

Daily Schedule • Friday, July 26

Note: Friday functions will be held offsite or at the Milwaukee Hilton

7:30 – 9:00 a.m. *Schiltz*

Councilors' Forum

7:30 – 9:00 a.m. *Mitchell*

Financial Advisory and Executive Committees

8:00 a.m. – 5:00 p.m. *Offsite*

Turf Tour

8:00 a.m. Friday, July 26 – 6:00 pm Saturday, July 27 *Offsite*

Forest Pathology Field Trip

9:00 a.m. – 5:00 p.m. *Wright Ballroom AB*

APS Council

12:00 – 1:00 p.m. *Wright Ballroom C*

APS Council Luncheon

1:00 – 4:00 p.m. *Oak*

Web Page Design for APS Service Workshop, *by invitation only*

5:00 – 6:00 p.m. *Schiltz*

Committee on Committees

FRIDAY NOTES

Daily Schedule • Saturday, July 27

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1:00 – 6:00 p.m. *Hall A*

Registration

2:00 – 6:00 p.m. *202E*

Speaker Ready Room

2:00 – 6:00 p.m. *101B*

Open Meeting Room

8:00 a.m. – 12:00 p.m. *101B*

APS Council

8:00 a.m. – 12:00 p.m. *101C*

APS Foundation

10:00 a.m. – 2:00 p.m. *101D*

APS PRESS Board

12:00 p.m. – 1:30 p.m. *102D*

Office of International Programs Luncheon, *by invitation only*

12:00 p.m. – 4:00 p.m. *102A*

Leadership Workshop, *preregistration required*

1:00 – 3:00 p.m. *103B*

Scientific Programs Board

1:00 – 4:00 p.m. *101C*

Councilors Forum

1:00 – 5:00 p.m. *201CD*

APS Job Placement Service Registration

1:00 – 5:00 p.m. *103E*

Postharvest Diseases Discussion Group

1:30 – 3:00 p.m. *102D*

Office of International Programs Standing Committee Meeting (Education, Policies & Programs, Research & Service)

2:00 – 5:00 p.m. *103A*

Publications Board

3:00 – 4:00 p.m. *101D*

Section Chairs Meeting

3:00 – 5:00 p.m. *102D*

Office of International Programs Open Meeting, *visitors welcome*

4:00 – 5:00 p.m. *202D*

Committee Chairs/Vice-Chairs Program Orientation

4:30 – 5:30 p.m. *102C*

First Timers Orientation

5:30 – 7:00 p.m.

APS Committee Meetings

APS PRESS Biological and Cultural Tests Editorial Board *203A*

Awards and Honors *102D*

Biotechnology Impact Assessment *203B*

Collections and Germplasm *102B*

Cultural Diversity *203D*

Extension *203E*

Graduate Student *103E*

Industry *103D*

Placement *103B*

Private Practice *201A*

Regulatory Plant Pathology *201B*

Teaching *202A*

Women in Plant Pathology *202B*

Youth Programs *202D*

7:00 – 8:30 p.m.

APS Committee Meetings

APS PRESS: Fungicide and Nematicide Tests Editorial Board *102D*

APS PRESS: Phytopathological Classics *203A*

Biological Control *203B*

Chemical Control *203D*

Diagnostics *103D*

Diseases of Ornamental Plants *103E*

Epidemiology *103B*

Genetics *201A*

Mycotoxicology *201B*

Nematology *102B*

Postharvest Pathology *102E*

Seed Pathology *202B*

Tropical Plant Pathology *202D*

Virology *202A*

8:30 – 10:00 p.m.

APS Committee Meetings

APS PRESS: Illustrations of Plant Pathogens and Diseases *203A*

APS PRESS: Standardization of Common Names for Plant Diseases *203B*

Bacteriology *203D*

Biochemistry, Physiology, and Molecular Biology *203E*

Environmental Quality and Plant Health *102E*

Forest Pathology *103D*

Host Resistance *103E*

Integrated Pest Management *102A*

Mycology *103A*

Pathogen Resistance *201A*

Phyllosphere Microbiology *201B*

Plant Disease Losses *202A*

Plant Pathogen and Disease Detection *202B*

Soil Microbiology and Root Diseases *202D*

Sustaining Associates *102B*

Turfgrass Pathology *103B*

7:00 a.m. – 5:00 p.m. 202E
Speaker Ready Room

7:00 a.m. – 7:00 p.m. Hall A
Registration

2:00 – 6:00 p.m. 101B
Open Meeting Room

6:30 – 8:00 a.m. 102C
**Vegetable Extension and Research Plant Pathologists
 Breakfast**

6:30 – 8:30 a.m. 101C
Division Officers Breakfast, *by invitation only*

7:00 – 9:00 a.m. Hall A
Authors set up posters in Session A

7:30 – 9:00 a.m. 102B
Sustaining Associates Breakfast, *by invitation only*

7:30 – 9:30 a.m. 102A
Department Heads Breakfast

7:30 – 9:30 a.m. 103E
Small Fruit Diseases Working Group

8:00 – 9:00 a.m. 101B
**APS Committee Web Page Guidelines Meeting,
*by invitation only***

8:00 – 9:00 a.m. 103A
Phytopathology Senior Editors, *by invitation only*

8:00 – 9:00 a.m. 103B
Plant Disease Senior Editors, *by invitation only*

8:00 – 11:30 a.m. 101D
APSnet Education Center Senior Editors, *by invitation only*

8:00 am – 5:00 pm Hall A
Plant Disease Diagnosis contest

9:00 – 9:30 a.m. 103A
Phytopathology Editorial Board, *by invitation only*

9:00 – 9:30 a.m. 103B
Plant Disease Editorial Board, *by invitation only*

9:00 a.m. – 6:00 p.m. Hall A
Posters in Session A available for Viewing

10:00 a.m. – 12:00 p.m. 103A
Plant Health Progress Editorial Board

12:00 – 1:00 p.m. 102A
APS Foundation Luncheon, *by invitation only*

12:00 – 1:00 p.m. 101B
APS Journals Senior Editors Luncheon, *by invitation only*

12:00 – 2:00 p.m. 102C
**Deciduous Tree Fruit Disease Workers Luncheon and
 Business Meeting**

12:30 – 5:00 p.m. 101D
Office of Electronic Communications

1:00 – 5:00 p.m. 201CD
APS Job Placement Service

1:00 – 5:00 p.m.
Sessions and Oral Presentations
 See session information beginning on page 34.

