmania, Burnie, Tasmania, Australia

AP-496. Infection occurrence of *Pseudocercospora cornicola* on flowering dogwood. K. N. CONNER (1), K. L. Bowen (1). (1) Dept. Entomology and Plant Pathology, Auburn University, AL

AP-497. Urban tree health in the Phoenix metropolitan area. J. C. STUTZ (1). (1) Arizona State University, Mesa, AZ

AP-498. New insights in Freesia leaf necrosis disease. E. MEEKES (1), M. Verbeek (2). (1) Naktuinbouw, Roelofarendsveen, The Netherlands; (2) Plant Research International, The Netherlands

AP-499. Identification and frequency of *Phytophthora* species causing foliar diseases in California ornamental nurseries. L. E. YAKABE (2), C. L. Blomquist (1), S. L. Thomas (1), J. D. MacDonald (2). (1) California Department of Food and Agriculture, Sacramento, CA; (2) University of California, Davis, CA

AP-500. Recurrence of bacterial fasciation on flowering potted plants in Pennsylvania. E. V. NIKOLAEVA (1), S. Park (1), S. Kang (1), T. N. Olson (2), S. Kim (2). (1) Department of Plant Pathology, Penn State University, University Park, PA; (2) Plant Disease Diagnostic Lab., Pennsylvania Department of Agriculture, Harrisburg, PA

AP-501. Susceptibility of Fraser fir to *Phytophthora capsici*. L. M. QUESADA-OCAMPO (1), D. W. Fulbright (1), M. K. Hausbeck (1). (1) Michigan State Univ, East Lansing, MI

AP-502. Identification of Phytophthora diseases in Tennessee nurseries. M. T. MMBAGA (1), K. Lamour (2), R. Donahoo (2), F. A. Mrema (1). (1) Tennessee State University, McMinnville, TN; (2) University of Tennessee, Knoxville, TN

AP-503. Bacterial leaf stripe of *Strelitzia nicolai* caused by *Acidovorax avenae* ssp. *Avenae*. T. E. SEIJO (1), N. A. Peres (1). (1) University of Florida, IFAS-GCREC, Wimauma, FL

AP-504. Fungi associated with dogwood die back and decline. M. T. MMBAGA (1), R. Sauve (1). (1) Tennessee State University, McMinnville, TN

Diseases of Turf Grass

AP-505. Isolation and identification of the basidiomycete fungi causing fairy rings in golf course putting greens. G. L. MILLER (1), L. P. Tredway (1). (1) Dept. of Plant Pathology, North Carolina State Univ., Raleigh, NC

AP-506. Persistence of chlorothalonil under snow cover and its relationship to gray snow mold development on a golf course fairway. T. D. BLUNT (1), J. P. Hill (1), G. Brunk (1), T. Koski (2), N. Tisserat (1). (1) Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, CO; (2) Department of Horticulture

and Landscape Architecture, Colorado State University, Fort Collins, CO

AP-507. Resistance of transgenic tall fescues to gray leaf spot and brown patch diseases. S. Dong (1), L. P. TREDWAY (3), H. D. Shew (3), J. Lu (1), S. Sivamani (1), E. S. Miller (2), R. Qu (1). (1) Dept. of Crop Science, North Carolina State University, Raleigh, NC; (2) Dept. of Microbiology, North Carolina State University, Raleigh, NC; (3) Dept. of Plant Pathology, North Carolina State University, Raleigh, NC

AP-508. The use of biofungicides as an alternative disease management tool for dollar spot control in bermudagrass. M. TOMASO-PETERSON (1), H. Perry (1), J. Young (1). (1) Mississippi State University

AP-509. Disease management strategies for controlling spring dead spot of bermudagrass. H. PERRY (1), M. Tomaso-Peterson (1). (1) Mississippi State University, Mississippi State, MS

AP-510. Screening for azoxystrobin-resistant *Colletotrichum cereale* isolates of the Mid-South. J. YOUNG (1), M. Tomaso-Peterson (1), F. P. Wong (2). (1) Mississippi State University; (2) University of California, Riverside, CA

AP-511. Influence of spray volume on fungicide efficacy for control of dollar spot on creeping bentgrass. D. A. MCDUFFEE (1), R. Latin (1), (1) Purdue University, West Lafayette, IN

AP-512. A practical field guide for estimating dollar spot severity on golf course turf. D. A. MCDUFFEE (1), W. Schoonveld (2), R. Latin (1). (1) Purdue University, West Lafayette, IN; (2) University of California at Santa Barbara, Santa Barbara, CA

AP-513. Root colonization of several species of native grasses by *Ophiosphaerella herpotricha*. N. R. WALKER (1). (1) Oklahoma State University, Stillwater, OK

AP-514. Infection and colonization of three turf-type bermudagrass cultivars by *Ophiosphaerella herpotricha* expressing green fluorescent protein. O. C. CAASI (2), N. R. Walker (2), S. M. Marek (2), T. K. Mitchell (1). (1) North Carolina State University, Raleigh, NC; (2) Oklahoma State University, Stillwater, OK

AP-515. Effect of silicon on the development of dollar spot in rough bluegrass (*Poa trivialis*). A. ESPINOSA (2), L. E. Datnoff (2), G. Miller (1). (1) Crop Science Department, North Carolina State University, Raleigh, NC; (2) Plant Pathology Department, University of Florida, Gainesville, FL

AP-516. Development of a digital analysis method to assess brown patch resistance on *Fesutca arundinacea* germplasm. V. R. SYKES (1), B. J. Horvath (1), D. S. McCall (1). (1) Virginia Tech, Blacksburg, VA

AP-517. Determination of the optimal temperature range for infection of creeping bentgrass by *Pythium volutum*, a causal agent of Pythium root dysfunction. J. P. KERNS (1), L. P. Tredway (1), D. Shew (1). (1) North Carolina State University Department of Plant Pathology, Raleigh, NC

AP-518. Fungicide susceptibility of *Colletotrichum graminicola* isolated from turfgrasses in Southern New England. N. A. Mitkowski (1), A. M. MADEIRAS (1). (1) University of Rhode Island, Charlestown, RI

Diseases of Vegetables

AP-519. Conidiogenesis by *Tuberculina persicina* on onion rust. J. A. TRAQUAIR (1), E. Kokko (2). (1) Agriculture and Agri-Food Canada, London, Ontario, Canada; (2) University of Lethbridge, Lethbridge, Alberta, Canada

AP-520. Mapping *Phytophthora capsici* in watermelons using global positioning system (GPS) technology. G. H. BEARD (1), C. D. Perry (1). (1) University of Georgia, Moultrie, GA

AP-521. Colonization of lettuce (*Lactuca sativa* L.) by a GFP-tagged isolate of *Verticillium dahliae*. G. E. VALLAD (1), K. V. Subbarao (1). (1) University of California, Davis, CA

AP-522. Mechanisms of resistance to grapevine powdery mildew. L. CADLE-DAVIDSON (1). (1) USDA-ARS, Grape Genetics Research Unit, Geneva, NY

AP-523. *Cucumber mosaic virus* and *Beet western yellows virus* in spinach seed crops in the Pacific Northwest, USA. L. J. DU TOIT (2), P. R. Brown (1), M. L. Derie (2), T. Bentley (1). (1) Alf Christianson Seed Co., Mount Vernon, WA; (2) Washington State University Mount Vernon NWREC, Mount Vernon, WA

AP-524. A plant picorna-like virus causes severe damage to tomato in the states of Sinaloa and Sonora, Mexico. M. RICKER (2), M. Turina (1), R. Lenzi (1), V. Masenga (1), M. Ciuffo (1). (1) Istituto Virologia Vegetale, Torino, Italy; (2) Nunhems USA, Acampo, CA

AP-525. Relationships of symptom development in anthracnose on chili pepper and root rot on ginseng with wound periderm formation. Y. KIM (2), Y.-H. Kim (2), J. Kim (4), H. Kim (3), Z. Khan (1). (1) Center for Plant Molecular Genetics and Breeding Research, Seoul National University, Seoul, Korea; (2) Dept. of Agricultural Biotechnology, Seoul National University, Seoul, Korea; (3) Dept. of Plant Medicine, Chungbuk National University, Cheongju, Korea; (4) Korea Turfgrass Institute, Subsidiary of Korea Golf Course Business Association, Sungnam, Korea

AP-526. Incidence, transmission and molecular characterization of *Potato virus S* from selected potato cultivars in Washington State. H. PAPPU (2), K. Druffel (2), J. Whitworth (3), M. Pavek (1). (1) Department of Horticulture and Landscape Architecture, Washington State University, Pullman, WA; (2) Department of Plant Pathology, Washington State University, Pullman, WA; (3) USDA-ARS, Aberdeen, ID

AP-527. Association of *Enterobacter* spp. with onion plants exhibiting premature leaf dieback in the Columbia Basin of Washington State. H. M. Fallquist (1), M. Canady (1), L. J. du Toit (1), B. K. SCHROEDER (1). (1) Department of Plant Pathology, Washington State University, Pullman WA

AP-528. First report of *Alternaria alternata* f. sp. *cucurbitae* causing Alternaria leaf spot of melon in the Mid-Atlantic region of the United States. X. ZHOU (1), K. L. Everts (2). (1) University of Maryland, Salisbury, MD; (2) University of Maryland/ Delaware, Salisbury/Georgetown, MD/DE

AP-529. Characterization of *Tomato spotted wilt virus* (*Tospovirus*, *Bunyaviridae*) from lettuce (*Lactuca sativa*) in Chile. M. Rosales (2), H. PAPPU (1), C. Arayam (2), A. Aljaro (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA; (2) Instituto de Investigaciones Agropecuarias, La Platina, Santiago, Chile

AP-530. Reduced efficacy of QoI and demethylation-inhibitor (DMI) fungicides on powdery mildew of cucurbits in North Carolina. M. L. ADAMS (2), G. Holmes (2), M. McGrath (1), G. Olaya (3). (1) Cornell University, Riverhead, NY; (2) NC State University, Raleigh, NC; (3) Syngenta Crop Protection, Vero Beach, FL

AP-531. Screening for disease resistance to *Verticillium dahliae* in spinach. M. I. VILLARROEL-ZEBALLOS (1), L. J. Du Toit (2), J. C. Correll (1). (1) University of Arkansas, Fayetteville, AR; (2) Washington State University, Mt Vernon, WA

Fastidious Procaryotes

AP-532. Distribution and genetic analysis of *Xylella fastidiosa* strains found in chitalpa in the southwestern United States. J. J. Randall (2), M. Radionenko (2), J. M. French (3), M. W. Olsen (1), N. P. GOLDBERG (3), S. F. Hanson (2). (1) Dept. of Plant Sciences, University of Arizona, Tucson, AZ; (2) Entomology, Plant Pathology, and Weed Science Dept., New Mexico State University, Las Cruces, NM; (3) Extension Plant Sciences Dept., New Mexico State University, Las Cruces, NM

AP-533. Alfalfa as an important inoculum source of *Xylella fastidiosa*. M. S. SISTERSON (1), S. R. Thammiraju (4), K. Daane (2), R. L. Groves (3). (1) USDA, ARS, Parlier, CA; (2) University of California, Berkeley, CA; (3) University of Wisconsin, Madison, WI; (4) Universtiy of California, Davis, CA

AP-534. Bacterial leaf scorch of blueberry: A new disease caused by *Xylella fastidiosa*. C. CHANG (2), P. Brannen (1), G. Krewer (4), R. Boland (3), R. Donaldson (2). (1) University of Georgia, Athens, GA; (2) University of Georgia, Griffin, GA; (3) University of Georgia, Nahunta, GA; (4) University of Georgia, Tifton, GA

AP-535. Almond leaf scorch disease: Cultivar and seasonal susceptibility. T. Cao (1), J. H. Connell (2), B. C. KIRKPATRICK (2). (1) University of Alberta; (2) University of California, Davis, CA

AP-536. Nature of the interaction between *Fortunella margarita* and *Xanthomonas axonopodis* pv. *Citri*. A. A. KHALAF (4), J. B. Jones (3), G. A. Moore (2), F. G. Gmitter (1). (1) Citrus Research and Education Center, Lake Alfred, FL; (2) Horticultural Sciences Department, Gainesville, FL; (3) Plant Pathology Department, Gainesville, FL; (4) University of Florida/CREC, Lake Alfred, FL

AP-537. Coconut lethal yellowing: Current situation, research and future perspectives for Central America and the Caribbean. M. M. ROCA (1), N. Harrison (2), C. Oropeza (3), W. Myrie (4). (1) Escuela Agrícola Panamericana, Zamorano, Tegucigalpa, Honduras; (2) Research and Education Center, Fort Laurdedale, University of Florida; (3) C. Oropeza Centro de Investigación Científica del Yucatán, Mérida, México; (4) Coconut Industry Board, Jamaica

Forest Pathology

AP-538. Pathogenic *Phytophthora* species in San Joaquin Valley irrigation water sources. L. S. SCHMIDT (2), R. H. Beede (3), R. G. Bhat (4), G. Lopez (1), N. J. Blackburn (2), G. T. Browne (2). (1) Partnership for Plant Genomic Education, Univ. of California, Davis, CA and American River College, Sacramento, CA; (2) USDA-ARS, CPGRU, University of California, Davis, CA; (3) University of California Cooperative Extension, Kings County, Hanford, CA; (4) University of California, Davis, CA

AP-539. Occurrence and distribution of *Phytophthora pseudosyringae* in forest streams of North Carolina. J. Hwang (1), S. N. JEFFERS (1), S. W. Oak (2). (1) Dept. Entomology, Soils, and Plant Sciences, Clemson University, Clemson, SC; (2) USDA Forest Service, Southern Region, FHP, Asheville, NC

AP-540. Identification of the symbiotic wood decay fungus of *Urocerus taxodii*. A. D. WILSON (1), N. M. Schiff (1). (1) USDA Forest Service, Southern Hardwoods Laboratory, Stoneville, MS

AP-541. Associations of two beetle taxa with the oak wilt fungus in Texas. M. HAYSLETT (3), J. Juzwik (4), D. Appel (2), K. Camilli (1). (1) Dept. of Natural Resources and Environmental Science, University of Nevada, Reno, NV; (2) Dept. of Plant Pathology and Microbiology, Texas A&M University, College Station, TX; (3) Dept. of Plant Pathology, University of Wisconsin, Madison, WI; (4) USDA Forest Service, Northern Research Station, St. Paul, MN

AP-542. Microbiological profiling of cultural systems for *Phytophthora* control in Fraser fir. B. S. RICHTER (2), D. M. Benson (2), K. L. Ivors (1). (1) NC State University, Fletcher, NC; (2) NC State University, Raleigh, NC

AP-543. Excised shoots of top-pruned red pine (*Pinus resinosa*), a source of inoculum of the shoot blight pathogen *Diplodia pinea*. I. A. MUNCK (1), G. R. Stanosz (1). (1) Department of Plant Pathology, UW-Madison, WI

AP-544. Vectoring capabilities of the banded elm bark beetle (*Scolytus schevyrewi* Semenov) in relation to the Dutch elm disease fungus (*Ophiostoma novo-ulmi* Brasier) in Colorado. R. D. KOSKI (1), W. R. Jacobi (1). (1) Colorado State University, Fort Collins, CO

AP-545. The effect of induced resistance in Monterey pines on infection by two fungal pathogens. G. RITOKOVA (1), T. R. Gordon (1). (1) University of Califonia, Davis, CA

AP-546. Recovery of Phytophthora species from soil surrounding European beech (*Fagus sylvatica*) with bleeding canker symptoms. A. H. NELSON (1), G. W. Hudler (1). (1) Cornell University, Department of Plant Pathology, Ithaca, NY

AP-547. Oak wilt pathogen presence in roots and root grafts of diseased red oaks. R. A. Blaedow (2), J. JUZWIK (1). (1) USDA Forest Service, St. Paul, MN; (2) University of Minnesota, St. Paul, MN

AP-548. Pest risk assessments by the Wood Import Pest Risk Assessment and Mitigation Evaluation Team (WIPRAMET). J. GLAESER (2), G. Denitto (1). (1) USDA Forest Service, State & Private Forestry, Missoula, MT; (2) USDA-Forest Service, Northern Research Station, Madison, WI

AP-549. First report of *Phytophthora siskiyouensis* causing disease on Italian alder in Foster City, California. S. ROONEY-LATHAM (1), C. L. Blomquist (1), T. Pastalka (2), L. R. Costello (3). (1) California Dept. of Food and Agriculture, Sacramento, CA; (2) California Dept. of Food and Agriculture, San Francisco, CA; (3) University of California Cooperative Extension, Half Moon Bay, CA

AP-550. *Eucalyptus* pathogens from native Myrtaceae trees in Uruguay. C. A. PEREZ (1), N. Altier (3), S. Simeto (3), M. Wingfield (2), R. A. Blanchette (1). (1) Dept. of Plant Pathology, University of Minnesota, St. Paul, MN; (2) Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, Pretoria, South Africa; (3) INIA Las Brujas, Montevideo, Uruguay

AP-551. A spatial model for foliar life expectancy in Douglas-fir affected by Swiss Needle Cast. L. B. COOP (1), J. K. Stone (1), A. Fox (2). (1) Botany & Plant Pathology Dept., Oregon State University, Corvallis OR; (2) Fox Weather LLC, Fortuna, CA

AP-552. Incidence of *Ophiostomatoid* species in roots of longleaf and slash pine 1 and 8 years after a large-scale wildfire. W. J. OTROSINA (1), P. Spaine (1), C. Cook (1). (1) USDA Forest Service, Athens, CA

Seed Pathology

AP-553. Effect of oleic: Linoleic acid ratios on soybean seed colonization by *Cercospora kikuchii*. R. G. UPCHURCH (3), H. Xue (1), P. Kwanyuen (2). (1) Crop Science Dept., NC State Univ., Raleigh, NC; (2) USDA-ARS and Crop Science Dept., NC State Univ., Raleigh, NC; (3) USDA-ARS and Plant Pathology Dept., NC State Univ., Raleigh, NC

AP-554. Potential for dispersal of *Fusarium oxysporum* f. sp. *lactucae* by infested lettuce seed. G. C. MBOFUNG (1), B. M. Pryor (2). Iowa State University, Ames, IA; (2) College of Agriculture and Life Sciences, Tuson, AZ

AP-555. Dry heat treatment of *Fusarium*-infected cotton seed. R. S. BENNETT (2), P. D. Colyer (1). (1) Red River Research Station, LSU AgCenter, Bossier City, LA; (2) USDA-ARS, Shafter, CA

AP-556. The effect of seed priming on viability of *Acidovorax avenae* subsp. *citrulli* and seed-associated saprophytes on watermelon seeds. J. FENG (1), K. Chen (1), J. Kim (1), J. Li (1), N. W. Schaad (2). (1) CAU, Beijing, China; (2) USDA, Ft. Detrick, MD

AP-557. Genetics of seed transmission *Soybean mosaic virus*. L. DOMIER (2), H. Hobbs (1), Y. Wang (1), G. Hartman (2). (1) Dept. of Crop Sciences, Univ. of Illinois, Urbana, IL; (2) USDA-ARS, Dept. Crop Sci., Univ. of Illinois, Urbana, IL

Viruses- Systematics

AP-558. A new tymovirus from a native Alaskan plant, *Mertensia paniculata*. N. L. ROBERTSON (1). (1) USDA, ARS, Palmer, AK

AP-559. A potato strain of *Cherry rasp leaf virus* and its detection with a broadly applicable set of degenerate picorna-like virus primers. J. Susaimuthu (1), J. Thompson (2), K. L. PERRY (1). (1) Cornell University, Ithaca, NY; (2) International Centre for Genetic Engineering and Biotechnology, Trieste, Italy

Epidemiology/ Ecology/ Environmental

Diseases of Cereals, Field and Fiber Crops

AP-560. A meta analysis comparison of the intrinsic rates of infection for Asian soybean rust epidemics in the U.S. and abroad. W. M. JURICK, II (1), D. F. Narvaez (2), J. J. Marois (2), D. L. Wright (2), P. F. Harmon (1). (1) University of Florida, Gainesville, FL; (2) University of Florida, NFREC, Quincy, FL

AP-561. Effects of light intensity and time on the incidence and severity of Asian soybean rust. A. S. DIAS (1), P. F. Harmon (2), C. L. Harmon (2), X. Yang (1). (1) Iowa State University, Ames, IA; (2) University of Florida, Gainesville, FL

AP-562. Effects of location and year on the temporal disease progress of Asian soybean rust in Brazil.