3:00 – 6:00 p.m. Hall A
Exhibits and APS PRESS

4:30 – 5:30 p.m. 203AB
Forum on Genomic Analysis of Plant-Associated Microbes

5:00 – 6:00 p.m. 102D
Awards and Honors Reception, *by invitation only*

6:00 – 7:00 p.m. 201AB
Awards and Honors Ceremony

7:00 – 9:30 p.m. 104ABC
Opening Reception and University Alumni Socials
 Cornell University
 Iowa State University
 Ohio State University
 Pennsylvania State University
 Potomac Division (University of Delaware, VPI&SU,
 University of Maryland, and West Virginia University
 Rutgers State University of New Jersey
 Texas A&M University
 University of California, Riverside
 University of Florida
 University of Georgia
 University of Kentucky
 University of Minnesota
 University of Missouri
 University of Wisconsin

Sunday Notes

Sessions • Sunday, July 28

9:30 – 11:30 a.m., 104D

Welcome and Plenary Session

Call to Action: A Critical Shortage in U.S. Agricultural Research Funding

Presiding: J. Fletcher, APS President, Oklahoma State University, Stillwater

- 9:30 a.m. Introduction. J. FLETCHER, APS President. Oklahoma State University, Stillwater
- 9:45 a.m. Financing agricultural research in an open international economy. G.E. SCHUH. Regents Professor of Agricultural Economics, University of Minnesota
- 10:05 a.m. Increasing value at the lab, at the field, and at the table. B. BOEDING. National Corn Growers' Association
- 10:25 a.m. A grower's perspective on federally funded agricultural research. D. ZELOSKI. Lake Mills, WI, potato and vegetable grower
- 10:45 a.m. Science, the foundation of agriculture. J. JEN. Under Secretary of Agriculture, USDA, Washington, DC
- 11:05 a.m. Perspectives from the House Agricultural Appropriations Committee on funding for agricultural research. J. RICHARDS (invited). Legislative assistant to Representative Henry Bonilla, Chairman, U.S. House of Representatives Agricultural Appropriations Committee
- 11:20 a.m. Discussion. K. EVERSOLE, moderator, APS Legislative Liaison

1:00 – 3:15 p.m., 103DE

Professionalism/Service/Outreach

Discussion: Non-Traditional or Alternative Careers in Plant Pathology

Sponsors: Women in Plant Pathology, Private Practice, Placement, and Cultural Diversity committees
Presiding: Linda Hanson, USDA-ARS, Fort Collins, CO, and William Cobb, Cobb Consulting Services, Kennewick, WA

This session will focus on some of the career possibilities for plant pathologists that may not be as well known as positions as academic professors. Presenters will discuss positions in areas such as private practice, contract research, and regulatory agency work. Open discussion of these and other career areas will follow.

- 1:00 p.m. Introduction. L. HANSON. USDA-ARS, Fort Collins, CO
- 1:25 p.m. Careers in plant risk assessment. C. THOMAS. FieldWise, Inc., Bodega Bay, CA
- 1:45 p.m. My job as an educational program specialist in plant pathology—I get to do all the things faculty wished they had time for. K.L. SHELTON. University of Georgia, Athens

- 2:05 p.m. Private diagnostic plant clinic operation. O. RIBEIRO. Ribeiro Plant Lab, Bainbridge Island, WA
- 2:25 p.m. Regulatory agencies such as Animal and Plant Health Inspection Service offer alternative careers for plant pathologists. S.D. COHEN. USDA-APHIS, University of Minnesota, St. Paul
- 2:45 p.m. Discussion

1:00 – 3:15 p.m., 203AB

Oral Presentations

Chemical Control

Presiding: Kira Bowen, Auburn University, Auburn, AL, and Helga Forster, University of California, Riverside

- 1:00 p.m. Antifungal activity of naturally occurring quinones. D.E. WEDGE (1), F.E. Dayan (1), and G. Meazza (2). (1) USDA-ARS, University, MS; (2) Isagro Ricerca Srl, Novara, Italy
- 1:15 p.m. Utilization of spiral gradient endpoints to estimate fungicide resistance potential in alternate-row-spraying of tree fruit crops. J.E. ADASKAVEG and H. Förster. University of California, Riverside
- 1:30 p.m. Propamocarb resistance in species of *Pythium*. G.W. MOORMAN (1), N. Arora (1), and S.H. Kim (2). (1) Pennsylvania State University, University Park; (2) Pennsylvania Dept. of Agriculture, Harrisburg
- 1:45 p.m. Resistance of *Colletotrichum gramminicola* to Qo inhibitors. G. OLAYA (1), C. Avila-Adame (2) and W. Koeller (2). (1) Syngenta Crop Protection, Vero Beach, FL; (2) Cornell University, Geneva, NY
- 2:00 p.m. Baseline sensitivity distribution of *Sclerotinia homoeocarpa* (dollar spot) to the novel fungicide nicobifen (BAS 510 F). K.A. Scheidegger (1), F.P. WONG (2), J.S. Barnes (3), H.L. Ypema (3), and H.C. Wetzel III (3). (1) North Carolina State University, Raleigh; (2) University of California, Riverside; (3) BASF Corp., Research Triangle Park, NC
- 2:15 p.m. Spiral gradient dilution - A rapid, single-plate method for determining EC₅₀ values of fungicides. H. FORSTER, L. Kanetis, and J.E. Adaskaveg. University of California, Riverside
- 2:30 p.m. Winter fungicide applications for improved control of black spot of rose in Alabama. K.L. BOWEN. Auburn University, Auburn, AL
- 2:45 p.m. IR-4 fungicide registration update. D.C. THOMPSON, V.R. Starner, J.S. Corley, M. Arsenovic, and H. Chen. Rutgers University, North Brunswick, NJ
- 3:00 p.m. Evaluation of three bacteriocins in antagonism of T3 strains to T1 strains of *Xanthomonas campestris* pv. *vesicatoria*. A.P. HERT (1), S. Tudor (1), P.D. Roberts (2), G.V. Minsavage (1), and J.B. Jones (1). University of Florida, (1) Gainesville and (2) Immokalee

1:00 – 3:15 p.m., 202D

Oral Presentations**Diseases of Turfgrasses**

Presiding: Wakar Uddin, Pennsylvania State University, University Park, and Bruce Martin, Pee Dee Research and Education Center, Florence, SC

- 1:00 p.m. *Xanthomonas* spp. affecting golf course putting greens in the Northeast. M. Browning, N.A. MITKOWSKI, and N. Jackson. University of Rhode Island, Kingston
- 1:15 p.m. Interaction of lance nematode populations and cultural practices on creeping bentgrass quality. D. SETTLE, J. Fry, N. Tisserat, and T. Todd. Kansas State University, Manhattan
- 1:30 p.m. Genetic variability of dollar spot resistance in clones, cultivars, and species of bentgrass using six VCG isolates. N. CHAKRABORTY (1), J. Curley (1), J. Powell (2), and G. Jung (1). (1) University of Wisconsin, Madison; (2) University of Minnesota, St. Paul
- 1:45 p.m. Geostatistical analysis of dollar spot: towards a new understanding. B.J. HORVATH, A.N. Kravchenko, and J.M. Vargas, Jr. Michigan State University, East Lansing
- 2:00 p.m. Influence of primary inoculum on epidemics of gray leaf spot on perennial ryegrass. P.F. HARMON and R. Latin. Purdue University, West Lafayette, IN
- 2:15 p.m. Interactions between *Pyricularia grisea* and *Rhizoctonia solani* in gray leaf spot pathosystem in perennial ryegrass turf. W. UDDIN, J. Shelton, and G. Viji. Pennsylvania State University, University Park
- 2:30 p.m. Rapid blight control on turf with trifloxystrobin and other registered fungicides. J. ISGRIGG III (1) and D.A. Spilker (2). Bayer, (1) Chesterfield, VA, and (2) Kansas City, MO
- 2:45 p.m. Rapid blight: A new disease of cool season turfgrasses. S.B. MARTIN (1), L.J. Stowell (2), W.D. Gelernter (2), S.C. Alderman (3). (1) Pee Dee Research and Education Center, Florence, SC; (2) PACE Turfgrass Research Institute, San Diego, CA; (3) USDA-ARS, Corvallis, OR
- 3:00 p.m. Characterization of the complete internal transcribed spacer region of the nuclear ribosomal DNA of *Typhula* spp. S.M. MILLETT (1) and D.P. Maxwell (2). (1) Wisconsin Dept. of Agriculture and (2) University of Wisconsin, Madison