P. D. ESKER (5), E. M. Del Ponte (7), M. C. Martins (3), M. Kato (6), F. V. Siqueri (4), L. H. Silva (2), C. Godoy (1). (1) Embrapa Soja, Londrina, PR, Brasil; (2) FESURV, Rio Verde, GO, Brasil; (3) Fundacao Bahia, Barreiras, BA, Brasil; (4) Fundacao Mato Grosso, Rondonopolis, MT, Brasil; (5) Iowa State University, Ames, IA; (6) Jircas, Tsukuba, Ibaraki, Japan; (7) UFRGS, Porto Alegre, RS, Brasil

AP-563. Effects of row spacing and canopy height on spatio-temporal development of Asian soybean rust. P. D. ESKER (1), D. Narvaez (5), J. Marois (5), D. Wright (5), E. De Wolf (2), M. Nita (3), E. Del Ponte (4), S. Isard (3). (1) Iowa State University, Ames, IA; (2) Kansas State University, Manhattan, KS; (3) Penn State University, University Park, PA; (4) UFRGS, Porto Alegre, RS, Brazil; (5) University of Florida, Quincy, FL

AP-564. The effects of duration and temperature of leaf wetness periods on Asian soybean rust under field conditions. D. NARVÁEZ (1), G. O'Brien (1), J. Marois (1), D. Wright (1). (1) University of Florida, North Florida Research and Education Center, Quincy, FL

AP-565. The effects of temperature on urediniospore production in *Phakopsora pachyrhizi* and development of national risk maps. E. P. MUMMA (1), R. W. Schneider (1), C. L. Robertson (1), C. G. Giles (1). (1) Dept. Plant Pathology, Louisiana State University Agricultural Center, Baton Rouge, LA

AP-566. The dry deposition of DayGlo™ particles into soybean canopies. N. S. DUFAULT (2), S. A. Isard (2), E. D. DeWolf (1), J. J. Marois (3), D. L. Wright (3). (1) Dept. of Plant Pathology, Kansas State University, Manhattan, KS; (2) Dept. of Plant Pathology, Pennsylvania State University, University Park, PA; (3) North Florida Research and Education Center, University of Florida, Quincy, FL

AP-567. Mechanistic modeling approaches for predicting the risk of Fusarium head bight (FHB) epidemics. M. NITA (1), E. De Wolf (1). (1) Kansas State University, Manhattan, KS

AP-568. The prevalence, incidence and spatial dependence of *Soybean mosaic virus* in Iowa. X. LU (1), A. E. Robertson (1), E. Byamukama (1), F. W. Nutter (1). (1) Iowa State University, Ames, IA

AP-569. Natural and introduced *Fusarium verticillioides* populations in ears of field-grown corn plants. I. E. YATES (2), D. Sparks (1), A. Glenn (2). (1) Department of Horticulture, University of Georgia, Athens, GA; (2) TMRU, RRC, ARS, USDA, Athens, GA

AP-570. In-season progress of *Tomato spotted wilt virus* in tobacco fields in North Carolina. S. Morsello (1), A. L. MILA (1), G. Kennedy (1). (1) North Carolina State University, Raleigh, NC

Diseases of Vegetables

AP-571. Colonization dynamics and spatial progression of *Verticillium dahliae* in individual stems of two potato cultivars with differing responses to potato early dying. Z. ATALLAH (2), J. Bae (1), S. H. Jansky (1), D. I. Rouse (2), W. R. Stevenson (2). (1) Dept. Horticulture, University of Wisconsin, Madison, WI; (2) Dept. Plant Pathology, University of Wisconsin, Madison, WI

AP-572. Infection potential of hairy nightshade by *Phytophthora infestans* and epidemiological implications of the alternate host. M. OLANYA (1), R. Larkin (1), W. Honeycutt (1). (1) USDA-ARS, NEPSWL, Orono, ME

AP-573. A spatial hierarchy model for the incidence of *Sclerotinia sclerotiorum* in snap bean. D. A. SHAH (1), H. R. Dillard (1). (1) NYSAES, Geneva, NY

AP-574. Population dynamics, growth and seed transmission of *Fusarium equiseti* in ginseng. Z. K. PUNJA (1), C. A. Wan (1), M. Rahman (1), R. S. Goswami (1). (1) Simon Fraser University, Burnaby, BC, Canada

AP-575. Effect of K-Phosphyte applied to seed potato tubers on various physiological variables during crop growth. M. J. Lasso (2), A. B. Andreu (2), D. O. CALDIZ (1). (1) McCain Argentina, Balcarce, Argentina; (2) Universidad Nacional de Mar del Plata, Mar del Plata, Argentina

Forest Systems

AP-576. Plant pathology in the context of ecosystem services. M. N. ROUSE (4), M. R. Cheatham (3), P. D. Esker (3), S. Ignacio Cardenas (1), W. Pradel (2), R. Raymundo (2), A. Sparks (4), T. R. Gordon (5), K. A. Garrett (4). (1) CATIE, Costa Rica; (2) CIP, Peru; (3) Iowa State University, Ames, IA; (4) Kansas State University, Manhattan, KS; (5) University of California Davis, Davis, CA

AP-577. Assessing the effects of road de-icing salts on conifers in the Lake Tahoe Basin. K. S. CAMILLI (1), C. M. Bennett (1), R. Nowak (1). (1) University of Nevada, Reno, Department of Natural Resources and Environmental Sciences, Reno, NV

AP-578. Effects of prescribed burning on survival of *Phytophthora cinnamomi* in forest soil. I. M. MCLAUGHLIN (1), S. N. Jeffers (1), T. A. Waldrop (2). (1) Dept. Entomology, Soils, and Plant Sciences, Clemson University, Clemson, SC; (2) USDA Forest Service, Southern Research Station, Clemson, SC

AP-579. Summer survival of *Phytophthora ramorum* in California forests. E. J. FICHTNER (2), D. M. Rizzo (2), S. C. Lynch (2), J. M. Davidson (3), G. Buckles (1), J. L. Parke (1). (1) Oregon State University, Corvalis, OR; (2) UC Davis, Davis, CA; (3) University of Hawaii, Honolulu, HI

2007 APS-SON POSTERS

Populations Biology/Genetics

AP-580. Temporal and spatial distribution of *P. aphanidermatum* in Pennsylvania. S. LEE (1), G. Moorman (1). (1) Department of Plant Pathology, The Pennsylvania State University, University Park, PA

AP-581. Biology, epidemiology, and population structure of *Colletotrichum* species associated with ripe rot of grapes. K. R. WHITTEN BUXTON (1), T. B. Sutton (1). (1) NCSU, Raleigh, NC

AP-582. Dispersal of bacteria of *Xanthomonas axonopodis* pv. *citri* in the field in simulated 25 m/sec (50 mph) wind. C. H. BOCK (3), P. E. Parker (1), A. Z. Cook (1), B. Salas (1), T. R. Gottwald (2). (1) USDA-APHIS-PPQ-CPHST, Moore Air Base, Edinburg, TX; (2) USDA-ARS-USHRL, 2001 S. Rock Rd., Ft. Pierce, FL; (3) University of Florida/USDA-ARS-USHRL, 2001 S. Rock Rd., Ft. Pierce, FL

AP-583. Effect of apple tree training system on key epidemiological factors. H. K. NGUGI (1), B. L. Lehman (1), J. W. Travis (1). (1) Penn State University, Fruit Research & Extension Center, Biglerville, PA

AP-584. Ontogenic resistance of leaves, leaf folding and the distribution of mildew colonies in strawberry powdery mildew (*Podosphaera macularis*). D. M. GADOURY (1), A. Stensvand (2), R. C. Seem (1), C. Heidenreich (1). (1) Dept. Plant Pathology, Cornell University, N.Y. State Agric. Exp. Stn., Geneva, NY; (2) Norwegian Institute for Agricultural and Environmental Research, Plant Health and Plant Protection Division, Norway

AP-585. Quantitative association between injury types and brown rot development on fruit in environmentally-benign apple orchards in Hungary. I. J. HOLB (1), H. Scherm (2). (1) University of Debrecen, Centre of Agricultural Sciences, Debrecen, Hungary; (2) University of Georgia, Department of Plant Pathology, Athens, GA

AP-586. Identification and genetic typing of Fusarium head blight pathogen on the barley-rice cropping system of Korea. I. OH (1), J. Roh (1), H. Shim (2), B. Kim (3). (1) National Institute of Crop Science, RDA, Suweon, Korea; (2) Honam Agricultural Research Institute, RDA, Iksan, Korea; (3) Chungnam Agricultural Research and Extension Services, Yesan, Korea

AP-587. Investigating the population biology of the tobacco black shank pathogen, *Phytophthora nicotianae*. M. D. GREENE (1), C. A. Gallup (1), H. Shew (1), K. L. Ivors (1). (1) Dept. of Plant Pathology, North Carolina State University

AP-588. Flash & Dash Cost of virulence: Case of *Puccinia striiformis* f. sp. *Tritici*. B. BAHRI (1), M. Leconte (1), C. De Vallavieille-Pope (1), J. Enjalbert (1). (1) INRA, Thiverval-grignon, FRANCE

Rhizosphere/ Phyllosphere Biology

AP-589. Assessing the utility of a taxonomic macroarray for monitoring fungal community development in soils exhibiting suppression of root disease. A. D. Izzo (1), M. MAZZOLA (1). (1) USDA-ARS, Wenatchee, WA

AP-590. Development of Verticillium wilt on chile pepper under periodic flooding. S. SANOGO (1), O. I. El-Sebai (1), R. Sanderson (1). (1) New Mexico State University, Las Cruces, NM

AP-591. Differential impact of brassicaceae seed meals on numbers and composition of *Pythium* populations indigenous to orchard soils. M. MAZZOLA (1), X. Zhao (1). (1) USDA-ARS, Wenatchee, WA

AP-592. Effect of inoculum level of *Fusarium virguliforme* on timing of foliar and root symptom expression of soybean sudden death syndrome. C. GONGORA-CANUL (1), L. Leandro (1). (1) Iowa State University, Ames, IA

AP-593. Populations of *Aspergillus flavus*, dynamics and expression of aflatoxin genes in a Mississippi soil. C. ACCINELLI (2), H. K. Abbas (4), R. M. Zablotowicz (6), J. R. Wilkinson (3), C. A. Abel (5), O. P. Perera (5), B. J. Johnson (4), W. Shier (1). (1) College of Pharmacy, University of Minnesota, St. Paul, MN; (2) Dept. of Agro-Environmental Science and Technology, Bologna, Italy; (3) Dept. of Biochemistry and Molecular Biology, Mississippi State University, Starkville, MS; (4) USDA-ARS, CG&PRU, Stoneville, MS; (5) USDA-ARS, SIMRU, Stoneville, MS; (6) USDA-ARS, SWSRU, Stoneville, MS

AP-594. Propagule densities of *Macrophomina phaseolina* in soybean tissue and soil under Mississippi Conservation Management Systems. A. MENGISTU (1), K. N. Reddy (1), R. M. Zablotowicz (1). (1) USDA-ARS

AP-595. The effects of wounding and fungal infection on two phylloplane yeast populations in tall fescue. S. S. NIX (1), L. L. Burpee (1), J. W. Buck (1). (1) University of Georgia, Griffin, GA

AP-596. Within field spatial variation in soil populations of *Aspergillus flavus*. R. JAIME-GARCIA (1), P. J. Cotty (2). (1) Dept. of Plant Sciences, University of Arizona, Tucson, AZ; (2) USA-ARS, Dept. of Plant Sciences, University of Arizona, Tucson, AZ

AP-597. Long term effects of weed management practices and cover cropping on the culturable bacteria community in a commercial vineyard in Salinas Valley, California. S. R. PARKER (1), D. A. Kluepfel (1). (1) USDA, Agricultural Research Service

AP-598. Application of a molecular quantification system for studies of *Fusarium solani* f. sp. *glycines* in soybean roots. X. GAO (1), G. Hartman (2), T. Niblack (1). (1) Department of Crop Sciences, University of Illinois, Urbana, IL; (2) USDA-ARS, Urbana, IL

AP-599. Understanding soil microbial communities as affected by crop sequence and environment. O. Olivaras-Fuster (2), C. Arias (2), K. BOWEN (1), R. Huettel (1). (1) Department of Entomology and Plant Pathology, Auburn University, AL; (2) Department of Fisheries and Allied Aquacultures, Auburn University, AL

AP-600. Effects of different soil and crop management strategies on soil microbial communities and soilborne diseases of potato. R. P. LARKIN (1), T. S. Griffin (1), O. Olanya (1), G. C. Starr (1), C. Honeycutt (1). (1) USDA-ARS, New England Plant, Soil, and Water Lab, Orono, ME

AP-601. Molecular detection and quantification of disease suppressive microbial inoculants and *Pythium ultimum* in soil-less potting mixes. A. PASURA (1), G. C. Elliott (1). (1) University of Connecticut, Storrs, CT

AP-602. Effect of rotation crops on vesicular-arbuscular mycorrhizal fungi and iron-deficiency chlorosis of soybean. M. SUN (2), S. Chen (2), J. E. Kurle (2), S. Naeve (1), D. L. Wyse (1), L. A. Stahl (4), G. A. Nelson (5), L. D. Klossner (3). (1) Dept. of Agronomy & Plant Genetics, University of Minnesota, St. Paul, MN; (2) Dept. of Plant Pathology, University of Minnesota, St. Paul, MN; (3) SW Research and Outreach Center, Lamberton, MN; (4) University of Minnesota Extension Service West Central, Worthington, MN; (5) West Central Research and Outreach Ct, Morris, MN

Molecular and Cellular Biology/ Host-Pathogen interactions

Bacteria

AP-603. Flash & Dash Metabolic riches: Characterization of a novel nonribosomal peptide synthetase system in *Pseudomonas syringae* pv. *syringae* B728a. J. L. CALCOTE (1), D. C. Gross (1). (1) Dept. of Plant Pathology and Microbiology, Texas A&M University, College Station, TX

AP-604. Flash & Dash Discovery and characterization of a Type VI secretion system in *Pseudomonas syringae*. A. R. RECORDS (1), D. C. Gross (1). (1) Dept. of Plant Pathology & Microbiology, Texas A&M University, College Station, TX

AP-605. Development of an integration vector for complementation analysis in *Xylella fastidiosa*. A. MATSUMOTO (1), M. M. Igo (2), G. M. Young (1). (1) Dept. of Food Science and Technology, University of California, Davis, CA; (2) Dept. of Microbiology, University of California, Davis, CA

AP-606. Characterization of PD0528: A potential type V autotransporter in the *Xylella fastidiosa* outer membrane. A. MATSUMOTO (1), E. Goh (2), G. Young (1), M. M. Igo (2). (1) Dept. of Food Science and Technology, University of California, Davis, CA; (2) Dept. of Microbiology, University of California, Davis, CA

AP-607. Functional genomics characterization of citrus-*Candidatus* Liberibacter asiaticum interaction. N. WANG (1). (1) University of Florida, Lake Alfred, FL

AP-608. Identification of traits of *Xylella fastidiosa* conferring virulence to grape and insect transmission by analysis of global gene expression using DNA microarrays. N. WANG (2), W. Feil (1), S. Lindow (1). (1) UC Berkeley, Berkeley, CA; (2) University of Florida, Lake Alfred, FL

AP-609. Tomato upregulates defense genes in response to infection by *Ralstonia solanacearum*. A. MILLING (1), J. K. Swanson (1), C. Allen (1). (1) University of Wisconsin, Madison, WI

AP-610. Translocation and chaperone interaction of the *Erwinia amylovora* secreted effector DspE. L. TRIPLETT (2), M. Melotto (1), S. He (1), G. W. Sundin (2). (1) Dept. of Plant Biology, Michigan State University, East Lansing, MI; (2) Dept. of Plant Pathology, Michigan State University, East Lansing, MI

AP-611. Diverse virulence and fitness functions are regulated by VsrAD in *Ralstonia solanacearum*. J. YAO (1), C. Allen (1). (1) University of Wisconsin, Madison, WI

AP-612. Hypermotile MotR mutants of *Ralstonia solanacearum* are reduced in virulence. F. MENG (1), J. Yao (1), C. Allen (1). (1) University of Wisconsin, Madison, WI

AP-613. Characterization of gacA regulatory pathways controlling virulence in *Xylella fastidiosa*. X. SHI (2), C. Dumenyo (1), H. Rufina (2), H. Azad (2), D. A. Cooksey (2). (1) Tennessee State University; (2) University of California-Riverside

AP-614. Identification of pathogenicity determinants in *Xanthomonas axonopodis* pv. *manihotis* using comparative genomic tools. C. Barriga (2), A. Pinzón (2), B. Szurek (1, A. González (2), N. P. Morales (2), V. Verdier (1), S. Restrepo (2), A. J. BERNAL (2). (1) Institut de Recherche pour le Développement, Laboratoire Génome et Développement des Plantes, Montpellier, France; (2) LAMFU, Universidad de los Andes, Bogotá, Colombia

AP-615. Role of Eop1 in host specificity in *Erwinia amylovora*. J. E. ASSELIN (1), K. N. Yip (1), S. V. Beer (1). (1) Cornell University, Ithaca, NY

AP-616. Proteomics analysis indicates that *Ralstonia solanacearum* has a distinctive type II secretion system. H. Liu (1), T. P. DENNY (1). (1) University of Georgia, Athens, GA

AP-617. Identification of proteomic expression of grapevines in response to *Xylella fastidiosa*. L. YANG (2), H. Lin (2), Y. Takahashi (1), M. Walker (3). (1) Ehime Women's College, Uwajima, Ehime, Japan; (2) USDA, ARS; (3) University of California, Davis, CA

AP-618. *Brachiaria* plant growth enhanced by endophytic bacteria containing *nif*H gene sequences. S. KELEMU (1), P. Fory (1). (1) International Center for Tropical Agriculture (CIAT), Cali, Colombia

AP-619. The flagellar sigma factor FliA is required for full virulence and biofilm formation of *Dickeya dadantii*. C. E. JAHN (1), A. O. Charkowski (1). (1) University of Wisconsin-Madison, Madison, WI

Flash & Dash

AP-620. Dissection of *Rxo1*-mediated defense signaling in cereals. A. SECK (1), H. Ishihara (2), B. Zhao (3), J. E. Leach (2), S. H. Hulbert (4). (1) Kansas State University, Manhattan, KS; (2) Colorado State University, Fort Collins, CO; (3) University of California, Berkeley, CA; (4) Washington State University, Pullman, WA

AP-621. Genomic comparisons of three *Pectobacterium* species. M. MARQUEZ-VILLAVICENCIO (1), J. Glasner (2), N. Perna (2), J. Dangl (3), S. Grant (3), A. Charkowski (1). (1) University of Wisconsin-Madison, WI; (2) Genome Center of Wisconsin, University of Wisconsin-Madison, WI; (3) University of North Carolina at Chapel Hill, Chapell Hill, NC

AP-622. Preliminary molecular characterization of two novel *Erwinia amylovora* type III secretion pathogenicity islands (T3SS-PAIs). Y. ZHAO (1), G. W. Sundin (2). (1) Dept. of Crop Sciences, University of Illinois, Urbana, IL; (2) Dept. of Plant Pathology, Michigan State University, East Lansing, MI

Fungal Systematics. Evo/ Ecol.