1:00 – 3:30 p.m., 203DE

Epidemiology/Ecology/Environmental Plant Pathology**Symposium: Creating the Right Environment for Biological Control**

Sponsors: Biological Control and Soil Microbiology and Root Diseases committees

Presiding: Brion Duffy and Jeff Palumbo, USDA, ARS, Albany, CA

Biological control is a viable disease management strategy with increasing agricultural importance as part of integrated pest management, particularly in sustainable and organic systems. One of the main constraints to more widespread and larger-scale application of biocontrol is its often-times variable performance relative to chemical pesticides or other disease control measures. This symposium takes a holistic view of the diverse environmental conditions that influence biocontrol. Each speaker presents unique approaches for improving efficacy and reliability by selecting or creating more favorable conditions in order to realize the full promise of biocontrol.

- 1:00 p.m. Creating the right environment for biological control. B. DUFFY, USDA-ARS, Albany, CA
- 1:05 p.m. Matching the right strain for particular host genotypes. K.P. SMITH. University of Minnesota, St. Paul
- 1:30 p.m. Manipulating host plant nutrition to alter biocontrol activity. W.H. ELMER (1) and D.M. Huber (2). (1) Connecticut Agricultural Experiment Station, New Haven; (2) Purdue University, West Lafayette, IN
- 1:55 p.m. Identifying and manipulating soil factors that influence biocontrol. B.H. OWNLEY (1) and B. Duffy (2). (1) University of Tennessee, Knoxville; (2) USDA-ARS, Albany, CA
- 2:20 p.m. An holistic approach towards improving biocontrol of nematodes. R.A. SIKORA. University of Bonn, Bonn, Germany
- 2:45 p.m. Pathogen self defense against attack by microbial antagonists. B. DUFFY (1), A. Schouten (2), and J.M. Raaijmakers (2). (1) USDA-ARS, Albany, CA; (2) Wageningen University, Netherlands
- 3:05 p.m. Fitting into the crowd: Defining relationships between indigenous microflora and introduced biocontrol agents. B.B. MCSPADDEN GARDENER. Ohio State University, OARDC, Wooster
- 3:30 p.m. Biotechnology applications to improve biocontrol in the rhizosphere. Y. MOENNE-LOCCOZ. Universite Claude Bernard, Villeurbanne, France

1:00 – 4:10 p.m., 203C

Molecular/Cellular Plant-Microbe Interactions**Symposium: How Many Genes Does It Take to Make a Plant Pathogen?**

Sponsor: Genetics Committee

Presiding: Anthony Glenn, USDA-ARS, Athens, GA, and Scott Gold, University of Georgia, Athens

Bacteria, fungi, and nematodes employ diverse mechanisms of pathogenicity during their associations with host plants. The traditional “one-gene-at-a-time” approach to examination of their genetic determinants is now evolving into broader inquiries of gene expression, and basic questions of host-pathogen interaction are being addressed more robustly. Out of this comes greater understanding of genetic factors affecting the pathogen’s host specificity,

Sessions • Sunday, July 28

nutrient acquisition, physiology, and virulence, as well as aspects of the host defense biology. So how many genes are necessary to make a plant pathogen? The diverse group of experts collected here will share their unique insights on a range of pathogens and facilitate discussion on this question.

- 1:00 p.m. Introduction. A. GLENN, USDA-ARS, Athens, GA
- 1:05 p.m. How many genes does it take for a human pathogen to become a plant pathogen? L.G. RAHME. Harvard Medical School, Massachusetts General Hospital and Shriners' Burns Institute, Boston
- 1:35 p.m. Rust fungi: An obligate-parasitic life style. L.J. SZABO. USDA-ARS and University of Minnesota, St. Paul
- 2:05 p.m. Comparative analysis of fungal pathogenicity using *Arabidopsis thaliana* as a host. E. Mullins (1), P. Rauyaree (1), M. Ospina-Giraldo (1), R. Raina (1), K. Czymmek (2), R. Bhat (3), K. Subbarao (3), K. Dobinson (4), S. KANG (1). (1) Pennsylvania State, University Park; (2) University of Delaware, Newark; (3) University of California, Salinas; (4) Agric and Agri-Food Canada, London, ON
- 2:35 p.m. Break
- 2:50 p.m. Genetic requirements for fungal pathogenicity to plants. A.E. OSBOURN (1), K. Bourab (1), N. Diaz (1), M. Dufresne (2), A. Foster (1), M. Guilleroux (1), A. Sesma (1). (1) Sainsbury Laboratory, Norwich, UK; (2) Université Paris-Sud, Orsay Cedex, France
- 3:20 p.m. What does a worm want with 20,000 genes? The evolution of plant-parasitism, and the essential-gene conundrum. D.McK. BIRD and E.S. Scholl. North Carolina State University, Raleigh
- 3:50 p.m. Discussion

1:00 – 4:45 p.m., 202AB

Hot Topics

Crop Biosecurity: Countering Agricultural Bioterrorism

Sponsor: Ad Hoc Committee on Bioterrorism

Presiding: R. James Cook, Washington State University, Pullman

This symposium will cover developments related to crop biosecurity prior to and since September 11, 2001, including: U.S. vulnerability to and plans for countering deliberate as opposed to accidental or unintentional introductions of plant pathogens; historical aspects of biowarfare directed at crops; costs of plant diseases; implications of recent and pending legislation for research, teaching, and the free-flow of scientific information; and APS proposals and initiatives for improving U.S. preparedness for detection, prevention, or recovery from pathogens used as agents of bioterrorism.

- 1:00 p.m. Protection of crop health as part of homeland security. J. MOSELEY. Deputy Secretary of Agriculture, Washington, DC

- 1:45 p.m. Implications of new legislation and policies for higher education and academic research programs. P. PAUL. University of Nebraska, Lincoln
- 2:30 p.m. Break
- 2:45 p.m. The threat of plant pathogens as weapons against U.S. crops. L. MADDEN. Ohio State University, Wooster
- 3:30 p.m. Countering agricultural bioterrorism through science and professional scientific society service. R.J. COOK. Washington State University, Pullman
- 4:15 p.m. Discussion

1:00 – 5:00 p.m., 202C

Molecular/Cellular Plant-Microbe Interactions

Symposium: Programmed Cell Death in Disease and Development

Sponsor: Biochemistry, Physiology, and Molecular Biology Committee

Presiding: Tom Wolpert, Oregon State University, Corvallis

Programmed cell death (PCD) is one of the most-studied phenomena in contemporary cell biology and has recently been implicated in a number of important plant processes. PCD is a genetically/physiologically regulated form of cell death that involves the organized disassembly of the cell and is distinct from necrosis that arises from severe cellular damage. PCD occurs during normal developmental processes and has also been associated with disease. Speakers will discuss the role of PCD in both plant development and disease.