AP-623. Phylogenetic analysis of *Corynespora* isolates from diverse hosts and locations. L. J. Smith (2), L. E. Datnoff (2), J. A. Rollins (2), K. Pernezny (1), R. L. SCHLUB (3). (1) University of Florida, Belle Glade, FL; (2) University of Florida, Gainesville, FL, (3) University of Guam, Mangilao, Guam

AP-624. Combinatorially based selection of defense peptide directed against *Phakopsora pachyrhizi*. Z. D. FANG (2), J. E. Schoelz (2), G. Stacey (2), F. J. Schmidt (1), J. T. English (2). (1) Division of Biochemistry, University of Missouri, Columbia, MO; (2) Division of Plant Sciences, University of Missouri, Columbia, MO

AP-625. Inhibition of *Fusarium graminearum* germling development caused by combinatorially selected defense peptides. N. W. GROSS (1), Z. D. Fang (1), C. J. Murphy (1), B. Cooper (2), J. T. English (1). (1) Division of Plant Sciences, University of Missouri, Columbia, MO; (2) Soybean Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

AP-626. Identification of different genetic loci that regulate production of the pigment rubrifacine in *Brenneria rubrifaciens*, the causal agent of Deep Bark Canker on walnut. A. E. MCCLEAN (1), D. A. Kluepfel (1). (1) USDA, Agricultural Research Service, Davis, CA

AP-627. Comparative gene phylogenies for ninety species of the genus *Phytophthora*. M. PEIMAN (1), M. D. Coffey (1). (1) University of California, Riverside, CA

Fungi Biology/ Genetics

AP-628. Identification of *Phytophthora cryptogea* and *P. erythroseptica* based on ribosomal oligonucleotides. R. Mostowfizadeh-Ghalamfarsa (2), D. Cooke (1), Z. BANIHASHEMI (2). (1) Scottish Crop Research Institute (SCRI), Invergowrie, Dundee, UK; (2) Shiraz University, Shiraz, Iran

AP-629. Phylogenetic relationships of *Phytophthora cryptogea* and *P. drechsleri* based on multiple gene genealogy. R. Mostowfizadeh-Ghalamfarsa (2), D. Cooke (1), Z. BANIHASHEMI (2). (1) SCRI, Invergowrie, Scotland, United Kingdom; (2) Shiraz University, Shiraz, Iran

AP-630. Conserved oxylipin signaling in *Aspergillus flavus*. S. HOROWITZ BROWN (1), J. Scott (1), N. P. Keller (1). (1) Dept. of Plant Pathology, UW Madison

AP-631. Investigating the modular nature of a cyclic peptide synthetase required for production of ergot alkaloids. K. K. SCHWERI (1), C. L. Schardl (1). (1) Unversity of Kentucky, Lexington, KY

AP-632. Roles of defense response genes in plant-microbe interactions. D. A. SAMAC (2), S. Peñuela (3), D. Foster-Hartnett (3), E. N. Hunt (1), J. Schnurr (2). (1) Plant Biology, Fort Valley State University, Fort Valley, GA; (2) USDA-ARS, Plant Science Research Unit, St. Paul, MN; (3) University of Minnesota, Dept. of Plant Pathology, St. Paul, MN

AP-633. Gene expression in *Aspergillus flavus* during colonization of different developmental stages and tissue types of maize kernels. A. KHAN (2), G. Payne (1), C. Woloshuk (2). (1) North Carolina State University, Raleigh, NC; (2) Purdue University, West Lafayette, IN

AP-634. Identification and characterization of stilbene derivatives in infected sorghum seedlings. C. LO (1), K. Yu (1). (1) The University of Hong Kong, Hong Kong, China

AP-635. Heterologous puroindoline proteins inhibit the growth of *Ustilago hordei*. K. M. TRUJILLO (1), T. Al-Niemi (1), J. E. Sherwood (1). (1) Montana State University, Bozeman, MT

AP-636. Fungal and plant proteases interaction. D. SUELDO (1), A. Andreu (1), G. Daleo (1), G. Guevara (1), F. Olivieri (1). (1) Instituto de Investigaciones Biológicas, Universidad Nacional de Mar del Plata, Mar del Plata, Buenos Aires, Argentina

AP-637. Silencing of *Kex2* significantly diminishes the virulence of *Cryphonectria parasitica*. D. Jacob-Wilk (1), M. Turina (2), P. KAZMIERCZAK (1), N. K. Van Alfen (1). (1) Dept. of Plant Pathology, UC-Davis, Davis, CA; (2) Istituto di Virologia Vegetale, CNR Torino, Torino, Italy

AP-638. Characterization of a polyketide synthase gene of the chestnut blight fungus by *Agrobacterium tumefaciens*-mediated targeted gene disruption. K. SUDO (2), H. L. Mclane (1), S. B. Krasnoff (4), S. L. Anagnostakis (3), D. M. Gibson (4), A. C. Churchill (2). (1) Boyce Thompson Institute, Ithaca, NY; (2) Cornell University, Ithaca, NY; (3) The Connecticut Agricultural Experiment Station, New Haven, CT; (4) USDA-ARS PPRU, Ithaca, NY

AP-639. Extracellular proteins from the *Phakopsora pachyrhizi* spore wall. D. G. LUSTER (1), M. B. McMahon (1). (1) USDA-ARS-FDWSRU Frederick, MD

AP-640. Protein profile changes in soybean leaves upon *Phakopsora pachyrhizi* infection. S. PARK (1), N. Hazard (1), A. Chanda (1), Z. Chen (1). (1) Dept. of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA

AP-641. Functional characterization of two transcription factors putatively involved in pathogenicity of *Magnaporthe grisea*. G. C. BERNARD (1). (1) North Carolina State University

AP-642. Rust and drought effects on gene expression and phytohormone concentration in the dominant species of tallgrass prairie. E. E. FRANK (3), S. E. Travers (3), S. H. Hulbert (4), J. E. Leach (1), J. Bai (3), P. S. Schnable (2), M. D. Smith (5), R. Welti (3), D. J. Bremer (3), K. A. Garrett (3). (1) Colorado State University, Fort Collins, CO; (2) Iowa State University, Ames, IA; (3) Kansas State University, Manhattan, KS; (4) Washington State University, Pullman, WA; (5) Yale University, New Haven, CT

AP-643. *Phoma medicaginis* as a model pathosystem for *Medicago*. M. DHULIPALA (1), S. M. Marek (1). (1) Oklahoma State University

AP-644. *Phaseolus vulgaris-Uromyces appendiculatus* pathosystem as a model for Asian soybean rust. S. THIBIVILLIERS (4), B. Cooper (1), K. Campbell (1), B. Scheffler (2), R. Boerma (3), B. Boovaraghan (4), J. Schoelz (4), H. Nguyen (4), G. Stacey (4). (1) USDA-ARS, Beltsville, MD; (2) USDA-ARS, Stoneville, MS; (3) University of Georgia, Athens, GA; (4) University of Missouri, Columbia, MO

AP-645. Molecular mechanisms of the instability of rice blast fungus avirulence gene *AVR-Pita*. Y. DAI (2), Y. Jia (1), J. C. Correll (2). (1) USDA-ARS Dale Bumpers National Rice Research Center, Stuttgart, AR 72160; (2) University of Arkansas, Fayetteville, AR

AP-646. Identification of cercosporin biosynthesis-related proteins through a proteomic approach. A. Chanda (1), Z. CHEN (1), R. W. Schneider (1). (1) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA

AP-647. Selection on an avirulence homolog (Avh) gene family in *Phytophthora ramorum*, causal agent of Sudden Oak Death and Ramorum blight. E. M. Goss (1), C. M. Press (1), N. J. GRUNWALD (1). (1) USDA ARS, Corvallis, OR

AP-648. Farnesyltransferase expression in *Ustilago hordei* during mating. T. Al-Niemi (1), K. Trujillo (1), J. E. SHERWOOD (1). (1) Montana State University, Bozeman, MT

AP-649. *Puccinia graminis* genome sequencing project. L. J. SZABO (5), C. Cuomo (1), J. Schein (4), S. Zhong (3), R. A. Dean (2), C. W. Barnes (5). (1) Broad Institute, MIT and Harvard, Cambridge, MA; (2) Center for Integrated Fungal Research, North Carolina State University, Raleigh, NC; (3) Dept. of Plant and Environmental Protection Sciences, University of Hawaii at Manoa, Honolulu, HI; (4) Genome Sciences Centre, BC Cancer Agency, Vancouver, BC Canada; (5) USDA ARS Cereal Disease Laboratory, Dept. of Plant Pathology, University of Minnesota, St. Paul, MN

AP-650. Genome-wide gene expression in *Aspergillus flavus* during pathogenesis. A. L. DOLEZAL (1), C. Woloshuk (2), G. A. Payne (1). (1) North Carolina State University, Raleigh, NC; (2) Purdue University, West Lafayette, IN

AP-651. Dissecting mechanisms controlling transcriptional reprogramming during Arabidopsis immune responses by molecular and chemical genomics. C. KNOTH (1), M. Salus (1), T. Girke (1), T. Eulgem (1). (1) ChemGen IGERT Program, CEPCEB & Botany and Plant Sciences, UC-Riverside CA

AP-652. Detection and quantification of fumonisins in *Fusarium verticillioides* from maize seeds grown in southern India. S. R. NIRANJANA (1). (1) University of Mysore, India

AP-653. Flash & Dash Towards identifying Brassica proteins involved in mediating resistance to *Leptosphaeria maculans*: A proteomics-based approach. N. SHARMA (1), N. Hotte (2), M. Deyholos (2), N. Kav (1). (1) Dept. of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada; (2) Biological Sciences, University of Alberta, Edmonton, Alberta, Canada

AP-654. Flash & Dash Transcriptome analysis of the wheat-*Puccinia striiformis* f. sp. *tritici* interaction during both *Yr5*-mediated race-specific resistance and basal defense. T. E. CORAM (1), X. Chen (1). (1) USDA-ARS and Washington State University, Pullman, WA

AP-655. Flash & Dash Characterization and complementation of a fumonisin biosynthetic gene cluster deletion in banana isolates of *Fusarium verticillioides*. A. E. GLENN (1), N. C. Zitomer (1), R. T. Riley (1), R. H. Proctor (2). (1) USDA, ARS, Russell Research Center, Toxicology & Mycotoxin Research Unit, Athens, GA; (2) USDA, ARS, NCAUR, Mycotoxin Research Unit, Peoria, IL

AP-656. Withdrawn

AP-657. Genetic diversity in the anthracnose pathogen infecting tropical fruits in Colombia. M. Cadavid (2), S. Kelemu (2), J. OSORIO (1). (1) Corporación Colombiana de Investigación Agropecuaria (CORPOICA); (2) International Center for Tropical Agriculture (CIAT), Medley, FL

Host Resistance

AP-658. Salinity-induced predisposition to *Phytophthora capsici* in tomato seedlings. M. V. DILEO (1), M. F. Pye (1), D. M. Rizzo (1), R. M. Bostock (1). (1) Dept. of Plant Pathology, UC Davis, Davis, CA

AP-659. Development of rice materials for studying the genomics of disease resistance. Y. JIA (1), M. Lin (1), G. Liu (2), A. McClung (1). (1) USDA-ARS Dale Bumpers National Rice Research Center, Stuttgart, AR; (2) University of Arkansas Rice Research and Extension Center, Stuttgart, AR

AP-660. Flash & Dash Development if a *N. glutinosa* BAC library for isolation of a tombusvirus resistance gene. B. Balaji (1), C. A. ANGEL (1), J. D. Cawly (1), J. E. Schoelz (1). (1) Division of Plant Sciences, University of Missouri, Columbia, MO

AP-661. Transcriptional analysis of seedling resistance to *Fusarium culmorum* in the Australian wheat line '2-49'. J. E. PETRISKO (1), J. M. Windes (1). (1) University of Idaho, Moscow, ID

Nematodes

AP-662. Flash & Dash Exploring plant-host compatibility effectors secreted by *Meloidogyne incognita* using a LC ESI MSMS proteomic approach. S. BELLAFIORE (1), S. Briggs (1). (1) UCSD, San Diego, CA

AP-663. Cloning and characterization of candidate genes for resistance to the soybean cyst nematode, *Heterodera glycines*. X. LIU (2), S. Liu (1), A. Jamai (1), K. Meksem (1), M. G. Mitchum (2). (1) Southern Illinois University, Carbondale, IL; (2) University of Missouri, Columbia, MO

AP-664. Phenotypic characterization of roots responding to *Heterodera glycines* CLE peptides. A. REPLOGLE (3), J. Wang (3), X. Wang (1), E. L. Davis (2), M. G. Mitchum (3). (1) Cornell University, Ithaca, NY; (2) North Carolina State University, Raleigh, NC; (3) University of Missouri, Columbia, MO

AP-665. Molecular characterization and functional analysis of venom allergen-like protein genes in the potato cyst nematode, *Globodera rostochiensi*.s. S. LU (1), H. Yu (1), X. Wang (2). (1) Cornell University, Ithaca, NY; (2) USDA-ARS/Cornell University, Ithaca, NY

AP-666. Is ethylene a key player in the *Mi-1* mediated resistance to potato aphids and root knot nematodes in tomato? S. MANTELIN (1), K. K. Bhattarai (1), I. Kaloshian (1). (1) University of California, Riverside, CA

AP-667. Functional analyses of selected parasitism genes of the root-knot nematode *Meloidogyne incognita*. B. XUE (2), G. Huang (3), T. Baum (1), R. Hussey (3), E. Davis (2). (1) Iowa State University, Ames, IA; (2) North Carolina State University, Raleigh, NC; (3) University of Georgia, Athens, GA

Viruses

AP-668. Evaluation of transgenic tomato and petunia plants with increased expression of alternative oxidase for resistance to *Tomato spotted wilt virus*. H. Ma (2), C. Song (1), W. Borth (2), J. Wang (1), J. HU (2). (1) Nanjing Agricultural University; (2) University of Hawaii, Honolulu, HI

AP-669. Development of a high throughput *Bean pod mottle virus* (BPMV) based gene expression and VIGS vector for soybean host pathogen interaction study. C. ZHANG (1), S. Whitham (1), J. Hill (1). (1) Iowa State Univ, Ames, IA

AP-670. Gain of virulence by an avirulent strain of *Soybean mosaic virus* on Rsv1-genotype soybean requires concurrent mutations in both P3 and HC-Pro. A. L. EGGENBERGER (1), M. R. Hajimorad (2), J. H. Hill (1). (1) Iowa State University, Ames, IA; (2) University of Tennessee, Knoxville, TN

AP-671. Flash & Dash Sequence diversity of read through protein of Midwestern isolates of *Soybean dwarf virus*. T. THEKKE VEETIL (1), L. L. Domier (2). (1) Dept. of Natural Resources and Environmental Sciences, University of Illinois, Urbana, IL; (2) USDA-ARS, Dept. Crop Sci., Univ. of IL, Urbana, IL

AP-672. Evaluation of RNA extraction techniques for Real time PCR of Botrytis virus. X. B. BOINE (2), M. N. Pearson (2), R. Beever (1), A. Bailey (3), G. Foster (3). (1) Landcare Research, Auckland, New Zealand;(2) University of Auckland, School of Biological Sciences, Auckland, New Zealand; (3) University of Bristol, School of Biological Sciences, Bristol, UK

AP-673. Characterization of a *Cymbidium mosaic virus* isolate that is undetectable by a commercial ELISA virus detection kit. A. READ (1), B. Bushe (2), M. Shintaku (1). (1) University of Hawaii-Hilo, Hilo, HI; (2) University of Hawaii-Manoa, Hilo, HI

AP-674. The effect of the sequence and time-lapse between infection of the causal agents of sweet potato virus disease (SPVD) on symptom development and individual virus titers. C. MCGREGOR (2), D. Miano (2), M. Hoy (1), C. Clark (1), D. LaBonte (2). (1) Dept. of Plant Pathology and Crop Physiology, LSU, Baton Rouge, LA; (2) School of Plant, Environmental and Soil Sciences, LSU, Baton Rouge, LA

AP-675. Investigating the simultaneous silencing of two wheat genes using BSMV-based virus induced gene silencing system. C. CAKIR (2), A. S. Brandt (2), M. Gillespie (1), S. Scofield (2). (1) Purdue University; (2) USDA-ARS, Purdue University, West Lafayette, IN

AP-676. Recombination and complementation potential of transgenically-expressed BMV proteins with movement defective viruses in *Nicotiana benthamiana*. S. R. CHALUVADI (1), X. Ding (1), K. D. Ballard (1), R. S. Nelson (1). (1) Samuel Roberts Noble Foundation, Plant Biology Division, 2510 Sam Noble Parkway, Ardmore, OK

AP-677. Light is not prerequisite for encapsidation of *Turnip yellow mosaic virus* RNAs. I. E. TZANETAKIS (1), T. W. Dreher (1). (1) Oregon State University, Corvallis, OR

AP-678. The nucleotide sequence of *Blackberry chlorotic ringspot* and *Strawberry necrotic shock viruses*. I. E. TZANETAKIS (1), S. Scott (2), R. R. Martin (3). (1) Dept. of Botany and Plant Pathology, Oregon State University, Corvallis; (2) Dept. of Entomology, Soils, and Plant Sciences, Clemson Univ., Clemson, SC; (3) USDA/ARS Horticultural Crops Research Lab. Corvallis, OR

AP-679. Molecular evidence that *Pea enation mosaic virus* is seed borne but not seed transmitted in *Pisum sativum*. R. LARSEN (2), G. Timmerman-Vaughan (1), S. Murray (1). (1) New Zealand Institute for Crop & Food Research Ltd.; (2) USDA-ARS, Prosser, WA

AP-680. Molecular characterization of the multifunctional capsid protein of *Saguaro cactus virus*. Z. WENG (1), Z. Xiong (1). (1) University of Arizona, Tucson, AZ

AP-681. Molecular characterization and phylogenetic relationships of *Desmodium leaf distortion virus* (DeLDV): A new begomovirus infecting *Desmodium glabrum*. C. HERNÁNDEZ-ZEPEDA (1), A. M. Idris (2), G. Carnevali (1), J. K. Brown (2), O. A. Moreno-Valenzuela (1). (1) Centro de Investigación Científica de Yucatán, Mérida, Yucatán, México; (2) The University of Arizona, Tucson, AZ

Nematology

Biological Control

SP-682. Effect of plant growth promoting rhizobacterium, *Paenibacillus polymyxa* GBR-1 on plant parasitic nematodes and root-knot disease. Z. KHAN (1), S. Son (1), S. Kim (1), Y. Jeon (2), H. U. Khan (3), Y. Kim (1), H. Moon (1). (1) Dept. of Agricultural Biotechnology, Seoul National University, Seoul, Korea; (2) Bio-resource Research Group, KT&G Central Research Institute, Suwon, Korea; (3) Pakistan Science Foundation, Islamabad, Pakistan

SP-683. Influence of environmental factors on Hirsutella minnesotensis monitored quantitatively by real-time PCR and parasitism assay, M. XIANG (1), X. Liu (1), Q. Xiao (2). (1) Key Laboratory of Systematic Mycology and Lichenology, Institute of Microbiology, Chinese Academy of Sciences, Beijing; (2) Dept. of Plant Pathology, Hunan Agricultural University, Changsha, China

SP-684. An alkaline serine protease and gene cloning from a high virulent strain of nematode-endoparasitic fungus Hirsutella rhossiliensis. B. Wang (1), W. Wu (2), X. LIU (1), S. Li (3). (1) Key Laboratory of Systematic Mycology and Lichenology, Institute of Microbiology, Chinese Academy of Sciences, Beijing; (2) R/D Novozymes, Demark; (3) Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, China

SP-685. Survival of *Lysobacter enzymogenes* strain C3 on *Beta vulgaris*. J. CHEN (1), G. Y. Yuen (2), D. Y. Kobayashi (3), K. R. Sanchez (1), E. P. Caswell-Chen (1). (1) Department of Nematology, University of California, Davis, CA; (2) Department of Plant Pathology, University of Nebraska, Lincoln, NE; (3) Department of Plant Biology & Pathology, Rutgers University, New Brunswick, NJ

SP-686. Nematicidal effect of the toxin produced by *Bacillus thuringiensis* (Bt.) against *Meloidogyne incognita*. S. I. MASSOUD (1), T. S. Abd-El-Moneim (1). (1) Suez Canal University, Ismailia, Egypt

SP-687. Clove oil and fungus compounds: Can nematode suppression be achieved without phytotoxicity? S. L. MEYER (1), D. Lakshman (2), I. Zasada (1), B. Vinyard (3), D. Chitwood (1), O. Shemshura (4), N. Bekmakhanova (4), M. Mazunina (4), B. Yeskalieva (4), E. Masler (1). (1) USDA, ARS, Nematology Laboratory, Belltsville, MD; (2) Floral and Nursery Plants Research Unit, US National Arboretum, Beltsville, MD; (3) USDA, ARS Biometrical Consulting Service, Beltsville, MD; (4) Institute of Microbiology and Virology, Almaty, Almatynskaya oblast, Kazakhstan

AP-688. Toxicity of ergovaline, the tall fescue ergot alkaloid, to *Pratylenchus scribneri*. A. A. BACETTY (3), M. E. Snook (3), A. E. Glenn (3), P. Nagabhyru (2), C. L. Schardl (2), J. P. Noe (1), C. W. Bacon (3). (1) Dept. of Plant Pathology, University of Georgia, Athens, GA; (2) Dept. of Plant Pathology, University of Kentucky, Lexington, KY; (3) USDA, ARS, Russell Research Center, Athens, GA

Biology of Plant Nematodes

SP-689. Characterization of a new species of cyst nematode parasitizing corn. E. C. BERNARD (1), P. A. Donald (2), Z. A. Handoo (3), R. D. Heinz (4), T. O. Powers (5). (1) University of Tennessee, Knoxville, TN; (2) USDA, ARS, Jackson, TN; (3) Nematology Laboratory, USDA, ARS, Beltsville, MD; (4) University of Missouri, Columbia, MO; (5) University of Nebraska, Lincoln, NE

SP-690. Thermal requirements for embryogenesis of *Rotylenchulus reniformis*. M. M. LEACH (1), P. A. Agudelo (1). (1) Clemson University, Clemson, SC

SP-691. Influence of pH and infestation time on the interaction between *Pratylenchus penetrans* and *P. crenatus* in corn. N. VIAENE (1), S. Baidya (2). (1) Dept. of Plant Protection, Unit Plant, Institute of Agricultural and Fisheries Research, Merelbeke, Belgium; (2) Dept. of Biology, University of Ghent, Ghent, Belgium

SP-692. Molecular diagnostics and phylogenetic relationships of some species of root-lesion nematodes of the genus Pratylenchus. S. A. SUBBOTIN (1), E. J. Ragsdale (2), T. Mullens (2), P. Roberts (2), J. G. Baldwin (2). (1) Plant Pest Diagnostic Centre, CDFA, CA; (2) University of California, Riverside, CA

SP-693. *Panagrolaimus* mitochondrial genome evolution: Impact of reproductive mode. S. C. LEWIS (1), D. R. Denver (1). (1) Oregon State University, Corvallis, OR

SP-694. Three-dimensional reconstruction of epidermal andsSensory organs in the nematode *Acrobeles complexus*. D. J. Bumbarger (1), J. Crum (2), M. Ellisman (2), J. G. BALDWIN (1). (1) University of California, Riverside, CA; (2) University of California, San Diego, CA

SP-695. Flash & Dash — FLPs are physiological regulators with interesting phylogenetic signatures in plant-parasitic nematodes. E. P. MASLER (1), L. K. Carta (1), A. M. Skantar (1), C. Stone (1). (1) USDA/ARS, Beltsville, MD

SP-696. *Hirschmanniella* sp. n. (Nematoda: Pratylenchidae), a cryptic sibling species of *H. pomponiensis* Abdel-Rahman & Maggenti, 1987. I. TANDINGAN DE LEY (1), M. Mundo-Ocampo (1), M. Yoder (1), P. De Ley (1). (1) Department of Nematology, Univ. of California, Riverside, CA

SP-697. Molecular phylogeny of clade III nematodes reveals multiple origins of tissue parasitism. S. A. NADLER (1). (1) Department of Nematology, University of California, Davis, CA

SP-698. Species and distribution of *Pratylenchus* in Canada, Q. YU (1). (1) Environmental Health Program (Biodiversity/Invertebrate), Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada

SP-699. Relational database for the identification of pan- and clade-specific orthologous gene sets in the phylum Nematoda. K. MORRIS (1), T. Fogal (1), W. K. Thomas (1). (1) HCGS/UNH, Durham, NH

SP-700. Novel cuticular morphology using LT-SEM and light microscopic modifications in some bacterial-feeding and plant-parasitic nematodes. L. K. CARTA (1), E. F. Erbe (2). (1) USDA-ARS-NL, Beltsville, MD; (2) USDA-ARS-SGIL, Beltsville, MD

SP-701. Morphological and molecular characterization of *Hemiplectus muscorum* Zell, 1991 (Nematoda: Plectida. O. HOLOVACHOV (1), S. Bostrom (2), I. Tandingan De Ley (1). (1) Dept. of Nematology, University of California–Riverside, Riverside, CA; (2) Dept. of Invertebrate Zoology, Swedish Museum of Natural History, Stockholm, Sweden

SP-702. An atlas of marine nematode morphological diversity as a tool for systematics and functional biology. M. MUNDO-OCAMPO (1), J. G. Baldwin (1). (1) University of California, Riverside, CA

SP-703. NemaScope: An online image database and key for rapid, jargon-free identifications of nematode genera based on point-and-click visual matching. M. YODER (1), J. A. Brady (1), E. Keogh (1), M. Faloutsos (1), P. De Ley (1). (1) University of California, Riverside, CA

SP-704. Male ray pattern evolution in rhabditid nematodes. K. C. KIONTKE (1), A. Kolychkina (1), R. Ng (1), D. H. Fitch (1). (1) New York University, New York, NY

SP-705. Flash & Dash — Variability in morphology, genetics and biology of nematodes and evolution of new taxa. M. E. HODDA (1). (1) Nematode Biosystematics & Ecology Australian National Insect Collection, Canberra, Australia

SP-706. New record and SEM of *Rhynchonema ornatum* (Lorenzen, 1975) from the Sea of Cortez, Mexico, with notes on *Rhynchonema amakusanum* (Aryuthaka, 1989). I. W. KING (1), D. Waumann (2), P. De Ley (1). (1) Dept. of Nematology, University of California Riverside, Riverside, CA; (2) Facultad de Ciencias Marinas, Universidad Autónoma de Baja California, Ensenada, Mexico

AP-707. Phase microscopy of perineal patterns of root-knot nematodes, *Meloidogyne* spp. J. D. EISENBACK (1). (1) Virginia Tech, PPWS Dept, 103 Price Hall, Blacksburg, VA

AP-708. Investigation of the persistence and adaptability of interspecific field isolates and controlled-cross greenhouse lines of Heterodera species as measured by molecular markers and host range phenotype. A. L. Colgrove (1), A. Skantar (2), U. Reuter-Carlson (1), T. NIBLACK (1). (1) Dept. of Crop Sciences, University of IL at Urbana and Champaign, Urbana, IL; (2) Molecular Plant Pathology Lab, USDA-ARS, Beltsville, MD

Cellular & Molecular Biology

SP-709. Root-knot nematode/tomato interactions: Transcriptome profiling and defense signaling pathways. K. BHATTARAI (1), U. Bishnoi (1), I. Kaloshian (1). (1) University of California, Riverside, CA

SP-710. Application of pluronic gel to the study of plant-nematode interactions. C. WANG (1), S. Lower (1), Q. Liu (1), V. M. Williamson (1). (1) Nematology Dept., University of California, Davis, CA

SP-711. Examining a MAP kinase pathway induced during *Meloidogyne incognita* infection. K. L. LAGOR (1), X. Li (1), Z. Shen (1), S. P. Briggs (1).

(1) University of California—San Diego, San Diego, CA

SP-712. Engineering resistance against soybean cyst nematodes. X. HUANG (1), A. Wiig (1), S. Hill (1), R. Ascenzi (1), B. McCaig (1), Y. S. Liu (1), S. Motyka (1), J. Dong (1), M. Offenheiser (1), P. Puzio (2), L. Talton (1), R. Zhen (1), V. Mittendorf (1). (1) BASF Plant Science LLC, Durham, North Carolina; (2) Metanomics GmbH, Berlin, Germany

SP-713. Proteins for the control of plant-parasitic nematodes. J. THISSEN (1), T. Kahn (1), E. Pickle (1), B. Villano (1), J. Cao (1), H. Furcillo (1), C. Peters (1), B. Vande Berg (1), D. Tomso (1), N. Desai (1), N. Duck (1). (1) Athenix Corporation, Research Triangle Park, NC

SP-714. Transgenic *Anthurium andraeanum* expressing modified rice cysteine protease inhibitor and resistance to *Radopholus similis*. T. KHAITHONG (1). B. S. Sipes (1), A. R. Kuehnle (2). (1) Departments of Plant and Environmental Protection Sciences; (2) Tropical Plant and Soil Sciences, University of Hawaii at Manoa, Honolulu, HI

SP-715. Plant proteinase inhibitors as a natural and introduced defense mechanism for root-knot nematodes in *Coffea Arabica*. R. Y. CABOS (1), B. S. Sipes (1), D. P. Schmitt (1), H. J. Atkinson (2), C. Nagai (3). (1) University of Hawaii; (2) University of Leeds; (3) Hawaii Agriculture Research Center, Aiea, HI

AP-716. Flash & Dash A cyst nematode RanBPM-like protein elicits R gene and RanGAP-dependent plant cell death. M. A. Sacco (1), K. Koropacka (2), A. Blanchard (3), M. Esquibet (3), E. Grenier (3), A. Goverse (2), G. Smant (2), P. MOFFETT (1). (1) Boyce Thompson Institute for Plant Research, Ithaca, NY; (2) Laboratory of Nematology, Plant Sciences Group, Wageningen University, Wageningen, The Netherlands; (3) Institut National de la Recherche Agronomique, Agrocampus Rennes, Le Rheu, France

Chemical Control

SP-717. Laboratory and greenhouse studies with QL Agri and the root-knot nematode, *Meloidogyne incognita*. L. J. Marais (1), R. Otero (2), M. A. MCCLURE (3). (1) Monterey AgResources, Fresno, CA; (2) Desert King International; (3) Plant Sciences Dept., University of Arizona, Tucson, AZ

SP-718. Efficacy of fumigant and non-fumigant nematicides for the management of *Meloidogyne chitwoodi* in potato. S. L. HAFEZ (1), S. Palanisamy (1). (1) University of Idaho, Parma, ID

SP-719. Review of nematode protection benefits from Abamectin seed treatment on corn. A. COCHRAN (1), C. Watrin (2), B. Ulmer (2). (1) Sygenta Crop Protection AG, Basel, Switzerland; (2) Syngenta Crop Protection Inc., Greensboro, NC

SP-720. Flash & Dash Effect of oxamyl and methomyl seed treatments on root-knot nematode infection. J. A. DESAEGER (1), M. Rivera (1), K. Nagle (1), T. Meloro (1), P. Eggink (1), D. Kirk (1). (1) DuPont Crop Protection, Newark, DE

SP-721. Treatment of water with pulsed ultraviolet light for inactivation of nematodes. J. L. HAYNES(1), K. R. Sanchez (1), M. C. Lagunas-Solar (2), S. A. Nadler (1), C. Pina (2), E. P. Caswell-Chen (1). (1) Dept. of Nematology; (2) Crocker Nuclear Laboratory, University of California, Davis, CA

SP-722. Ozonation for control of nematodes in irrigation water. K. R. SANCHEZ (1), J. L. Haynes (1), A. Pryor (2), E. P. Caswell-Chen (1). (1) Dept. of Nematology, University of California, Davis, CA; (2) Ozone Process Consultants Inc., Davis, CA

SP-723. Nematoxic effects of abamectin and thiodicarb on *Meloidogyne incognita* and *Rotylenchulus reniformis*. L. J. XING (1), C. Grimm (2), A. Cochran (3), D. H. Long (4). (1) Syngenta Crop Protection Inc., Leland, MS; (2) Syngenta Crop Protection AG, Stein, Switzerland; (3) Syngenta Crop Protection AG, Basel, Switzerland; (4) Syngenta Crop Protection Inc, Greensboro, NC

SP-724. Soybean cyst nematode and nematicide affect growth pattern of various soybean varieties in Iowa. P. PEDERSEN (1), G. Tylka (1). (1) Iowa State University, Ames, IA

SP-725. Soil fumigation and variety selection to study soybean cyst nematode in Iowa. J. DE BRUIN (1), P. Pedersen (1). (1) Iowa State University, Ames, IA

Disease Mangement- Host Resistance

SP-726. Recessive resistance to the root-knot nematode *Meloidogyne incognita* derived from the grapevine rootstock 3309 C. C. P. COUSINS (1), D. Johnston (1), S. Switras-Meyer (1), C. Meyer (2). (1) USDA ARS, Grape Genetics Research Unit, Geneva, NY; (2) Cornell University, Dept. of Horticultural Sciences, Geneva, NY

SP-727. Reaction of twenty five alfalfa breeding lines to the lesion nematode *Pratylenchus penetrans*. S. L. HAFEZ (1), S. Palanisamy (1), D. R. Miller (2). (1) University of Idaho; (2) Target Seed, LLC

SP-728. Field reaction of selected SCN resistant soybean germplasm toward SDS. J. FAGHIHI (1), S. P. Conley (1), V. R. Ferris (1). (1) Purdue University, West Lafayette, IN

SP-729. Dynamics of HG types associated with commercial soybean cultivars in Michigan. J. W. DAVENPORT (1), G. W. Bird (1), F. Warner (1). (1) Michigan State University, East Lansing, MI

SP-730. Public soybean breeding lines tested for reniform nematode (*Rotylenchulus reniformis*) reproduction. R. T. ROBBINS (1), E. Shipe (2), G. Shannon (3), P. Arelli (4), P. Chen (1). (1) University

of Arkansas, Fayetteville, AR; (2) Clemson University, Clemson, SC; (3) University of Missouri, Portageville, MS; (4) USDA-ARS-MSA, Jackson, TN

Entomophyllic Nematodes

SP-731. Nematode-bacterial symbionts: to insects and beyond! J. M. WEBSTER (1), L. Tang (2). (1) Simon Fraser University, Vancouver, British Columbia, Canada; (2) Welichem Biotech Inc., Burnaby, British Columbia, Canada