- 1:00 p.m. Introduction. T. WOLPERT, Oregon State University, Corvallis
- 1:05 p.m. Programmed cell death during tracheary element differentiation. A.M. JONES. University of North Carolina, Chapel Hill
- 1:50 p.m. Dissecting the loss of HR cell death in Arabidopsis defense, no death (dnd) mutants. A. BENT (1,2), G. Jurkowski (1,2), R. Smith (1,2), I.-C. Yu (2), K. Fengler (2) S. Clough (2), and B. Lippok (2). (1) University of Wisconsin, Madison; (2) formerly at University of Illinois at Urbana-Champaign, Champaign
- 2:35 p.m. Apoptotic regulatory factors in plants are targets for engineering novel disease resistance. D. GILCHRIST. University of California, Davis
- 3:20 p.m. Break
- 3:35 p.m. The host selective toxin, victorin, and its induction of programmed cell death. T.J. WOLPERT, W.C. Coffeen, M.J. Curtis, J.M. Lorang, N. Carkaci-Salli, and T.A. Sweat. Oregon State University, Corvallis
- 4:20 p.m. Disease/stress protection in plants expressing animal and plant anti-apoptotic genes. M.B. DICKMAN. University of Nebraska, Lincoln

7:00 a.m. – 5:00 p.m. *Hall A*
Registration

7:00 a.m. – 5:00 p.m. *202E*
Speaker Ready Room open

8:00 a.m. – 4:00 p.m. *101B*
Open Meeting Room

6:30 – 8:00 a.m. *102AB*
Extension Plant Pathologists Breakfast

7:00 – 8:00 a.m. *102CDE*
Graduate Student Breakfast

7:00 – 10:00 a.m. *101D*
Public Policy Board

7:00 a.m. – 6:00 p.m. *Offsite*
Chestnut Blight Field Trip
 Buses depart from the corner of Wells and 4th (northeast corner of the Midwest Express Center) promptly at 7:00 a.m.

8:00 a.m. – 5:00 p.m. *Hall A*
Session A posters available for viewing

8:00 a.m. – 12:00 p.m.
Sessions and Oral Presentations
 See session information beginning on page 40

9:00 a.m. – 12:00 p.m. *201CD*
APS Job Placement Service

10:00 a.m. – 5:00 p.m. *Hall A*
Exhibits and APS PRESS open

10:00 a.m. – 5:00 p.m. *Hall A*
Plant Disease Diagnosis Contest

12:00 – 1:30 p.m. *101D*
Past Presidents' Luncheon, *by invitation only*

12:00 – 2:00 p.m. *Hall A*
Authors present at Session A posters

1:00 – 3:00 p.m. *101C*
Affiliates Meeting

1:00 a.m. – 5:00 p.m.
Sessions and Oral Presentations
 See session information beginning on page 44

1:00 – 5:00 p.m. *102E*
Turfgrass Pathology Working Group

2:00 – 5:00 p.m. *201CD*
APS Job Placement Service

3:30 – 5:00 p.m. *103C*
10th Annual deBary Bowl Preliminary Rounds

5:00 – 6:00 p.m. *Hall A*
Authors take down posters in Session A

5:00 – 6:30 p.m. *202A*
ARS Social

6:00 – 8:00 p.m. *202B*
Women in Plant Pathology Social

6:30 – 8:30 p.m.
University Alumni Socials
 Michigan State University *101B*
 North Carolina State University *101C*
 Northwest Passage (Oregon State University, University of Idaho, Washington State University) *102A*
 Old West Trails (Colorado State University/Kansas State University/Montana State University/University of Nebraska/Oklahoma State University/North Dakota State University/South Dakota State University) *102B*
 University of Arizona *103B*
 University of Arkansas *101D*
 University of California, Davis *103D*
 University of Florida *103A*
 University of Georgia *103E*
 University of Illinois/Ohio State University/Purdue University *102D*
 University of Minnesota/University of Wisconsin *102C*

7:00 – 9:00 p.m. *Hall A*
Authors set up posters in Session B

7:30 – 8:30 p.m. *103C*
10th Annual deBary Bowl final rounds

MONDAY NOTES

Sessions • Monday, July 29

8:00 – 10:00 a.m., 103DE

Oral Presentations

Diseases of Vegetables

Presiding: Mohammed Babadoost, University of Illinois, Urbana, and Clauzell Stevens, Tuskegee University, Tuskegee, AL

- 8:00 a.m. Sources and prevention of Erwinia Early Dying of Potato in Kern County, California. M.K. ROMBERG (1), R.M. Davis (1), J.J. Nunez (2), and J.J. Farrar (3). (1) University of California, Davis; (2) University of California Cooperative Extension, Bakersfield; (3) California State University, Fresno
- 8:15 a.m. Population genetics of the carrot blight pathogens, *Alternaria dauci* and *Xanthomonas campestris* pv. *carotae*. X. MENG, R.L. Gilbertson, R.M. Davis, and J. Nunez. University of California, Davis
- 8:30 a.m. Effect of *Crotalaria juncea* amendment on *Meloidogyne incognita*. K.-H. WANG and R. McSorley. University of Florida, Gainesville
- 8:45 a.m. Bell peppers resistant to Phytophthora blight. M. Babadoost and S.Z. ISLAM. University of Illinois, Urbana
- 9:00 a.m. The use of soil solarization on managing mosaic viral and phyllosticta foliage diseases of snapbeans. C. STEVENS (1), V.A. Khan (1), R. Rodriguez-Kabana (2), J.E. Brown (2), M.A. Wilson (3), D.J. Collins (4) and A.E. Fyffe (1). (1) Tuskegee University, Tuskegee, AL; (2) Auburn University, Auburn, AL; (3) Southeast Missouri State University, Cape Girardeau; (4) Southern University, Baton Rouge, LA
- 9:15 a.m. Effects of selected fungicides and biocontrol agents on the incidence of internal discoloration of horseradish root. M. Babadoost and S.Z. ISLAM. University of Illinois, Urbana
- 9:30 a.m. Improved detection of *Phytophthora capsici* in a Florida pepper field. R.D. FRENCH-MONAR, D.J. Mitchell, P.D. Roberts, and J.B. Jones. University of Florida, Gainesville
- 9:45 a.m. Further characterization of the HG type classification test for soybean cyst nematode field populations. T.L. NIBLACK (1), R.D. Riggs (2), J. Wang (3), and R.D. Heinz (3). (1) University of Illinois, Urbana; (2) University of Arkansas, Fayetteville; (3) University of Missouri, Columbia

8:00 – 10:00 a.m., 103AB

Oral Presentations

Biological Control

Presiding: Annemiek Schilder, Michigan State University, East Lansing, and John Duniway, University of California, Davis

- 8:00 a.m. *Pseudomonas chlororaphis* O6 *gacS* gene is involved in biofilm formation. L.L.R. MARQUES (1), M.E.