SP-732. The bacterial receptacle in *Steinernema* spp. (Steinernematidae): interspecific variation and patterns of evolutionary change of morphological and ultrastructural traits. K. L. PLICHTA. (1), S. Stock (1). (1) Dept. of Entomology, University of Arizona, Tucson, AZ

SP-733. Focal sampling of termites to test the latitudinal gradient hypothesis for entomophillic nematode diversity. R. M. GIBLIN-DAVIS (1), N. Kanzaki (2), W. Ye (3), R. H. Scheffrahn (1), T. O. Powers (4). (1) Fort Lauderdale Research and Education Center, University of Florida, Fort Lauderdale, FL; (2) Forest Pathology Laboratory, FFPRI, Tsukuba, Ibaraki, Japan; (3) North Carolina Department of Agriculture & Consumer Services, Raleigh, NC; (4) University of Nebraska, Lincoln, NE

SP-734. Use of Entomopathogenic Nematodes (EPNs) and Nematode-Trapping Fungi (NTF) for the suppression of *Meloidogyne javanica*. D. J. FALLON (1), H. K. Kaya (2), B. S. Sipes (1). (1) University of Hawaii, Honolulu, HI; (2) University of California, Davis, CA

SP-735. Entomopathogenic nematodes for biological control of soybean soil pests in the northeast of China. Y. XU (1), X. Qian (1), C. Li (1). (1) Northeast Institute of Geography and Agricultural Ecology, CAS, Harbin, Heilongjiang, China

SP-736. Infectivity of mermithid nematodes for mosquito larvae in the last instar. L. SANTIBANEZ-VARGAS (1), R. Pacheco-Perez (1), E. G. Platzer (1). University of California, Riverside, CA

AP-737. Feeding and reproductive specificity of *Deladenus siricidicola* on *Amylostereum* species and closely related wood decay fungi. A. D. WILSON (1), N. M. Schiff (1), C. S. Oberle (1). (1) USDA Forest Service, Southern Hardwoods Laboratory, Stoneville, MS

Epidemiology/Ecology

SP-738. The role of environmental gradients in the distribution of free-living nematodes in the deep northern Gulf of Mexico. J. Sharma (1), J. G. Baguley (2), R. N. HUETTEL (3). (1) University of Texas-San Antonio, San Antonio, TX; (2) University of Nevada-Reno, Reno, NV; (3) Auburn University, AL

SP-739. Survey of nematode communities associated with *Juniperus ashei*. G. YOUNG (1), J. Sharma (2), J.Bush (1), R. Huettel (3). (1) Departments of Earth and Environmental Science; (2) Biology, University of Texas-San Antonio, San Antonio, TX; (3) Dept. of Entomology and Plant Pathology, Auburn University, AL

SP-740. Isozyme phenotypes and identification of *Meloidogyne* spp. parasitizing agronomic and horticultural crops and weeds in Florida. J. A. BRITO (1), R. Kaur (2), R. Cetintas (3), J. D. Stanley (1), E. J. McAvoy (4), T. O. Powers (5), M. L. Mendes (2), D. W. Dickson (2). (1) Division of Plant Industry, Gainesville, FL; (2) Dept. of Entomology and Nematology, University of Florida, Gainesville, FL; (3) Dept. of Plant Protection, University of Kahramanmaras Sutcu Imam, Kahramanmaras, Turkey; (4) Vegetable/ Ornamental Horticulture, University of Florida, Labelle, FL; (5) Dept. of Plant Pathology, University of Nebraska, Lincoln, NE

SP-741. Trixenic cultures to study population suppression of the beet cyst nematode in *Arabidopsis thaliana* by *Dactylella oviparasitica*. J. SMITH-BECKER, J. Borneman, J. O. Becker. University of California, Riverside, CA

SP-742. Understanding a root-knot nematode suppressive soil. A. Loffredo (1), E. BENT (1), M. V. McKenry (1), J. Borneman (1), J. O. Becker (1). (1) University of California, Riverside, CA

SP-743. Rapid response of grassland nematode diversity in grazed pasture at two soil fertility levels to urea application. G. W. YEATES (1), R. L. Parfitt (1), A. D. Mackay (2), D. J. Ross (1). (1) Landcare Research, Palmerston North, New Zealand; (2) AgResearch, Palmerston North, New Zealand

SP-744. Molecular and morphological examination of a pineapple agricultural system in Hawaii. T. G. QUINTERO (1), B. S. Sipes (1). (1) Dept. of Plant and Environmental Protection Sciences, University of Hawaii at Manoa, Honolulu, HI

SP-745. A study of the molecular mechanisms of desiccation tolerance in Antarctic Dry Valley nematodes using Expressed Sequenced Tags (EST). B. N. ADHIKARI (1), E. Ayres (2), B. Simmons (2). D. H. Wall (2), B. J. Adams (1). (1) Brigham Young University, Provo, UT; (2) Colorado State University, Fort Collins, CO

SP-746. Biodiversity and ecosystem functioning in Victoria Land nematodes: A molecular approach. A. R. DILLMAN (1), T. S. Davie (1), J. M. Chaston (2), S. M. Peat (1), E. Ayres (3), B. Simmons (3), J. E. Barrett (4), D. H. Wall (3), B. J. Adams (1). (1) Brigham Young University, Provo, UT; (2) University of Wisconsin, Madison, WI; (3) Colorado State University, Fort Collins, CO; (4) Virginia Tech, Blacksburg, VA

SP-747. Nematode taxocoenoses in the Guadiamar Green Corridor (SW Iberian Peninsula). R. Peña-Santiago (1). D. Jiménez-Guirado (2). R. Murillo (2), G. M. Liébanas (1), J. ABOLAFIA

(1), P. Guerrero (1). (1) University of Jaén, Spain; (2) University of Córdoba, Spain

Integrated Pest Management

SP-748. Impact of solarization, rootstock and *Pseudomonas synxantha* on *Criconemoides xenoplax* populations and tree growth in a peach tree short life site. A. P. NYCZEPIR (1), D. A. Kluepfel (2). (1) USDA-ARS, SE Fruit and Tree Nut Research Laboratory, Byron, GA; (2) USDA-ARS, Crops Pathology and Genetics Research Unit, University of California, Davis, CA

SP-749. Soybean cyst nematode and soybean aphid interactions on soybean. F. AVENDANO (1), M. E. O'Neal (1), G. L. Tylka (1). (1) Iowa State University, Ames, IA

SP-750. The compatibility between a biological control agent and pesticides. Y. CHEN (1), P. J. Chen (1), T. Tsay (1). (1) Dept. Plant Pathology, National Chung Hsing University

SP-751. *Meloidogyne incognita* host status and biofumigant effect of Brassica crop cultivars. A. PLOEG (1), S. Edwards (1). (1) Dept. Nematology, Univ. California Riverside, CA

SP-752. Influence of planting date and water management on reniform nematode populations in cotton. S. R. STETINA (1), W. T. Pettigrew (1). (1) USDA ARS Crop Genetics and Production Research Unit, Stoneville, MS

SP-753. Relating the glucosinolate profile of *Tropaelum majus* cultivars to *Xiphinema americanum* mortality. J. M. HALBRENDT (1), J. E. Dean (2), C. P. Rice (3), I. A. Zasada (3). (1) Penn State University, Biglerville, PA; (2) University of Maryland, College Park, MD; (3) USDA-ARS, Beltsville, MD

SP-754. Fate of benzoxazinoids from rye (*Secale cereale*) in soil and the implication on plant-parasitic nematode management. I. A. ZASADA (1), C. Rice (1), S. L. Meyer (1). (1) USDA-ARS, Beltsville, MD

SP-755. Effects of several populations of Sunn Hemp on nematodes. S. MARLA (1), J. Mosjidis (2), R. Huettel (1). (1) Dept. of Entomology and Plant Pathology, Auburn University, AL; (2) Dept. of Agronomy and Soils, Auburn University, AL

SP-756. Effect of different arugula varieties on *Meloidogyne chitwoodi*, *M.hapla* and Heterodera schachtii. S. L. Hafez (1), S. PALANISAMY (1). (1) University of Idaho

SP-757. Efficacy of Midas™ for control of nematodes, pathogens and weeds in ornamental cockscomb (*Celosia argentea*) production in Florida. N. KOKALIS-BURELLE (1), E. N. Rosskopf (1). (1) USDA, ARS, U.S. Horticultural Research Lab, Ft. Pierce, FL

Plant Disease- Nematodes

SP-758. Occurrence and economic importance of plant parasitic nematodes in organic grown vegetables in Germany. J. HALLMANN (1), A. Frankenberg (2), A. Paffrath (3). (1) Federal Biological Research Centre for Agriculture and Forestry, Muenster, Germany; (2) Bioland Landesverband Nordrhein-Westfalen, Hamm, Germany; (3) Landwirtschaftskammer Nordrhein-Westfalen, Zentrum für Ökologischen Landbau

SP-759. The tobacco cyst nematode affects photosynthesis of shade-grown cigar wrapper tobacco. J. A. LAMONDIA (1). (1) The Connecticut Agricultural Experiment Station Valley Laboratory, Windsor, CT

SP-760. Plant parasitic nematode genera in Nebraska corn fields. T. A. JACKSON (2), R. M. Harveson (1), J. G. Counsell (2), K. A. Goings (2), D. W. Miller (2). (1) UNL-Panhandle Research and Extension Center, Scottsbluff, NE; (2) University of Nebraska, Lincoln, NE

SP-761. Occurrence of pine wilt disease, caused by *Bursaphelenchus xylophilus*, from *Pinus koraiensis* in Korea. Y. MOON (1), H. Cheon (1), S. Lee (1). (1) PWD Control Research Center, Southern Forest Research Center, Korea Forest Research Institute, Jinju, Korea

SP-762. Seasonal reniform nematode population dynamics in northeastern and east-central Arkansas. J. A. STILL (1), T. L. Kirkpatrick (2). (1) University of Arkansas, Fayetteville, AR; (2) University of Arkansas, Hope, AR

SP-763. The importance and management of phytoparasitic nematodes in western Colorado fruit orchards. R. R. POKHAREL (1), H. J. Larsen (1). (1) Colorado State University, Grand Junction, CO

SP-764. Distribution and frequency of *Heterodera glycines* and other plant-parasitic nematodes in the organic-farming fields in Minnesota. S. CHEN (1), C. C. Sheaffer (2), D. L. Wyse (2), P. Nickel (3), H. Kandel (4), C. M. Fernholz (4). (1) University of Minnesota Southern Research and Outreach Center, Waseca, MN; (2) Dept. of Agronomy and Plant Genetics, University of Minnesota, Saint Paul, MN; (3) University of Minnesota Southwest Research and Outreach Center, Lamberton, MN; (4) University of Minnesota Extension Regional Center Crookston, Crookston, MN

SP-765. Occurrence of root-knot nematodes in Switzerland. S. KIEWNICK (1), R. Eder (1), I. Roth (1), M. Oggenfuss (1), B. Frey (1), J. Frey (1). (1) Agroscope Changins-Waedenswil ACW, Research Station ACW, Waedenswil, Switzerland

SP-766. The influence of *Meloidogyne incognita* inoculum source and nutsedge competition on nematode virulence on chile pepper. J. TROJAN (1), S. H. Thomas (1), J. Schroeder (1), L. W. Murray (1). (1) New Mexico State University, Las Cruces, NM

Plant Disease Management (PDM)
Biological Control

AP-767. Analysis of determinants of *Pseudomonas fluorescens* WCS374r involved in induced systemic resistance in *Arabidopsis thaliana*. P. BAKKER (1), M. Djavaheri (1), J. Mercado-Blanco (2), L. Van Loon (1). (1) Plant-Microbe Interactions, Utrecht University, Utrecht, The Netherlands; (2) CSIC, Cordoba, Spain

AP-768. Effects of induced resistance on the indigenous rhizosphere and phyllosphere microflora of *Arabidopsis thaliana*. P. BAKKER (1), R. Doornbos (1), J. Vervoort (1), L. Van Loon (1). (1) Plant-Microbe Interactions, Utrecht University, Utrecht, The Netherlands

AP-769. The use of compost in horticulture for controlling soil-borne pathogens. M. PUGLIESE (1), M. L. Gullino (1), A. Garibaldi (1). (1) AGROINNOVA - University of Torino, Grugliasco (TO), Italy

AP-770. Cyclic lipopeptide surfactant production by *Pseudomonas fluorescens* SS101 is not required for suppression of complex *Pythium* spp. Populations. M. MAZZOLA (2), X. Zhao (2), M. F. Cohen (1), J. M. Raaijmakers (3). (1) Sonoma State University, Rohnert Park, CA; (2) USDA-ARS, Wenatchee, WA; (3) Wageningen University, Wageningen, The Netherlands

AP-771. Characterization of the genes dedicated to the antifungal activity of *Burkholderia* sp. strain MS14. S. LU (2), G. Gu (2), H. Wang (1). (1) Dept. of Biochemistry and Molecular Biology, Mississippi State University, Mississippi State, MS; (2) Dept. of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS

AP-772. *In vitro* assessment of plant essential oils inhibitory against *Phomopsis longicolla*, the fungus that causes soybean seed decay. S. LI (3), S. Zhang (2), Z. Lui (1), N. Tabanca (4), D. Wedge (4). (1) School of Renewable Natural Resources, Louisiana State University Agricultural Center, Baton Rouge, LA;(2) Shanghai Academy of Agricultural Sciences, Shanghai, P.R. China;(3) USDA-ARS, Crop Genetics and Production Research Unit, Stoneville, MS; (4) USDA-ARS, Natural Products Utilization Research Unit, University of Mississippi, Mississippi State, MS

AP-773. Utilizing several sterile fungi for reducing losses in sugar beet from multiple root pathogens. R. M. HARVESON (1). (1) University of Nebraska, Scottsbluff, NE

AP-774. Diversity of a fungal endophyte community isolated from two Espeletia species and its biocontrol potential against plant pathogens. L. AVILA (1), C. Lopera (2), S. Restrepo (1), M. Cepero de García (1). (1) LAMFU, Universidad de los Andes, Bogotá, Colombia; (2) LTEH, Universidad de Antioquia, Medellín, Colombia

AP-775. Host range determination of *Uromyces salsolae* from Russian thistle. C. A. CAVIN (1), W. L. Bruckart (1). (1) USDA, ARS, FDWSRU, Ft. Detrick, MD

AP-776. Commercialization of *Bacillus mycoides* isolate BmJ as a broad spectrum biological plant disease control agent. B. JACOBSEN (6), C. Bradley (4), N. Zidack (6), T. Brennemon (1), J. Miller (3), J. Washington (7), C. Melinger (2), B. Larsen (5), O. Neher (6). (1) Coastal Plains Experiment Station, University of Georgia, Tifton, GA; (2) Glades Crop Care, Jupiter, FL; (3) Miller Research, Rupert, ID; (4) Montana Microbials, LLC, Missoula, MT;(5) Montana State University Extension, Sidney, MT;(6) Montana State University, Bozeman, MT;(7) Tropical Plant Technologies, Miami, FL

AP-777. Mortality of *Tilletia* spp. teliospores caused by volatiles from the biofumigant fungus *Muscodor albus*. B. J. GOATES (2), J. Mercier (1). (1) AgraQuest, Inc., Davis, CA; (2) USDA-ARS, Aberdeen, ID

AP-778. Flash & Dash Development of co-cultivated mixtures of antagonists active against Fusarium head blight of wheat. D. A. SCHISLER (2), P. J. Slininger (2), M. J. Boehm (1). (1) Dept. of Plant Pathology, The Ohio State University, Columbus, OH; (2) NCAUR, USDA-ARS, Peoria, IL

AP-779. Assessment of grapevine endophytic bacteria for control of Pierce's disease. M. WILHELM (1), B. C. Kirkpatrick (1). (1) University of California, Davis, CA

AP-780. Evaluation of novel fungicide seed treatments in combination with management practices for the control of seed-borne diseases of potato. P. S. WHARTON (1), W. W. Kirk (1). (1) Michigan State University, East Lansing, MI

AP-781. Effect of soil type and water tension on the efficacy of *Coniothyrium minitans* to degrade *Sclerotinia sclerotiorum* sclerotia *in vitro*. M. Ciotola (1), R. Bacon (1), V. TOUSSAINT (1). (1) Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC, Canada

AP-782. Relationship between bacteriophage disease control efficacy and *in vivo* multiplication ability. B. BALOGH (1), M. Momol (1), J. B. Jones (1). (1) University of Florida, Quincy, FL

AP-783. Possible origin of bacteriophages associated with citrus canker in Florida and Argentina. B. BALOGH (1), J. B. Jones (1). (1) University of Florida, Quincy, FL

AP-784. Watermelon grown on a no-till hairy vetch cover crop is a new alternative practice for management of anthracnose and gummy stem blight. X. ZHOU (1), K. L. Everts (2). (1) University of Maryland, Salisbury, MD; (2) University of Maryland/ Delaware, Salisbury/Georgetown, MD/DE

AP-785. Assessment of disease suppression in organic transition farming systems. S. L. MARZANO (1), D. M. Eastburn (1). (1) University of Illinois, Urbana, IL

AP-786. Effects of volatile organic compounds of *Muscodor albus* on *Verticillium dahliae* and *Colletotrichum coccodes* of potato. E. GRIMME (1), N. K. Zidack (1), G. A. Strobel (1), B. J. Jacobsen (1). (1) Montana State University, Dept. of Plant Pathology, Bozeman, MT

AP-787. Registration and efficacy grant program of the IR-4 Project. M. P. BRAVERMAN (1), J. J. Baron (1), D. L. Kunkel (1). (1) IR-4 Project, Rutgers University, Princeton, NJ

AP-788. Flash & Dash Liquid fermentation can mitigate mycotoxin production in *Myrothecium verrucaria*, a mycoherbicide for kudzu and hemp sesbania control. C. D. BOYETTE (1), K. C. Stetina (1), M. A. Weaver (1), R. E. Hoagland (1). (1) USDA ARS Stoneville, MS

AP-789. Clove oil as an effective biopesticide to control Ralstonia and other bacterial plant pathogens. D. LAKSHMAN (1), Q. Huang (1). (1) USDA-ARS, Floral and Nursery Plants Research Unit, Beltsville, MD

AP-790. Monarda bioactive herbage reduces Rhizoctonia disease losses in tomato transplants. K. D. GWINN (1), S. E. Greene (1), B. H. Ownley (1). (1) University of Tennessee, Knoxville, TN

AP-791. Population and spatial dynamics of the biocontrol agent *Coniothyrium minitans* in commercial snap bean production fields in WI. K. E. LESNIAK (1), W. R. Stevenson (1). (1) Dept. of Plant Pathology, University of Wisconsin-Madison, Madison, WI