Olson (1), H. Ceri (1), Y.C. Kim (2), M. Spencer (3), and A.J. Anderson (3). (1) University of Calgary, AB, Canada; (2) Chonnam National University, Korea; (3) Utah State University, Logan

- 8:15 a.m. Effects of rhizobacteria on inhibition of soilborne pathogens and growth of strawberry. J.J. HAO (1), J.M. Duniway (1), D.M. Dopkins (1), and C.L. Xiao (2). (1) University of California, Davis; (2) Washington State University, Wenatchee
- 8:30 a.m. Harnessing the endophytic actinomycetes of cereal crops. C.M.M. FRANCO (1), J.T. Coombs (1,2), and P.M. Michelsen (1). (1) Flinders University, Adelaide, SA, Australia; (2) Cornell University, Ithaca, NY
- 8:45 a.m. Suppression of Rhizoctonia disease of potato by biological control and a ryegrass rotation. M.M. TALBOT and R.P. Larkin. USDA-ARS, University of Maine, Orono
- 9:00 a.m. Induced systemic resistance by PGPR against multiple diseases under field conditions in Thailand. K. JETIYANON (1) and J.W. Kloepper (2). (1) Dept. of Agricultural Sciences, Phitanulok, Thailand; (2) Auburn University, Auburn, AL
- 9:15 a.m. Transplant root dips with biocontrol agents reduce strawberry black root rot. R.O. OLATINWO and A.M.C. Schilder. Michigan State University, East Lansing
- 9:30 a.m. Analysis of soil fungal community composition using an array-based oligonucleotide fingerprinting approach. L. VALINSKY (1), G. Della Vedova (2), M. Chrobak (1), T. Jiang (1), and J. Borneman (1). (1) University of California, Riverside; (2) Università degli Studi di Milano-Bicocca
- 9:45 a.m. Fungi associated with soil suppressiveness against *Heterodera schachtii* detected by oligonucleotide fingerprinting of ribosomal RNA genes. B. YIN, L. Valinsky, J.O. Becker, and J. Borneman. University of California, Riverside

8:00 – 10:40 a.m., 203C

Biology of Plant Pathogens

Symposium: Spatial Scale and Phyllosphere Biology

Sponsors: Phyllosphere Microbiology and Epidemiology committees

Presiding: Christopher Mundt, Oregon State Univ., Corvallis, and Linda Kinkel, University of Minnesota, St. Paul

Phyllosphere microorganisms are influenced by processes that operate on spatial scales ranging from microns to hundreds of kilometers. Speakers in this session will present data concerning microbial processes that operate at vastly different spatial scales and discuss the extent to which the scale of experimental observation determines inferences concerning phyllosphere biology.

- 8:00 a.m. Introduction. C.C. MUNDT. Oregon State University, Corvallis

- 8:05 a.m. Significance of interactions of bacteria on leaves at small spatial scales. S.E. LINDOW. University of California, Berkeley
- 8:40 a.m. *Pseudomonas syringae* in the phyllosphere at scales from leaf to field. C.D. UPPER, S.S. Hirano, and M.K. Clayton. University of Wisconsin, Madison
- 9:15 a.m. Break
- 9:30 a.m. Microbial dispersal and epidemic velocity: Does scale matter? C.C. MUNDT, L. Wallace, and C. Cowger. Oregon State University, Corvallis
- 10:05 a.m. Integrating aerial dispersal of microbes across spatial scales. D.E. AYLOR. Connecticut Agricultural Experiment Station, New Haven

8:00 – 10:45 a.m., 202C

Biology of Plant Pathogens

Symposium: Airborne Mycotoxigenic Fungi in Plant and Human Disease

Sponsors: Mycotoxicology and Mycology committees
 Presiding: Anne Desjardins, USDA-ARS-NCAUR, Peoria, IL

Plant pathogenic fungi produce a bewildering array of secondary metabolites that can be highly toxic to plants (phytotoxins) and animals (mycotoxins). Gaumann proposed in 1954 that “microorganisms are pathogenic only if they are toxigenic,” but it proved difficult to establish a causal role for fungal toxins in plant and animal diseases. The development of molecular genetic methods has provided tools that are being used to determine the importance of toxins in pathogenesis. This session will feature recent advances in understanding the biology of mycotoxigenic fungi that occur naturally in agricultural commodities and household environments and thus raise human health concerns. A special focus will be placed on the role of airborne spores in epidemiology of plant and human disease.

- 8:00 a.m. Fusarium head blight of small grains: Epidemics and epidemiology. R. DILL-MACKY. University of Minnesota, St. Paul
- 8:30 a.m. Disease control via understanding molecular determinants of sexual reproduction. B.G. TURGEON (1), D.W. Brown (2), S.-H. Yun (3), R.D. Plattner (2), T. Lee (4), R. Dyer (2), and A.E. Desjardins (2). (1) Cornell University, Ithaca, NY; (2) USDA, Peoria, IL; (3) Soonchunhyang University, Asan, Korea; (4) Seoul National University, Suwon, Korea
- 9:00 a.m. Atmospheric spore dispersal and regional epidemiology of the Fusarium head blight fungus. G.C. BERGSTROM and E.J. Shields. Cornell University, Ithaca, NY
- 9:30 a.m. Break
- 9:45 a.m. A case for the potential for aerosol exposure to ochratoxin. J.L. RICHARD (1), G.C. Smiley (1), R.D. Plattner (2), and R.H. Tisdell (3). (1) Romer Labs, Inc., Union, MO; (2) USDA-ARS, Peoria, IL; (3) Toxicology Litigation Consultants, Temple, TX

- 10:15 a.m. *Stachybotrys chartarum* and human health: Questions and concerns. G.A. KULDAU (1), N. Jada (1), I. Yike (2), and D. Dearborn (2). (1) Pennsylvania State University, University Park; (2) Case Western Reserve Medical School, Cleveland, OH

8:00 – 10:50 a.m., 202B

Biology of Plant Pathogens

Symposium: The Interaction Between Endosymbiotic Bacteria in Insects and the Circulative Transmission of Viruses

Sponsor: Virology Committee
 Financial Sponsors: Plant Virus Working Group and The Samuel Roberts Noble Foundation
 Presiding: Gad Loebenstein, ARO The Volcani Center, Bet Dagan, Israel, and Henryk Czosnek, Hebrew University, Rehovot, Israel

Insects contain a vast microorganism flora exhibiting symbiotic relations with their host. In this section we will discuss some of these interactions and how they affect the biology of the host.

- 1. Whitefly and aphid endosymbiotic bacteria produce GroEL chaperonins, which prevent degradation of plant circulative viruses belonging to a number of genera. Interaction between GroEL and virus capsid in the insect haemolymph allows the safe transit of the virus to the salivary glands and transmission.*
 - 2. Spiroplasmas establish a vast array of interactions with insects, ranging from epiphytic to symbiotic to pathogenic. Studies of the propagative persistent transmission of the corn stunt Spiroplasma (CSS) Spiroplasma kunkelii by its leafhopper vector Dalbulus maidis indicate that CSS does not negatively affect the insect vector; on the contrary, CSS may produce metabolites advantageous for D. maidis, explaining the mutual beneficial association.*
 - 3. Endosymbionts may play a role in the evolution of their insect host. Whiteflies harbor prokaryotic symbionts, some of which provide nutritional needs, whereas others may be nonessential or deleterious. Examination of symbionts for the whitefly B. tabaci from different plant hosts and geographical locations revealed a diverse array of microflora: besides a primary symbiont, 65% harbored secondary symbionts and at least 33% harbored Wolbachia.*
- 8:00 a.m. Introduction. H. CZOSNEK. Hebrew University. Rehovot, Israel
- 8:05 a.m. Chaperonin camouflage of plant viruses. J.F.J.M. VAN DEN HEUVEL (1), S.A. Hogenhout (2), V. Ziegler-Graff (3), S. Morin (4), H. Czosnek (4), K. Richards (3), and F. van der Wilk (2). (1) De Ruiters Seeds, Bergschenhoek, Netherlands; (2) Plant Research International, Wageningen, Netherlands; (3) IBMP-CNRS, Strasbourg, France; (4) Hebrew University of Jerusalem, Israel

Sessions • Monday, July 29

- 8:35 a.m. Prokaryotes associated with the whitefly *Bemisia tabaci*: A possible role in fitness and evolution of biotypes. J.K. BROWN and E. Zchori-Fein. University of Arizona, Tucson
- 9:00 a.m. Break
- 9:15 a.m. Differential pathogenicity of corn stunt spiroplasma to its *Dalbulus* leafhopper vectors: Electron microscopic findings. S.A. HOGENHOUT and E. Özbek. Ohio State University, Wooster
- 10:10 a.m. Transmission of *Tomato yellow leaf curl geminivirus* by its whitefly vector *Bemisia tabaci* depends on the interaction between the virus and the insect endosymbiotic GroEL. H. CZOSNEK, S. Morin, and M. Ghanim. Hebrew University of Jerusalem, Rehovot, Israel
- 10:40 a.m. Discussion

8:00 – 11:40 a.m., 203AB

Plant Disease Management

Symposium: Comparison of Molecular Marker Techniques and How They Can be Used in Breeding Programs

Sponsor: Host Resistance Committee

Presiding: Anne Dorrance, Ohio State University, Wooster

Breeding for disease resistance is a cornerstone of disease management for many crops. Molecular markers have expedited this process for some crops, but with every tool there are advantages and limitations. New molecular technologies and strategies, including ESTs, RGAs, synteny, and microarrays may hold promise in overcoming previous hurdles to identify novel resistance genes, elucidate mechanisms of resistance, as well as expedite the development of disease resistant cultivars. Experts in these technologies will share their insights with APS members who focus on crop development, physiology of host parasite interactions, and molecular biology.

- 8:00 a.m. Introduction. A. DORRANCE. Ohio State University, Wooster
- 8:05 a.m. Past, present, and future of marker-assisted breeding. N.D. YOUNG. University of Minnesota, St. Paul
- 8:35 a.m. Using candidate ESTs as a marker for disease resistance gene mapping and breeding in rice. G.L. WANG. Ohio State University, Columbus
- 9:05 a.m. Evolution of disease resistance with implications about the use of markers across plant species. B.-C. KANG, M. Mazourek, and M. Jahn. Cornell University, Ithaca, NY
- 9:35 a.m. Break
- 9:50 a.m. Resistance gene analog polymorphism, a powerful technique for developing molecular markers for disease resistance genes. X.M. CHEN. USDA-ARS, Washington State University, Pullman
- 10:20 a.m. Global gene expression analyses in soybean using microarrays. L.O. VODKIN (1), R. Shealy, A. Khanna (1), F. Thibaud-Nissen (1), S. Clough (1),

R. Philip (1), E. Shoop (2), C. Schmidt (2), and E. Retzel (2). (1) University of Illinois, Urbana; (2) University of Minnesota, Minneapolis

10:50 a.m. Use of microarrays in plant breeding programs. D. GALBRAITH. University of Arizona, Tucson

11:20 a.m. Panel discussion

8:00 – 11:50 a.m., 201AB

Plant Disease Management

Discussion: New Products and Services I

Sponsor: Industry Committee

Presiding: Rami Soufi, The Scotts Company, Marysville, OH

The objective of this session is to provide a forum highlighting new products or services that are in the pipeline or will soon be offered to growers and researchers to aid them in managing their plant disease management operations.

- 8:00 a.m. Introduction. R. SOUFI. The Scotts Company, Marysville, OH
- 8:05 a.m. Hurricane for the control of root and stem rot diseases of ornamentals. D. HOUSEWORTH. Syngenta Crop Protection, Fernandina Beach, FL
- 8:20 a.m. Update on new uses and registrations for Syngenta fungicides. J. FRANK and A. Tally. Syngenta Crop Protection, Greensboro, NC
- 8:35 a.m. The use of Serenade biofungicide in programs to control tomato diseases in the U.S. H.B. HIGHLAND (1), P. Roberts (2), and S. Alexander (3). (1) Agraquest, Inc., Nokomis, FL; (2) University of Florida, Imokalee, FL; (3) Virginia Polytechnic Institute and State University, Painter, VA
- 8:50 a.m. Milsana bioprotectant—Update. H. VON AMBERG. KHH BioSci, Inc., Raleigh, NC
- 9:05 a.m. BASF fungicide portfolio: Current and future products update. S. BROSCIOUS and T. Bardinelli. BASF Corp., Research Triangle Park, NC
- 9:20 a.m. Update on Cabrio performance for vegetable diseases. J. HELM (1), T. Burkdoll (2), P. Bruno (3), and T. Bardinelli (4). BASF Corp., (1) Fresno, CA, (2) Visalia, CA, (3) Richmond, TX, and (4) Research Triangle Park, NC
- 9:35 a.m. Update on Headline performance for sugarbeet and potato diseases. J. FRIE (1), V. Ulstad (2), and T. Bardinelli (3). BASF Corp., (1) Horace, ND, (2) Fargo, ND, and (3) Research Triangle Park, NC
- 9:50 a.m. Headline performance and update on peanuts. S. NEWELL (1), T. McKemie (2), B. Jacobson (3), S. Asher (4), and J. Barnes (5). BASF Corp., (1) Statesboro, GA, (2) Durham, NC, (3) Tifton, GA, (4) Lubbock, TX, and (5) Raleigh, NC
- 10:05 a.m. Break
- 10:20 a.m. *Coniothyrium minitans*: A practical biological approach to controlling Sclerotinia diseases. B. STONEMAN. Encore Technologies LLC, McFarland, WI

- 10:35 a.m. The Allegro CE rugged field computer. K. HUNT. Juniper Systems, Inc., Logan, UT
- 10:50 a.m. CaptEvate: A new broad spectrum fungicide for the control of diseases on strawberries, caneberries, bushberries, grapes, stone fruit and almonds. P. HAIKAL and C. Schiller. Arvesta Corporation, San Francisco, CA
- 11:05 a.m. Control of corn leaf diseases with Stratego. M. SCHWARZ, W. DeWeese, J. Hinz, J. Francis and L. Nearman. Bayer Corporation, Kansas City, MO
- 11:20 a.m. Update of new Trifloxystrobin and Tebuconazole registrations in the United States. J. BLOOMBERG, B. Rose and M. Tolliver. Bayer Corporation, Kansas City, MO
- 11:35 a.m. Quintec fungicide update. J. MUELLER. Dow AgroSciences, Brentwood, CA

8:00 a.m. – 12:00 p.m., 203DE

Epidemiology/Ecology/Environmental Plant Pathology

Workshop: Diagnosis of Abiotic Diseases

Sponsors: Environmental Quality and Plant Health, Diseases of Ornamental Plants, and Diagnostics committees
Presiding: Charles Krause, USDA-ARS, Wooster, OH

The Environmental Quality and Plant Health Committee is sponsoring a workshop entitled "Diagnosis of Abiotic Plant Disease". Following an introduction, these topics will be discussed: Abiotic disease diagnosis of ornamental crops, clinical diagnosis of herbicide injury, diagnosis of air pollution injury to plants, and new innovative methods of abiotic disease diagnosis. A panel discussion by all speakers will conclude this session. Diagnosticians, extension workers, researchers, regulatory plant pathologists and students will find this session of interest.