AP-792. Efficacy of Liquid Compost Factor (LCF) against *Radopholus similis* in *Anthurium andraeanum*. G. I. Ishida (1), B. S. SIPES (1). (1) Dept. of Plant and Environmental Protection Sciences, University of Hawaii at Manoa, Honolulu, HI

AP-793. Evaluation of *Brassica* spp. for production of isothiocyanate precursors and biomass for suppression of root knot nematode. K. STEDDOM (1), K. Ong (1). (1) Texas Cooperative Extension, Overton, TX

AP-794. Biological control of lettuce sclerotinia rot by a mycoparasite, *Coniothyrium minitans* CM2 in Korea. S. LEE (2), W. Kim (1), H. Weon (1), S. Hong (1), K. Park (2), Y. Lee (2), Y. Kim (2). (1) National Institute of Agricultural Science and Technology, Suwon, Korea; (2) Plant Pathology Division, National Institute of Agricultural Science and Technology, Suwon, Korea

AP-795. Biological control of black rot disease of peanuts caused by *Cylindrocladium crotalaria* using chitinolytic actinomycetes. K. A. EL-TARABILY (2), F. McKenna (1), (1) Natural Science Center Inc., Steele, AL; (2) United Arab Emirates University, Dept. of Biology, Faculty of Science, Al-Ain, United Arab Emirates

AP-796. Flash & Dash Shelf life of selected isolates of non-pathogenic *Fusarium oxysporum* and fluorescent *Pseudomonas* in talc and charcoal based formulations. R. KAUR (1), R. S. Singh (2). (1) Dept. of Entomology and Nematology, University of Florida, Gainesville, FL; (2) Dept. of Plant Pathology, Punjab Agricultural University, Ludhiana, India

AP-797. The control of anthracnose of cucurbits caused by *Glomerella cingulata* var. *orbiculare* by foliar applications of *Bacillus mycoides* isolates BmJ. O. T. NEHER (1), M. R. Johnston (1), N. K. Zidack (1), B. J. Jacobsen (1). (1) Montana State University, Dept. of Plant Pathology, Bozeman, MT

AP-798. Determination of antifungal, biochemical and physiological features of *Trichoderma koningiopsis.* S. CHAMBLISS-BUSH (1). (1) USDA, ARS, RRC, TMRU, Athens, GA

AP-799. Mass production of *Coniothyrium minitans* conidia by solid-state fermentation with rice and corn stalks. Y. LIU (1). (1) Institute of Plant Protection, Sichuan Academy of Agricultural Sciences, Chengdu, P.R. China

AP-800. Beet oak-leaf virus suppresses *Beet necrotic yellow vein virus* in sugar beet. H. LIU (1), R. T. Lewellen (1). (1) USDA-ARS, Salinas, CA

AP-801. *Bacillus mojavensis* intensifies the accumulation of maize fungitoxic APO in the presence of *Fusarium verticillioides*. C. W. BACON (2), D. M. Hinton (2), A. E. Glenn (2), F. A. Macias (1), D. Marin (1). (1) Dept. Organic Chemistry, University of Cadiz, Cadiz Spain; (2) USDA, ARS, Russell Research Center, Athens, GA

AP-802. Search for fungi as potential biological control agents of *Echinochloa crus-galli*. T. M. KOLOMIETS (3), O. O. Skatenok (3), Z. M. Mukhina (1), D. K. Berner (2). (1) All Russian Scientific Research Institute of Rice, Russia; (2) Foreign Disease-Weed Science Research Unit, USDA, ARS; (3) VNIIF, Russia

Chemical Control

AP-803. Evaluation of methyl bromide alternatives potentially useful in Miami-Dade County. A. J. PALMATEER (1), W. Klassen (1). (1) University of Florida, Homestead, FL

AP-804. Spore viability bioassay, *in vitro* and greenhouse evaluation of six potential methyl bromide alternatives. F. IRIARTE (2), E. Rosskopf (1). (1) USHRL USDA, ARS Fort Pierce, FL; (2) USHRL, ARS, USDA Fort Pierce, FL

AP-805. Preventative foliar fungicide and insecticide applications and their impact on soybean yield components. L. M. ORTIZ-RIBBING (1), G. K. Roskamp (2), M. D. Roegge (1). (1) University of Illinois Extension, Edwardsville, IL; (2) Western Illinois University, Macomb, IL

AP-806. Evaluation of microinjection therapy to suppress symptom development from the anthracnose disease on California sycamore in southern California. T. A. TATTAR (3), A. Farran (1), K. Cochran (2). (1) J.J. Mauget Co., Arcadia, CA; (2) KC Horticulture, San Diego, CA; (3) University of Massachusetts, Amherst, MA

AP-807. Floriculture production with iodomethane, 1,3-dichloropropene and chloropicrin as an alternative to methyl bromide. J. S. GERIK (1). (1) USDA, ARS; SJVASC; Parlier, CA

AP-808. Translocation of picoxystrobin in soybeans. R. F. DIETRICH (1), L. J. Watson (1), O. W. Gutsche (1), R. M. Geddens (1), R. Armstrong (1), A. Marcon (1). (1) DuPont Crop Protection, Newark, DE

AP-809. Pre-transplanting treatment of cucumber seedlings with metalaxyl reduces *Pythium*-induced damping-off disease. A. M. Al Sa'di (1), M. L. DEADMAN (1), A. Drenth (3), F. A. Al-Said (1), I. A. Khan (1), E. A. Aitken (2). (1) Sultan Qaboos University, Sultanate of Oman; (2) The University of Queensland, Australia; (3) Tree Pathology Centre, The University of Queensland, Australia

AP-810. Evaluation of phosphorous acid-containing products for managing bacterial wilt of tomato. P. JI (1), T. Momol (1), S. Olson (1), C. Meister (1), D. Norman (1), J. Jones (1). (1) University of Florida, Quincy, FL

AP-811. Management of bacterial spot of tomato with phosphorous acid containing compounds. A. WEN (1), B. Balogh (1), T. Momol (1), J. Jones (1), S. Olson (1), L. Ritchie (1), P. Roberts (1), R. Systma (1), C. Meister (1). (1) University of Florida, Gainsville, FL

AP-812. Effect of fungicide seed treatments on soybean planted at different seeding rates in North Dakota and Illinois. C. A. BRADLEY (1), K. A. Ames (1), B. G. Schatz (2). (1) Dept. of Crop Sciences, University of Illinois, Urbana, IL; (2) North Dakota State University, Carrington, ND

AP-813. Integrated efficacy of reduced rates of Actigard and host resistance in management of bacterial spot of tomato. A. WEN (1), B. Balogh (1), T. Momol (1), S. Olson (1), J. Jones (1). (1) University of Florida, Gainsville, FL

AP-814. Release of acetaldehyde from beta-cyclodextrins to prevent spoilage of fresh produce due to post harvest diseases. E. Almenar (1), R. A. Auras (1), P. S. WHARTON (1), M. Rubino (1), B. Harte (1). (1) Michigan State University, East Lansing, MI

AP-815. Chemical control of karnal bunt by foliar applications. G. FUENTES-DAVILA (1). (1) INIFAP, Cd. Obregon, Sonora, Mexico

AP-816. Efficacy and persistence of seed treatment against root rot of soybean. P. W. MEYER (1), J. E. Kurle (1). (1) Dept. of Plant Pathology, University of Minnesota, St. Paul, MN

AP-817. Overcoming corrugated cardboard acting as a barrier to the effective application of chlorine dioxide gas to sanitize tomato fruit. M. MAHOVIC (1), J. A. Bartz (1). (1) University of Florida, Gainesville, FL

AP-818. Efficacy of azoxystrobin and phosphorous acid products for control of black shank of tobacco. S. C. BOST (1), S. E. Walker (1). (1) University of Tennessee, Nashville, TN

AP-819. Application methods of Actigard to control *Tomato spotted wilt virus* on tobacco. A. L. MILA (1). (1) North Carolina State University, Raleigh, NC

AP-820. Relative efficacy of triazole-based fungicides for Fusarium head blight and deoxynivalenol control in wheat. P. A. PAUL (2), P. E. Lipps (2), D. E. Hershman (3), M. P. McMullen (1), M. A. Draper (4), L. V. Madden (2). (1) Dept. of Plant Pathology, North Dakota State University, Fargo; (2) Dept. of Plant Pathology, The Ohio State University, Ohio Agricultural Research and Development Center, Wooster, OH; (3) Dept. of Plant Pathology, University of Kentucky, Princeton, KY; (4) USDA-CSREES, DC

AP-821. Evaluation of post-infection efficacy of fungicides for controlling leather rot of strawberry caused by *Phytophthora cactorum* in the field. A. REBOLLAR-ALVITER (1), L. V. Madden (2), M. A. Ellis (2). (1) Centro Regional Morelia-UA Chapingo, Morelia, Michoacan, Mexico; (2) Department of Plant Pathology, The Ohio State University/OARDC, Wooster, OH

AP-822. Suppressive anti-sporulant activity of QoI fungicides on *Monilinia fructicola* on peach. A. L. BURNETT (1), N. Lalancette (1). (1) Rutgers University, Agricultural Research and Extension Center, Bridgeton, NJ

AP-823. Systemic and curative properties of fenhexamid in control of *Botrytis cinerea* on grapes. S. M. ZITTER (1), W. F. Wilcox (1). (1) Dept. of Plant Pathology, NYSAES, Cornell University, Geneva, NY

AP-824. Efficiency of some new chemical pesticides on replant problem of stone fruits on Western Colorado. R. R. POKHAREL (1), H. J. Larsen (1). (1) Colorado State University, Grand Junction, CO

AP-825. Withdrawn**.**

AP-826. The effect of fertilizer and fungicide applications on the severity of necrotic ringspot of Kentucky bluegrass. N. R. BRANDT (1), N. A. Tisserat (1), (1) Colorado State University, Fort Collins, CO

AP-827. Foliar calcium suppresses Septoria late blight and increases yield in celery. C. L. Trueman (2), M. MCDONALD (2), B. D. Gossen (1). A. McKeown (2). (1) AAFC, Lethbridge, Canada; (2) Univ. of Guelph, Guelph, Ontario, Canada

AP-828. Evaluation of reduced-risk fungicides as alternatives to dicloran in controlling postharvest Rhizopus soft rot of sweetpotato. B. A. EDMUNDS (1), G. J. Holmes (1). (1) North Carolina State University, Raleigh, NC

AP-829. Effect of sanitizer treatments on survival and growth of *Pseudomonas syringae* pv. *syringae* on beans. K. TUBAJIKA (1). (1) USDA APHIS CPHST, Raleigh, NC

AP-830. Effects of methods of Vapam application on root knot nematode soil populations and *Phytophthora capsici* and *Rhizoctonia solani* survival in plastic-mulched soil beds. B. L. CANDOLE (1), A. S. Csinos (2), D. Wang (3). (1) University of Georgia, Dept. of Horticulture, Tifton, GA; (2) University of Georgia, Dept. of Plant Pathology, Tifton, GA; (3) University of Minnesota, Dept. of Soil, Water and Climate, St. Paul, MN

AP-831. Effects of Muscodor, Serenade and conventional fungicides on Rhizoctonia root and hypocotyl rot and clubroot of radish. F. BAYSAL (1), J. R. Mera (1), S. A. Miller (1). (1) Department of Plant Pathology, OARDC, The Ohio State University, Wooster, OH

AP-832. Initiation of fungicide program for management of grape powdery mildew based on airborne inoculum potential. O. CARISSE (1), R. Bacon (1), A. Lefebvre (1). (1) Agriculture and AgriFood Canada, St-jean-Richeliw, Canada

AP-833. Fungicide insensitivity and pathotype determination of *Pseudoperonospora cubensis*, causal agent of cucurbit downy mildew. S. J. COLUCCI (1), G. J. Holmes (1). (1) NC State University, Raleigh, NC

Crop Loss Assement

AP-834. Economic outcomes of disease management strategies on twelve hard red spring wheat cultivars in the Red River Valley of Minnesota. C. D. Motteberg (1), C. R. HOLLINGSWORTH (2), L. M. Atkinson (1), D. L. Holen (3). (1) NWROC Crookston, MN; (2) NWROC and Dept. of Plant Pathology, Crookston, MN; (3) Regional Center, Fergus Falls, MN

AP-835. Economic and environmental validation of disease risk prediction models. D. TE BEEST (1), F. van den Bosch (1). (1) Rothamsted Research, Harpenden, United Kingdom

AP-836. Pennsylvania Regional Organic Fruit Industry Transition (PROFIT). N. O. HALBRENDT (1), B. L. Lehman (1), J. W. Travis (1). (1) Pennsylvania State University, FREC, Biglerville, PA

AP-837. Refinement of a sooty blotch and flyspeck warning system for implementation in the Upper Midwest U.S. K. B. DUTTWEILER (1), M. L. Gleason (1), P. M. Dixon (2), T. B. Sutton (3), P. McManus (4). (1) Dept. of Plant Pathology, Iowa State University, Ames, IA; (2) Dept. of Statistics, Iowa State University, Ames, IA; (3) North Carolina State University, Raleigh, NC; (4) University of Wisconsin, Madison, WI

AP-838. Withdrawn

AP-839. Effect of seed quality, planting depth, and fungicide seed treatment on emergence, root growth and fungal isolation from soybeans grown in two Arkansas soils. M. AVANZATO (1), T. Sipos (2), A. Steger (1), J. Rupe (1), (1) University of Arkansas, Fayetteville, AR; (2) University of Sao Paulo, Botucatu, Sao Paulo, Brazil

AP-840. Integrated control of table grape postharvest gray mold by ozone and *Muscodor albus* fumigation. F. MLIKOTA GABLER (2), J. L. Smilanick (3), M. F. Mansour (3), J. Mercier (1). (1) AgraQuest Inc., Davis, CA; (2) Institute for Adriatic Crops, Split, Croatia; (3) USDA ARS San Joaquin Valley Agricultural Sciences Center, Parlier, CA

AP-841. Host range of *Phoma ligulicola* isolates causing ray blight disease in Tasmanian pyrethrum fields. S. J. PETHYBRIDGE (1), F. S. Hay (1). (1) University of Tasmania, Burnie, Tasmania, Australia

Cultural Control/IPM

AP-842. Flash & Dash Effects of mycorrhizal inoculation of watermelon transplants on field performance. A. WESTPHAL (2), L. Xing (2), N. L. Snyder (2), J. J. Camberato (1). (1) Dept. of Agronomy, Purdue University, West Lafayette, IN; (2) Dept. of Botany and Plant Pathology, Purdue University, West Lafayette, IN

AP-843. Thermo-therapy for eradication of fungal pathogens in propagative root-stocks (sets) of horseradish. A. ERANTHODI (1), M. Babadoost (1), B. Trierweiler (2). (1) Dept. of Crop Sciences, University of Illinois, Urbana, IL 61801; (2) FRCNF-ICB, Karlsruhe, Germany

AP-844. Grafting for soilborne disease management in organic heirloom tomato production. C. L. RIVARD (1), F. J. Louws (1). (1) North Carolina State University, Raliegh, NC

AP-845. Effect of solarization on survival of *Colletotrichum acutatum* and *Phytophthora cactorum*, causal agents of crown rots of strawberry in California. H. SU (2), R. G. Bhat (1), D. Gubler (2), G. T. Browne (1). (1) Dept. of Plant Pathology, USDA-ARS, Davis, CA; (2) Dept. of Plant Pathology, University of California at Davis, CA

AP-846. Impact of cropping sequence on diseases, nematodes, and yield of peanut, cotton, and corn in an irrigated production system in Central Alabama. H. L. CAMPBELL (1), A. K. Hagan (1), K. L. Bowen (1), S. P. Nightengale (2). (1) Auburn University; (2) EV Smith Research Center

AP-847. A Graph-based Markov Decision Process framework applied to the optimization of strategies for integrated management of diseases. N. Peyrard (1), R. Sabbadin (1), E. Pelzer (2), J. AUBERTOT (2). (1) INRA, BIA, Castanet-Tolosan cedex, France; (2) UMR d'Agronomie INRA/AgrosParisTech, Thiverval-Grignon, France

AP-848. Inter-row cover crops to reduce aphid-borne plant virus disease in pumpkin. J. F. MURPHY (1), J. Mosjidis (1), M. D. Eubanks (1), G. J. Buda (2), J. Masiri (1). (1) Auburn University, AL; (2) Clarkson University, NY

AP-849. Yield reduction in narrow-leaved lupine caused by fusarium root rot. K. CHANG (5), S. Hwang (3), B. D. Gossen (2), D. Bing (1), R. J. Howard (4). (1) Agriculture and Agri-Food Canada, Lacombe, AL, Canada; (2) Agriculture and Agri-Food Canada, Research Centre, Saskatoon, SK, Canada; (3) Alberta Agriculture and Food, Crop Diversification Centre North, Edmonton, AL, Canada; (4) Alberta Agriculture and Food, Crop Diversification Centre South, Brooks, AL, Canada; (5) Alberta Agriculture and Food, Field Crop Development Centre, Lacombe, AL, Canada

AP-850. Western Weather Systems Workgroup: A collaborative effort to improve weather information for IPM. W. PFENDER (6), W. Mahaffee (6), L. Coop (4), A. Fox (1), C. Daly (3), C. Thomas (2), W. Gubler (5), G. Grove (8), D. Gent (6), J. Strand (5), G. Taylor (3), P. Jepson (4), R. Graw (7). (1) Fox Weather LLC; (2) National Plant Disease Diagnostic Network; (3) OSU PRISM Group; (4) Oregon State University IPPC; (5) UC Davis; (6) USDA-ARS, Corvallis, OR; (7) USDA-USFS; (8) Washington State University, Prosser, WA

AP-851. Sensitivity of a rust simulation model to inputs of temperature obtained at standard weather observation height vs canopy height. W. PFENDER (2), J. Eynard (1), L. Coop (1). (1) Oregon State University; (2) USDA-ARS NFSPRC, Corvallis, OR

AP-852. Utilization of soil solarization for eliminating viable *Tilletia indica* teliospores from Arizona wheat fields. G. L. PETERSON (2), K. L. Kosta (1), D. L. Glenn (2). (1) Californa Dept. of Food and Agriculture, Sacramento, CA; (2) USDA Agricultural Research Service, Fort Detrick, MD

AP-853. Management of root diseases of soybean and tomato with seaweed application. V. SULTANA (1), S. Ehteshamul-Haque (2), J. Ara (3). (1) Dept. of Biochemistry, University of Karachi, Karachi, Pakistan; (2) Dept. of Botany, University of Karachi, Karachi, Pakistan; (3) Dept. of Food Science & Technology, University of Karachi, Karachi, Pakistan