- 8:00 a.m. Introduction. C.R. KRAUSE. USDA-ARS, Wooster, OH
- 8:10 a.m. Abiotic disease diagnosis. N. TAYLOR. Ohio State University, Columbus
- 9:00 a.m. Clinical diagnosis of herbicide injury. C. BOERBOOM. University of Wisconsin, Madison
- 10:00 a.m. Diagnosis of air pollution injury to plants. J.M. SKELLY. Pennsylvania State University, University Park
- 11:00 a.m. New, innovative methods of abiotic disease diagnosis. C.R. KRAUSE. USDA-ARS, Wooster, OH
- 11:45 a.m. Panel discussion, questions and answers

10:00 a.m. – 12:00 p.m., 202D

Oral Presentations

Chemical Control

Presiding: Hendrik Ypema and Ted Bardinelli, BASF Corp., Durham, NC

- 10:00 a.m. Nicobifen (BAS 510 F) - The new multi-purpose fungicide for specialty crops. E. AMMERMANN

- (1), G. Lorenz (1), K. Schelberger (1), M. Scherer (1), K. Eicken (2), N. Götz (2), A. Harreus (2), H. Rang (2). (1) BASF AG, Limburgerhof, Germany; (2) BASF AG, Ludwigshafen, Germany
- 10:15 a.m. Nicobifen (BAS 510 F) - Biological characteristics and redistribution properties. R. STIERL, W. Hanke, G. Lorenz, H. Koehle and E. Ammermann. BASF AG, Limburgerhof, Germany
- 10:30 a.m. Nicobifen (BAS 510 F): A new fungicide for use on vegetables, field crops and turfgrass. T.R. BARDINELLI (1), H.L. Ypema (1), J.S. Barnes (1), H.C. Wetzel III (1), and S. Chapman (2). (1) BASF Corp., Research Triangle Park, NC; (2) BASF, Morden, MB, Canada
- 10:45 a.m. BAS 516 F: A new broad-spectrum premix fungicide for use on fruits, vegetables, and tree nuts. H.L. YPEMA (1), T.R. Bardinelli (1), J.S. Barnes (1), W. Fletcher (1), and W. Barton (2). (1) BASF Corp., Research Triangle Park, NC; (2) BASF, London, ON, Canada
- 11:00 a.m. Summary of quinoxifen performance for grape powdery mildew control in the USA and Europe. J.P. MUELLER (1) and E.A. Green (2). (1) Dow AgroSciences LLC, Brentwood, CA; (2) Dow AgroSciences, Wantage, UK
- 11:15 a.m. Management of late blight tuber rot of potatoes with zoxamide fungicide. A.G. MCFADDEN, A.E. DUTTLE, R.L. Smith, G.M. Kemmitt, B.D. Olson, J. Edmonds, and D.H. Young. Dow AgroSciences, Indianapolis, IN
- 11:30 a.m. Control of oomycete diseases of vegetable crops with Gavel™ or Zoxium™ fungicides. R.L. SMITH, A.E. DUTTLE, B.D. Olson, A.G. McFadden, and G.M. Kemmitt. Dow AgroSciences, Indianapolis, IN
- 11:45 a.m. Control of *Phytophthora infestans* infection in potato with Gavel 75 DF™. A.E. DUTTLE, A. McFadden, R.L. Smith, G. Kemmitt, and B. Olson. Dow AgroSciences, Indianapolis, IN

11:00 a.m. – 12:00 p.m., 103AB

Hot Topics

Discussion: Microbial Genome Sequencing Priorities: The Plant-Associated Microbe Sequencing List Revisited

Sponsor: Public Policy Board

Presiding: Scott Gold, University of Georgia, Athens

The APS list is playing an important role in helping APS (and its members) focus funding agency attention on plant-associated microbial genomics. At this session we hope to discuss ways to refine and improve channels for input into the list's criteria and structure. The overall goal is to establish review processes to keep the list current and inclusive.

Sessions • Monday, July 29

1:00 – 2:30 p.m., 103AB

Oral Presentations

Biological Control

Presiding: Caroline Press, USDA-ARS, Corvallis, OR, and Barry Jacobsen, Montana State University, Bozeman

- 1:00 p.m. Efficacy of bacteriophage formulations for control of bacterial spot on tomato. B. BALOGH (1), J.B. Jones (1), M.T. Momol (2), S.M. Olson (2), A. Obradovic (1), P. King (2), L.E. Jackson (3). University of Florida, (1) Gainesville and (2) Quincy; (3) Agriphi Inc., Logan, UT
- 1:15 p.m. Management of tomato bacterial spot in the field by foliar applications of bacteriophages and SAR inducers. A. OBRADOVIC (1), J.B. Jones (1), M.T. Momol (2), S.M. Olson (2), P.C. King (2), B. Balogh (1). University of Florida, (1) Gainesville and (2) Quincy
- 1:30 p.m. Role of biofilms in biocontrol of *Botrytis cinerea*. C.M. PRESS, W.F. Mahaffee, M.M. Roche, T.M. Sechler, and A.L. Davis. USDA-ARS, Corvallis, OR
- 1:45 p.m. Host-response based screening of biological control agents. R.L. BARGABUS, N.K. Zidack, J.E. Sherwood, and B.J. Jacobsen. Montana State University, Bozeman
- 2:00 p.m. Biological control of blueberry flower infection by *Monilinia vaccinii-corymbosi*. H. SCHERM, H.K. Ngugi, and A.T. Savelle. University of Georgia, Athens
- 2:15 p.m. Protection of citrus rootstocks against *Phytophthora* species by prior inoculation with a hypovirulent *P. nicotianae* isolate. G.C. COLBURN, K.R. Chung, J.H. Graham. University of Florida, Lake Alfred

1:00 – 2:45 p.m., 103DE

Oral Presentations

Bacteria—Genetics, Molecular Biology, Cell Biology

Presiding: George Sundin, Texas A&M University, College Station, and Caitilyn Allen, University of Wisconsin, Madison

- 1:00 p.m. Association of a *Xylella fastidiosa* protein with chlorosis induction in *Chenopodium quinoa* leaves. G. BRUENING (1), E.B. Re (1), E.L. Civerolo (1,2), Y.M. Lee (1), P.A. Feldstein (1), and J.M. Buzayan (1). (1) University of California, Davis; (2) USDA-ARS, Parlier, CA
- 1:15 p.m. Nucleotide sequence analysis of pPSR1, a *Pseudomonas syringae* pPT23A-family plasmid. G.W. SUNDIN (1), C.T. Mayfield (1), and M. Ullrich (2). (1) Texas A&M University, College Station; (2) Max Planck Inst. Terr. Microbiol., Marburg, Germany