AP-854. Bacteria involved in general soilborne disease suppression arising from transitional organic farm management. M. S. BENITEZ (1), B. B. McSpadden Gardener (1). (1) Department of Plant Pathology, The Ohio State University, OARDC, Wooster, OH

AP-855. Soil community analysis of bacterial populations as influenced by crop rotations in a long term peanut production study. H. SUDINI (1), K. Bowen (1), R. Huettel (1). (1) Dept. of Entomology and Plant Pathology, Auburn University, AL

AP-856. The abundance and diversity of soilborne, nitrogen-fixing bacteria under different turf-grass management systems. S. PARK (3), B. McSpadden-Gardener (2), P. Grewal (1). (1) Dept. of Entomology, The Ohio State University-OARDC, Wooster, OH; (2) Dept. of Plant Pathology, The Ohio State University-OARDC, Wooster, OH; (3) Environmental Science Graduate Program, The Ohio State University-OARDC, Wooster, OH

AP-857. Yellow starthistle leaf loss due to early season infection by the *Puccinia jaceae* var. *solstitialis*. D. M. WOODS (1), V. Popescu (2). (1) University of Wyoming, Laramie, Wyoming; (2) California Department of Food abd Agriculture, Sacramento, CA

AP-858. Management of *Tomato spotted wilt virus* of flue-cured tobacco in Georgia with acibenzolar-s-methyl, imidacloprid and plant age. C. NISCHWITZ (1), A. Csinos (1), L. Hickman (1), S. Mullis (1), R. Gitaits (1). (1) University of Georgia, Dept. of Plant Pathology, Coastal Plain Experiment Station, Tofton, GA

Disease of Detection &Diagnosis

AP-859. Incidence of huanglongbing in psyllids under natural conditions in Florida. C. RAMADUGU (1), K. L. Manjunath (4), C. Ramos (3), S. Halbert (2), R. F. Lee (4). (1) Dept. of Botany and Plant Science, University of California, Riverside, CA; (2) Division of Plant Industry, Gainesville, FL; (3) University of Panama, Panama City, Panama; (4) USDA ARS NCGRCD, Riverside, CA

AP-860. Bacteriophage mediated detection of *Ralstonia solanacearum*. R. KUTIN (1), D. Borthakur (1), A. Alvarez (1), D. Jenkins (1). (1) University of Hawaii at Manoa, Honolulu, HI

AP-861. A comprehensive Prunus pathogen detection array. W. L. SCHNEIDER (1), D. J. Sherman (1). (1) USDA Foreign Disease/Weed Science Research Unit, Fort Detrick, MD

AP-862. Development of an improved PCR-based technique for detection of *Phytophthora cactorum* in strawberry plants. R. G. BHAT (1), G. T. Browne (2). (1) Dept. of Plant Pathology, University of California, Davis, CA; (2) USDA-ARS, CPGRU, and Dept. of Plant Pathology, University of California, Davis, CA

AP-863. Simultaneous macroarray detection of eleven potato viruses and *Potato spindle tuber viroid*. B. O. AGINDOTAN (1), K. L. Perry (1). (1) Cornell University, Ithaca, NY

AP-864. Evaluating the performance of Q-PCR primers for the detection of *Xanthomonas fragariae* with ROC analysis. W. W. TURECHEK (2), J. S. Hartung (1). (1) USDA-ARS-PSI Fruit Laboratory, Beltsville, MD; (2) USDA-ARS-USHRL Subtropical Plant Pathology, Fort Pierce, FL

AP-865. Development and evaluation of an oligonucleotide microarray-based assay for the detection of fungal pathogens in lily. R. CHEN (2), T. Chi (2), H. Ni

(1). (1) Chiayi Agricultural Experimental Station, Chiayi, Taiwan; (2) National Chiayi University, Chiayi, Taiwan

AP-866. An RT-PCR method for detection of *Tobacco ringspot virus*. S. LEISNER (1), W. Reiner (1). (1) University of Toledo, Toledo, OH

AP-867. Polymerase chain reaction-based identification of tomato and pepper xanthomonads causing bacterial spot. N. W. SCHAAD (2), P. Randhawa (1), A. Sechler (2), E. L. Schuenzel (2). (1) California Seed and Plant Lab Inc, Elverta, CA; (2) USDA, Ft. Detrick, MD

Diseases of Fruits & Nuts

AP-868. Reproduction of *Meloidogyne javanica* on pineapple genetically modified to express a rice cystatin. B. S. SIPES (2), M. Wang (4), C. Nagai (4), K. Cheah (2), J. Hu (2), R. Paull (3), P. Moore (4), H. Atkinson (1). (1) Centre for Plant Sciences, University of Leeds, Leeds, UK; (2) Dept. of Plant and Environmental Protection Sciences, University of Hawaii, Honolulu, HI; (3) Dept. of Plant and Soil Sciences, University of Hawaii at Manoa, Honolulu, HI; (4) Hawaii Agriculture Research Center, Aiea, HI

AP-869. Long-term analyses of apple scab epidemics on 27 apple cultivars in integrated and organic apple production systems. I. J. HOLB (1). (1) University of Debrecen, Centre of Agricultural Sciences, Debrecen, Hungary

AP-870. Towards the development of broad spectrum disease resistance in citrus. M. KUNTA (1), M. Skaria (1), E. Louzada (1). (1) Texas A&M University-Kingsville Citrus Center, Weslaco, TX

AP-871. Protection of grapevine pruning wounds against esca and young esca pathogens. A. ESKALEN (2), S. Rooney-Latham (1), W. Gubler (2). (1) Califonia Dept. of Food and Agriculture, Sacramento, CA; (2) Dept. of Plant Pathology, University of Califonia, Davis, CA

AP-872. Selection of resistance to *Phytophthora citricola* among diverse clones of hybrid walnut rootstocks. G. T. BROWNE (2), L. S. Schmidt (2), W. P. Hackett (1), C. A. Leslie (1), G. H. McGranahan (1). (1) Dept. of Plant Sciences, University of California, Davis; (2) USDA-ARS, CPGRU, Dept. of Plant Pathology, University of California, Davis, CA

AP-873. *Murraya paniculata*, orange jasmine, a host and possible inoculum reservoir for *Candidatus* Liberibacter asiaticus, causal agent of Huanglongbing. V. D. DAMSTEEGT (1), W. L. Schneider (1), A. L. Stone (1). (1) USDA, Fort Detrick, MD

AP-874. Susceptibility of olive flowers, fruits, leaves and branches to infection by *Colletotrichum* species causing olive anthracnose. J. MORAL (3), R. Oliveira (2), W. J. Kaiser (1), A. Trapero (3). (1) Retired, Boise, ID; (2) Universidad Agustinho Neto, Huambo, Angola; (3) Universidad de Córdoba, Córdoba, Spain

AP-875. Variety differences in response to Ceratocystis wilt of mango. M. L. DEADMAN (3), A. Al Adawi (2), R. Al Yahyai (3), M. Wingfield (1). (1) Forestry and Agricultural Research Institute, University of Pretoria, South Africa; (2) Ministry of Agriculture and Fisheries, Sultanate of Oman; (3) Sultan Qaboos University, Sultanate of Oman

AP-876. The detection of resistance in *Venturia inaequalis*, the causal agent of apple scab, in Indiana. R. DEFORD (1), J. Beckerman (1). (1) Dept. of Botany and Plant Pathology, Purdue University, West Lafayette, IN

AP-877. Flash & Dash Effects of cold temperatures and variety on cold curing of *Xylella fastidiosa* infected grapevines. M. M. MEYER (1), B. C. Kirkpatrick (1). (1) University of California, Davis, CA

Diseases of Ornamentals

AP-878. Seed-borne fungi associated with flowering dogwood. E. C. NNODU (1), M. T. Mmbaga (1), F. A. Mrema (1). (1) Tennessee State University, Otis L. Floyd Nursery Research Center, McMinnville, TN

AP-879. First occurrence of gladiolus rust caused by *Uromyces transversalis* in the United States. T. S. SCHUBERT (2), A. Rizvi (4), L. G. Brown (5), C. Blomquist (1), E. Killgore (3). (1) CA Dept of Food & Ag; (2) FL Dept of Ag & Consumer Services-Div of Plant Industry; (3) HI Dept of Ag; (4) USDA-APHIS-PPQ; (5) USDA/APHIS/PPQ/CPHST (Center for Plant Health Science and Technology), Raleigh, NC

AP-880. Resistance components of hydrangea to powdery mildew. Y. LI (2), M. T. Windham (2), R. N. Trigiano (2), A. S. Windham (2), S. M. Reed (3), M. T. Mmbaga (1), J. M. Spiers (4), T. A. Rinehart (4). (1) Tennessee State University, McMinnville, TN; (2) University of Tennessee, Knoxville, TN; (3) USDA/ARS Floral & Nursery Plants Research Unit, McMinnville, TN; (4) USDA/ARS Small Fruit Research Unit, Poplarville, MS

AP-881. Evaluation of Griffith Buck rose cultivars for resistance to black spot caused by *Diplocarpon rosae*. M. L. GLEASON (1), D. S. Mueller (1). (1) Dept. of Plant Pathology, Iowa State University, Ames, IA

AP-882. Colonization of root endophyte fungus on flowering dogwood (*Cornus florida*) seedlings. F. A. MREMA (1), M. T. Mmbaga (1), E. C. Nnodu (1). (1) Tennessee State University-Otis Floyd Nursery Research Center, McMinnville, TN

2007 APS-SON POSTERS

Diseases of Vegetables

AP-883. Screening potato cultivars suitable for production in Northeast America for response to *Colletotrichum coccodes* and *Phytophthora erythroseptica*. H. M. GRIFFITHS (2), T. A. Zitter (2), D. E. Halseth (1). (1) Dept. Horticulture, Cornell University, Ithaca, NY; (2) Dept. Plant Pathology, Cornell University, Ithaca, NY

AP-884. Development of PCR markers tightly linked to Pyult1, a gene that confers *Pythium* root rot resistance in the common bean genotype AND 1062. G. MAHUKU (1), M. Navia (1), R. Buruchara (3), A. Matta (1), R. Otsyula (2). (1) CIAT, Cochobamba, Bolivia; (2) KARI; (3) PABRA - CIAT, Kampala, Uganda

AP-885. Management of watermelon vine decline in Florida. P. D. ROBERTS (4), P. A. Stansly (4), S. Adkins (1), B. D. Bruton (3), R. M. Muchovej (4), S. Kousik (2). (1) USDA ARS USHRL, Ft. Pierce, FL; (2) USDA ARS, Charleston, SC; (3) USDA ARS, Lane, OK; (4) University of Florida, SWFREC, Immokalee, FL

AP-886. Management of early blight and basal stalk rot of celery. R. N. RAID (1). (1) University of Florida

AP-887. Oxygen level affects survival of *Sclerotinia sclerotiorum* and *Sclerotinia minor* in soils. B. M. WU (2), K. V. Subbarao (2), Y. B. Liu (1). (1) USDA-ARS, Salinas, CA; (2) University of California, Davis, CA

Fungicide Resistance/ Mgt.

AP-888. Can DMI fungicides differ in controlling *Monilinia fructicola* isolates with reduced sensitivity to propiconazole? I. J. HOLB (2), G. Schnabel (1). (1) Dept. of Entomology, Soils, and Plant Sciences, Clemson University, Clemson SC; (2) University of Debrecen, Centre of Agricultural Sciences, Debrecen, Hungary

AP-889. Flash & Dash Sensitivity to azoxystrobin in *Didymella bryoniae* isolates collected before and after first use of Quadris fungicide in South Carolina. A. P. KEINATH (1). (1) Clemson University, Charleston, SC

AP-890. Resistance to pyraclostrobin, boscalid, and Pristine (pyraclostrobin + boscalid) in *Alternaria alternata* isolates from California pistachio. H. F. AVENOT (1), T. J. Michailides (1). (1) Univ. of California Davis, Kearney Agricultural Center, Parlier, CA

AP-891. Molecular analysis of benzimidazole resistance in *Botrytis cinerea* causing the gray mold of *Panax* ginseng. J. KIM (1), J. Min (1), Y. Kim (3), Y. Bae (2), H. Kim (1). (1) Chungbul National Univ. Korea; (2) National Institute of Crop Science, Korea; (3) Seoul National Univ. Korea

AP-892. Baseline sensitivity distribution of *Rhizopus stolonifer* to fludioxonil. G. OLAYA (1), A. Tally (2), T. Michailides (3). (1) Syngenta Crop Protection, Vero Beach, FL; (2) Syngenta, Greensboro, NC; (3) University of California-Davis, Parlier, CA

AP-893. Baseline sensitivity of *Fusarium species* isolates from Red River Valley to metconazole, triticonazole and thiabendazole. P. BURLAKOTI (1), V. Rivera-Varas (1), R. Burlakoti (1), R. Nelson (1), T. Adhikari (1), G. Secor (1), M. Khan (1). (1) NDSU, Fargo, ND

AP-894. Detection of the F129L mutation that confers resistance to QoI fungicides in *Alternaria solani* isolates collected from tomatoes. G. OLAYA (2), Y. Hardin (2), S. Smith (1). (1) Red Gold, Elwood, IN; (2) Syngenta Crop Protection, Vero Beach, FL

AP-895. Characterization of *Monilinia fructicola* isolates resistant to propiconazol. K. D. Cox (2), P. K. BRYSON (1), G. Schnabel (1). (1) Dept. of Entomology, Soils, and Plant Sciences, Clemson University, Clemson, SC; (2) Dept. of Plant Pathology, New York State Agricultural Experiment Station, Cornell University, Geneva, NY

AP-896. Sensitivity of isolates of *Geotrichum citri-aurantii*, the causal pathogen of sour rot in citrus, to DMI fungicides. A. H. MCKAY (2), H. Forster (1), J. E. Adaskaveg (2). (1) Dept. of Plant Pathology, University of California, Davis, CA; (2) Dept. of Plant Pathology, University of California, Riverside, CA

AP-897. Study on QoI sensitivity of *Plasmopara viticola* causing grapevine downy mildew in North Carolina. B. MA (1), T. B. Sutton (1). (1) North Carolina State University, Raleigh

AP-898. Resistance to myclobutanil in populations of *Venturia inaequalis* in Virginia. S. C. MARINE (1), D. G. Schmale (1), K. S. Yoder (2). (1) Department of Plant Pathology, Physiology, and Weed Science, Virginia Tech, Blacksburg, VA; (2) Virginia Tech Agricultural Research and Extension Center, Winchester, VA

AP-899. Persistence of metalaxyl insensitivity in *Pseudoperonospora humuli*. D. H. GENT (1), M. E. Nelson (2), G. G. Grove (2). (1) USDA ARS, Corvallis, OR; (2) Washington State University, Prosser, WA

Host Resistance

AP-900. Comparative proteomics of near-isogenic maize inbred lines to identify potential aflatoxin-resistance markers. R. L. BROWN (3), A. Menkir (1), R. Bandyopadhyay (1), T. E. Cleveland (3), Z. Chen (2). (1) International Institute of Tropical Agriculture, Ibadan, Nigeria; (2) Louisiana State University Agricultural Center, Baton, Rouge, LA; (3) USDA-ARS-SRRC, New Orleans, LA

AP-901. Confirmation of the partial resistance of Jupiter rice to bacterial panicle blight caused by *Burkholderia glumae* through reduced disease and yield loss in inoculated field tests. R. NANDAKUMAR (1), P. Bollich (1), D. Groth (2), M. C. Rush (1). (1) Dept. of Plant Pathology

and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA; (2) LSU Agricultural Center Rice Research Station, Rayne, LA

AP-902. Evaluation of resistance to *Dalbulus maidis* in maize hybrids differing in susceptibility to corn stunt disease in the field. P. D. CARPANE (1), A. C. Wayadande (1), W. Dolezal (2), J. Fletcher (1). (1) Oklahoma State University, Stillwater, OK; (2) Pioneer Hi-Bred International, Inc., Johnston, IA

AP-903. Evaluation of the reaction to karnal bunt artificial inoculation of single head selections from advanced lines of wheat. G. FUENTES-DAVILA (1), M. Camacho-Casas (1). (1) INIFAP, CD. Obregon, Sonora, Mexico

AP-904. Susceptibility to Northern stem canker in South Dakota soybean varieties. T. E. CHASE (1), R. L. Geppert (1). (1) South Dakota State University, Plant Science Dept., Brookings, SD

AP-905. Comparison of Deoxynivalenol effects on the cells of two cultivars susceptible and tolerant to Fusarium head blight of wheat in suspension cultures. S. REZAEE (1), M. Mohammadi (2), H. Zamanizadeh (1), B. Shahsavan Behboodi (3), M. Torabi (4). (1) Dept. of Plant Pathology, Agriculture and Natural Resources, Science & Research Branch, Islamic Azad University, Tehran, Iran; (2) Dept. of Plant Pathology and Entomology, College of Agriculture, University of Tehran, Karaj, Iran; (3) Dept. of Biology, College of Science, University of Tehran, Tehran, Iran; (4) Dept. of Cereal Diseases, Seed and Plant Improvement Institute, Karaj, Iran

AP-906. Evaluation of wild *Juglans* species for resistance to *Agrobacterium tumefaciens*. D. A. KLUEPFEL (1), M. M. Maccree (1), E. W. Stover (1), M. K. Aradhya (1). (1) USDA, Agricultural Research Service, Ft. Pierce, FL

AP-907. Evaluation of potential soybean rust resistant sources in Paraguay during the 2005–06 season. M. R. MILES (1), W. Morel (2), J. Ray (3), J. Smith (3), G. L. Hartman (1), R. D. Frederick (4). (1) USDA-ARS, Urbana, IL; (2) CRIA, Ministry of Agriculture, Paraguay; (3) USDA-ARS, Stoneville, MS; (4) USDA-ARS, Ft. Detrick, MD

AP-908. Comparison of sunflower hybrids for Sclerotinia head rot resistance. L. M. Atkinson (2), C. R. HOLLINGSWORTH (1), C. D. Motteberg (2). (1) Northwest Research & Outreach Center and Dept of Plant Pathology, Crookston, MN; (2) Northwest Research & Outreach Center, Crookston, MN

AP-909. PCR-based markers for marker assisted selection for quantitative resistance to late blight in a diploid potato family. W. K. WICKRAMASINGHE (1), X. Qu (1), S. Costanzo (1), K. G. Haynes (2), B. J. Christ (1). (1) The Pennsylvania State University, University Park, PA; (2) USDA, ARS Vegetable Laboratory, Beltsville, MD

AP-910. Inheritance and genetic mapping of resistance to *Pythium* damping-off caused by *Pythium aphanidermatum* in soybean cultivar Archer. M. L. ROSSO (2), J. C. Rupe (2), L. A. Mozzoni (1), P. Chen (1), C. Rothrock (2). (1) Crop, Soil, and Environmental Science Dept., University of Arkansas, Fayetteville, AR; (2) Plant Pathology Dept., University of Arkansas, Fayetteville, AR

AP-911. Differences in tolerance to the oak wilt fungus, *Ceratocystis fagacearum*, among live oak (*Quercus fusiformis*) half-sib groups and clones. M. C. Gray (1), D. N. APPEL (1). (1) Dept. of Plant Pathology and Microbiology, Texas A&M University, College Station, TX

AP-912. Resistance of apples from the Kazakhstan germplasm collection to postharvest decay caused by *Penicillium expansum*. W. J. JANISIEWICZ (1), S. A. Robert (3), W. S. Conway (3), P. L. Forsline (2). (1) Appalachian Fruit Research Station, ARS-USDA, Kearneysville, WV; (2) Plant Genetic Resources Unit, ARS-USDA, Geneva, NY; (3) Produce Quality and Safety Lab., ARS-USDA, Beltsville, MD

AP-913. Evaluation of durable resistance against rice blast using sequential planting method. J. ROH (3), S. Han (2), Y. Cho (3), I. Oh (3), C. Cruz (1), H. Leung (1). (1) International Rice Research Institute, Metro Manila, Philippines; (2) National Institute Agricultural Science & Tech. RDA., Suwon, Korea; (3) National Institute of Crop Science, RDA, Suwon, Korea

AP-914. Screening the *Brassica rapa* NGRP collection for reaction to *S. sclerotiorum*. F. ZABALA (1), L. del Rio (1). (1) North Dakota State University, Fargo, ND

AP-915. The NPR1 defense gene family in *Citrus*. V. J. FEBRES (1), G. A. Moore (1). (1) University of Florida, Gainesville, FL

AP-916. Flash & Dash Identification of DNA markers linked to resistance or tolerance to sweet potato virus disease in Kenya. D. W. MIANO (2), D. R. LaBonte (2), C. A. Clark (1). (1) Dept. of Plant Pathology and Crop Physiology, Louisiana State Univ. Agricultural Center, Baton Rouge, LA; (2) School of Plant, Environmental, and Soil Sciences, Louisiana State Univ. Agricultural Center, Baton Rouge, LA

AP-917. Isolation and characterization of novel sources of resistance to ear rot and aflatoxin accumulation in corn. R. L. BAKER (2), R. L. Brown (3), Z. Chen (1), T. Cleveland (3), A. M. Fakhoury (2). (1) Louisiana State University, Baton Rouge, LA; (2) Southern Illinois University, Carbondale, IL; (3) USDA, ARS, SRRC, New Orleans, LA

AP-918. Mapping of a quantitative trait locus associated with resistance to speckled snow mold in winter wheat. Z. Nishio (1), N. Iriki (2), T. Tabiki (1), M. Ito (3), M. Tanio (3), T. D. MURRAY (4). (1)

Dept. of Upland Agriculture Research, National Agricultural Research Center for Hokkaido Region, Memuro, Hokkaido; (2) National Agricultural Research Center for Hokkaido Region, Toyohira-ku Sapporo, Japan; (3) National Agricultural Research Centre for Hokkaido Region, Japan; (4) Washington State University, Pullman, WA

AP-919. Evaluation of advanced lines and cultivars of bread wheat for resistance to karnal bunt. G. FUENTES-DAVILA (2), R. P. Singh (1). (1) CIMMYT, Texcoco, Edo. De Mexico; (2) INIFAP, Cd. Obregon, Sonora, Mexico

AP-920. In-field reproduction of *Meloidogyne incognita* race 3 and *M. arenaria* race 1 on selected commercial corn varieties. A. K. HAGAN (1), K. L. Lawrence (1), H. L. Campbell (1), L. W. Wells (3), S. P. Nightengale (2). (1) Dept. Entomology and Plant Pathology, Auburn University, Auburn, AL; (2) Plant Breeding Unit, Tallassee, AL; (3) Wiregrass Research and Extension Center, Headland, AL

AP-921. Identification and molecular mapping of genes for all-stage and high-temperature adult-plant resistance to stripe rust in 'Express' wheat. X. CHEN (1), F. Lin (2). (1) USDA-ARS and Washington State University, Pullman; (2) Washington State University, Pullman, WA

AP-922. Identification of molecular markers for *Yr8* and a gene for high-temperature, adult-plant resistance against stripe rust in the AVS/6*Yr8 wheat line. X. CHEN (1), J. Zhao (2). (1) USDA-ARS and Washington State University, Pullman, WA; (2) Washington State University, Pullman, WA

AP-923. Genetics and molecular mapping of *Rph13*, a gene conferring resistance to leaf rust in barley. Y. Sun (1), S. NEATE (1). (1) Dept. of Plant Pathology, North Dakota State University, Fargo, ND

AP-924. Greenhouse evaluation of wild sunflower species for resistance to Sclerotinia wilt. C. C. BLOCK (2), T. J. Gulya (3), L. F. Marek (1). (1) Iowa State University, Ames, IA; (2) USDA-ARS, Ames, IA; (3) USDA-ARS, Fargo, ND

AP-925. Proteomic and metabolic analyses of early berry development in *Vitis* spp. including the period of ontogenic gain of resistance. C. T. GEE (2), D. Kosma (1), T. W. Thannhauser (3), M. A. Jenks (1), L. Cadle-Davidson (4). (1) Dept. of Horticulture and Landscape Architecture, Purdue University, West Lafayette, IN; (2) Dept. of Plant Pathology, Cornell University, Geneva, NY; (3) Functional and Comparative Proteomics Center, USDA-ARS US Plant Soil Nutrition Lab, Ithaca, NY; (4) Grape Genetic Research Unit, USDA-ARS, Geneva, NY

AP-926. Resistance in soft red winter wheat lines to deoxynivalenol and nivalenol chemotypes of *Fusarium graminearum*. P. HOREVAJ (2), E. Milus (2), L. R. Gale (3), C. Kistler (1). (1) USDA, ARS, Cereal Disease Laboratory, St. Paul, MN; (2) University of Arkansas, Fayetteville, AR; (3) University of Minnesota, St. Paul, MN

AP-927. Resistance to Fusarium crown and foot rot in wheat cultivars grown in Idaho as compared to Australian cultivars varying for tolerance. J. M. WINDES (1), J. E. Petrisko (1), T. Shelman (1), C. Jackson (1). (1) University of Idaho, Moscow, ID

AP-928. Searching for R-gene homologous DNA fragments linked to disease resistance in grape (*Vitis* spp.). M. CHANG (1), P. M. Digennaro (1). (1) SUNY-Geneseo, Geneseo, NY

AP-929. Phylogenomic analyses of rice oxalate oxidases, candidate genes for quantitative resistance to rice blast. G. Carrillo (2), P. Goodwin (3), M. Reveche (2), J. E. Leach (1), H. Leung (2), C. M. VERA CRUZ (2). (1) Colorado State University, Fort Collins, CO; (2) International Rice Research Institute, Metro Manila, Philippines; (3) University of Guelph, Guelph, Canada

AP-930. Tolerance to cucurbit powdery mildew in USDA bottle gourd (*Lagenaria siceraria*) plant introductions (PI). C. S. KOUSIK (1), K. S. Ling (1), A. Levi (1). (1) USDA-ARS, US Vegetable Laboratory, Charleston, SC

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AP-932. Impact of web-based virtual lab activities on students' application of the scientific method. D. M. EASTBURN (1), C. J. D'Arcy (1). (1) University of Illinois, Urbana, IL

AP-933. Florida Plant Diagnostic Network. A. J. PALMATEER (2), N. Peres (5), P. Roberts (3), L. Buss (1), W. T. Crow (1), J. Mertely (5), C. Harmon (1), A. Hodges (1), B. McGovern (1), J. Xin (1), T. M. Momol (4). (1) University of Florida, Gainesville, FL; (2) University of Florida, Homestead, FL; (3) University of Florida, Immokalee, FL; (4) University of Florida, Quincy, FL; (5) University of Florida, Wimauma, FL

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AP-935. An interactive, multi-entry key for diagnosing arthropod pests, diseases, and abiotic disorders associated with the production of wheat. R. D. KOSKI (1), W. T. Lanier (2), N. A. Tisserat (1).

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AP-937. An informatic model for identifying urban plant problems. J. C. STUTZ (2), J. Costello (1), A. Gerbasio (1), C. Gries (3), E. Gilbert (3). (1) Arizona State University, Tempe AZ 85287; (2) Dept. of Applied Biological Sciences, Arizona State University, Mesa, AZ ;(3) Global Institute of Sustainability, Arizona State University, Tempe, AZ

AP-938. Teaching modules for epidemiological concepts in the R programming environment. A. H. SPARKS (1), P. Esker (1), K. A. Garrett (1). (1) Dept. of Plant Pathology, Kansas State University, Manhattan, KS

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2365 N.E. Hopkins Court, Pullman, WA 99163-5601; Phone: +1.509.332.3756; Fax: +1.509.332.5158; E-mail: tradeshows@decagon.com; Web: www.decagon.com. Decagon Devices offers equipment to measure leaf wetness, PAR, and stomatal conductance, as well as monitoring soil moisture and water potential. Decagon's Leaf Wetness Sensor determines canopy wetness, with no painting required. The LP-80 measures real-time PAR and the Leaf Porometer allows you to measure stomatal conductance without plant damage.

Desert King International **123**

7024 Manya Circle, San Diego, CA 92154; Phone: +1.619.429.5222, Fax: +1.619.429.5001, Website: www.desertking.com. Producer of Quillaja saponaria extracts, used as organic nematode control. Monterey Agresources: Agricultural Nutrients and Crop Protection Products, turf & ornamental, industrial vegetation management, irrigation water treatment, organic farming inputs, laboratory services, product formulator, manufacturer, packager, distributor, research & development, regulatory registration management. Contact: (559) 499-2100, jirvine@montereyagresources.com. www.MontereyAgResources.com

Dow AgroScience LLC **116**

9330 Zionsville Rd, Indianapolis, IN 46268; Phone: +1.317.337.1000; Web: www.dowagro.com.

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360 Park Ave. South, New York, NY 10010; Phone: +1.212.989.5800; Fax: +1.212.633.3990; Web: www.elsevier.com. Elsevier plays an integral part within the plant science community, delivering quality research and information via reputable journals, such as *Current Opinion in Plant Biology*, *Trends in Plant Science*, *Plant Science*, *Physiological and Molecular Plant Pathology*, and *Crop Protection*, as well as notable book series and reference works. With innovative electronic products and services, such as ScienceDirect, for access to scientific papers, and Scopus, for easy searching of abstracts and citations, we continue to refine our portfolio to serve the research needs of educators, researchers, and students worldwide. Elsevier—committed to making genuine contributions to the science and health communities.

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Environmental Growth Chambers **119**

510 East 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.

Gylling Data Management, Inc. **108**

405 Martin Blvd., Brookings, SD 57006; Phone: +1.605.693.4150; Fax: +1.605.698.4180; E-mail: staff@gdmdata.com; Website: www.gdmdata.com. Research management software since 1982. Use ARM software to establish, manage, analyze, and report information for crop protection research trials; Summary Across Trials (ARM ST 7) for multi-trial summarization. Preview ARM 8, with many new features to more efficiently manage and report research trials. Also new for 2007: Psion Workabout Pro data collector with Enhanced Rating Shell, and ARM Germplasm Manager preview. Free demonstration version of ARM available.

9th International Congress of Plant Pathology (ICPP 2008) **214**

ICPP 2008 c/o AGRINNOVA – Via Leonardo de Vinci 44, Grugliasco, 10095 Torino, Italy; Phone: +39 011 670 85 39; Fax: +39 011 670 93 07; E-mail: agrinnova@unito.it; Web: www.agroinnova.org. Organized by the Italian Association for Crop Protection (AIPP) and the Italian Society for Plant Pathology (SIPAV), on the behalf of the International Society for Plant Pathology (ISPP) at Torino, August 24–29, 2008, the congress covers the most crucial topics in phytopathology and networks phytopathologists from all over the world.

Lemnatec **121**

18 Schumanstrasse, 52146 Wuerselen, Germany: Phone: +49 2405 4126-12, Fax: +49 2405 4126-26, Website: 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.

Microbiology International **103**

Suite A, 5108 Pegasus, Frederick, MD 21704; Phone: 1.800.396.4276; Fax: +1.301.662.8096; E-mail: info@800ezmicro.com; Web: www.800ezmicro.com. Featuring our new automated deep dish (100×25 mm) petri plate pourer and large volume media sterilizers (up to 120 L); our automated spiral plater and colony counter for rapid, cost-effective enumeration of microorganisms. Also, the Pulsifier™, a new sample preparation device for effective liberation of microorganisms from plant and root samples, will be on display.

2007 APS • SON Joint Meeting Exhibitors

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470 MacArthur Blvd., Bourne, MA 02532; Phone: +1.508.759.9500; Fax: +1.508.759.9100; E-mail: sales@onsetcomp.com; Web: www.onsetcomp.com. Onset Computer Corporation manufactures a broad range of battery-powered HOBO® data loggers that are used to measure and record temperature, relative humidity, leaf wetness, water level, rainfall, light, wind speed/direction, soil moisture, and barometric pressure. Onset's products are used in a wide range of research, commercial, industrial, and educational applications.

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Percival Scientific, Inc. **111**

505 Research Dr., Perry, IA 50220; Phone: +1.515.465.9363; Fax: +1.515.465.9464; E-mail: phill@percival-scientific.com; Web: www.percival-scientific.com. Percival Scientific, Inc. continues to set the standard of excellence for the environmental control industry, producing more than 75 different models of plant growth chambers, biological incubators and special application chambers.

Plant Diagnostics Contest **100**

(Sponsored by the Diagnostics Committee),
4601 Throckmorton Kansas State Univ, Manhattan, KS 66506; Phone: +785.532.1385; Fax: +785.532.5692; Diagnostics Quiz: Take the Challenge! Test your plant disease knowledge individually or as a part of a team. Double the fun with the Double Jeopardy Disease Challenge!

Quest Products Corporation **113**

601 Countryside Dr., Louisburg, KS 66053; Phone: +1.913.837.3089; Fax: +1.913.837.5389; E-mail: bill@questproducts.us; Web: www.questproducts.us.

Spectrum Technologies, Inc. **102**

12360 S. Industrial Dr. East, Plainfield, IL 60585; 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 makes it easy to record weather events and conditions. More than 15,000 customers count on Spectrum's easy-to-use, dependable technology for their growing needs.

Springer **221**

333 Meadowlands Parkway, Secaucus, NJ 07094; Phone: +1.201.348.4033; Fax: +1.201.348.4505; E-mail: exhibits-ny@springer.com; Web: www.springer.com.

STA Laboratories/BIOREBA AG **211**

1821 Vista View Dr., Longmont, CO 80504; Phone: +1.402.846.9964; Fax: +1.408.846.9954; 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 United States. 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.

Syngenta Crop Protection **218/220**

P.O. Box 18300, Greensboro, NC 27419; Phone: +1.336.632.6000; Web: www.syngentacropprotection-us.com. Syngenta is a world-leading agribusiness committed to sustainable agriculture through innovative research and technology. The company is a leader in crop protection, and ranks third in the high-value commercial seeds market. Syngenta develops products to maximize farming potential and minimize environmental impact. Syngenta provides both selective and nonselective herbicides, the broadest range of fungicides, and a wide selection of insecticides for both foliar and soil applications.

USDA-APHIS/Permit eAuthentication Station **210/212**

4700 River Rd., Unit 133, Riverdale, MD 20737; Phone: +1.301.734.0841; Fax: +1.301.734.4300; E-mail: permits@aphis.usda.gov; Web: www.aphis.usda.gov. USDA's Animal and Plant Health Inspection Service launched ePermits, an electronic system to streamline the import process. In order to access the system, users must complete a registration process called eAuthentication. As a courtesy to potential permit holders, an eAuthentication Station will be at our booth.

USDA APHIS PPQ Center for Plant Health Science and Technology **215**

1730 Varsity Drive, Suite 400, Raleigh, NC 27606; Phone: +1.919.855.7400, website: http://cphst.aphis.usda.gov.

AUTHOR INDEX

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; AO = APS oral technical session presentation, SO = SON oral technical session presentation; AP = APS poster technical session presentation, SP = SON poster technical session presentation; and S = special session presentations.

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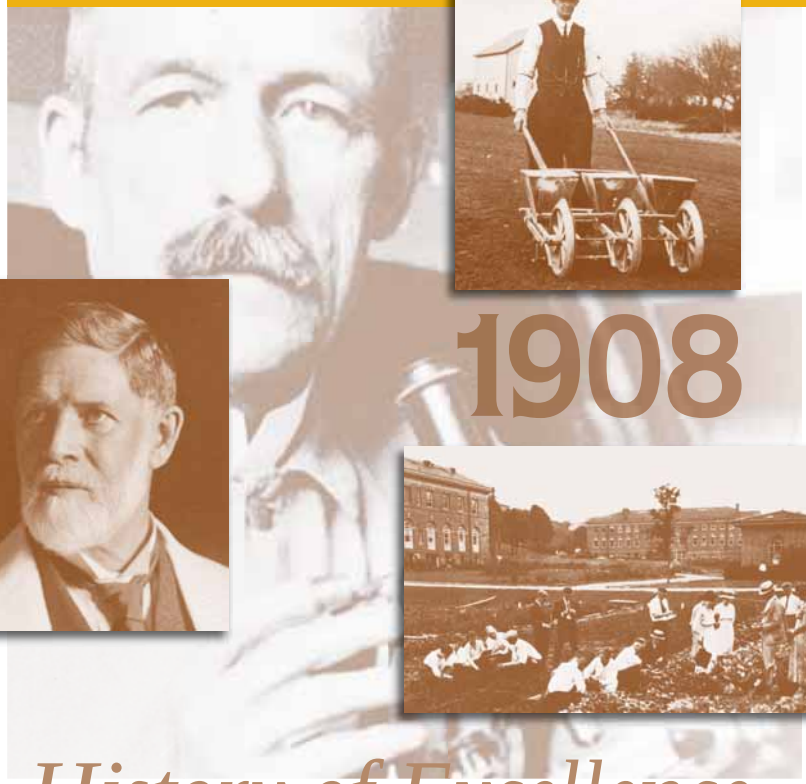

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