- 1:30 p.m. Pathogen motility and bacterial wilt disease. C. ALLEN and J. Tans-Kersten. University of Wisconsin, Madison
- 1:45 p.m. Analysis of the capsular exopolysaccharide from *Erwinia amylovora* and the Asian pear pathogen *E. pyrifoliae* and genetics of bioynthesis. K. Geider (1), W.-S. KIM (1), M. Schollmeyer (1), and M. Nimtz (2). (1) MPI für Zellbiologie, Ladenburg; (2) GBF, Braunschweig, Germany
- 2:00 p.m. Quorum sensing modulates biofilm formation in *Pantoea stewartii* subsp. *stewartii*. T. MINOGUE, M. Koutsoudis, and S.B. von Bodman. University of Connecticut, Storrs
- 2:15 p.m. Rhizobium species form biofilms on both biotic and abiotic surfaces. N.A. Fujishige (1), K.S. Jankaew (1), C.J. Butcher (1), and A.M. HIRSCH (1,2). University of California, Los Angeles
- 2:30 p.m. Occurrence of the *ros* gene in marine organisms. S.-Y. Wang, N. Bouhouche and C.I. KADO. University of California, Davis

1:00 – 3:30 p.m., 201AB

Plant Disease Management

Discussion: New Products and Services II

Sponsor: Industry Committee

Presiding: Rami Soufi, The Scotts Company, Marysville, OH

The objective of this session is to provide a forum highlighting new products or services that are in the pipeline or will soon be offered to growers and researchers to aid them in managing their plant disease management operations.

- 1:00 p.m. Control of Oomycete diseases of vegetable crops with Gavel or Zoxium. R. SMITH (1), T. Duttle (2), B. Olson (3), A. McFadden (4), and G. Kemmitt (5). Dow AgroSciences, (1) Fresno, CA, (2) Yakima, WA, (3) Geneva, NY, (4) Guelph, ON Canada, and (5) Indianapolis, IN
- 1:15 p.m. Management of tuber blight in potato with Gavel. A. MCFADDEN (1), R. Smith (2), T. Duttle (3), B. Olson (4), J. Edmonds (5), G. Kemmitt (6) and D. Young (7). Dow AgroSciences, (1) Guelph, ON, Canada, (2) Fresno, CA, (3) Yakima, WA, (4) Geneva, NY, (5) Abingdon, England, and (6) Indianapolis, IN
- 1:30 p.m. Development of a rapid immunostrip assay and ELISA for the detection of Calibrachoa Mottle Virus. M. CHAMBERS, R. GEISTER, D. Morrison, K. Blum, L. Hsing-Yeh, and M. Bandla. Agdia, Inc., Elkhart, IN
- 1:45 p.m. Bacterial ID - Rapid ELISAs for detection of *Ralstonia solanacearum*, *Clavibacter michiganensis* subsp. *michiganensis* and *Xanthomonas campestris* pv *dieffenbachiae*. B. SCHOEDEL and C. Sutula. Agdia, Inc., Elkhart, IN
- 2:00 p.m. Update on new uses of Procure. J. FAJARDO (1)

- and S. Colbert (2). Crompton Corp., (1) Middlebury, CT, and (2) Fresno, CA
- 2:15 p.m. Charter PB - Seed treatment for wheat crown rot, root rot, bunts, and smuts: Update on efficacy and seed safety. P. KAISER. Aventis CropScience, Research Triangle Park, NC
- 2:30 p.m. New uses, new labels, and revised resistance management directions for Aventis fungicides Rovral, Reason, and Scala. P. KAISER. Aventis CropScience, Research Triangle Park, NC
- 2:45 p.m. BASF's turfgrass fungicides: The next generation. H. WETZEL, III, J. Barnes, T. Hayden and K. Miller. BASF Specialty Products, Research Triangle Park, NC
- 3:00 p.m. MIDAS (Iodomethane) soil fumigant, a new alternative for the control of soilborne pathogens, weed seeds and nematodes in strawberry and fresh market tomatoes. M. ALLAN and C. Schiller. Arvesta Corporation, San Francisco, CA
- 3:15 p.m. PlantPro Technology: Update. C. KOHLS. Ajay North America, Willow Grove, PA

1:00 – 4:05 p.m., 203DE

Molecular/Cellular Plant-Microbe Interactions

Symposium: Viral Expression Vectors

Sponsor: Virology Committee

Financial Sponsors: Plant Virus Working Group and The Samuel Roberts Noble Foundation

Presiding: Alex Karasev, Thomas Jefferson University, Philadelphia, PA, and Roy French, USDA-ARS, Lincoln, NE

Plant viruses have long been considered pathogens worth only fighting against. In the last 15 years, however, molecular tools were developed that turned at least some of these agricultural enemies into valuable allies useful in plant molecular biology research, and also in expression of different value-added products in plants. This special session provides an update on the current state of the field. It addresses both the research value of the plant virus vectors and their use for production of biomedical and other specialty products in plants. Two new viral vectors developed within the last 3-4 years will be described, as well as applications of existing lines of vectors to the production of new biomedical, vaccine components and therapeutics against HIV-1.

- 1:00 p.m. Introduction. A. KARASEV. Thomas Jefferson University, Philadelphia, PA
- 1:05 p.m. From an enemy to an ally: Applications of plant virus vectors in research and production. J.A. LINDBO, G. Pogue, S. Garger, W. Fitzmaurice. Large Scale Biology Corporation, Vacaville, CA
- 1:50 p.m. Utility of the beet yellows virus for gene expression in plants. V.V. DOLJA (1) and G.P. Pogue(2). (1) Oregon State University, Corvallis; (2) Large Scale Biology Corp., Vacaville, CA
- 2:20 p.m. Break

- 2:35 p.m. Improving a wheat streak mosaic virus based gene expression vector for cereal crops. R. FRENCH, K. M. Horken, and D. C. Stenger. USDA-ARS, University of Nebraska, Lincoln
- 3:05 p.m. Plant virus-based vectors in agriculture and biotechnology. L.G. NEMCHINOV, Y. Zhao, and R.W. Hammond. USDA-ARS, Beltsville, MD
- 3:35 p.m. Production of HIV-1 vaccine components in plants using virus vectors. A.V. KARASEV, B.V. Kim, K.J. Shon, and H. Koprowski. Thomas Jefferson University, Philadelphia, PA

1:00 – 4:30 p.m., 203C

Epidemiology/Ecology/Environmental Plant Pathology

Symposium: Detection and Management of Foodborne Human Pathogens on Fruits and Vegetables

Sponsor: Postharvest Pathology Committee

Presiding: William Conway, USDA-ARS, Beltsville, MD, and Wojciech Janisiewicz, USDA-ARS, Kearneysville, WV

This symposium will address food safety, an area of research that is becoming increasingly important nationally and internationally. Current problems will be discussed in general, and controversial issues will be addressed in more detail. Novel approaches for the detection and management of foodborne human pathogens, as well as the ability to reduce the populations of these pathogens on produce using chemical and biological control methods, will be presented.

- 1:00 p.m. Introduction. W.S. CONWAY. USDA-ARS, Beltsville, MD
- 1:05 p.m. Human pathogens on plant-derived foods: Current problems. A.J. MILLER. U.S. Food and Drug Administration, College Park, MD
- 1:40 p.m. New approaches for the detection and management of foodborne human pathogens on fresh produce. J.D. BARAK. USDA-ARS, Albany CA
- 2:15 p.m. Biocontrol of foodborne human pathogens. B. LEVERENTZ. USDA-ARS, Beltsville, MD
- 2:50 p.m. Break
- 3:05 p.m. Chemical control of foodborne human pathogens. J.A. BARTZ. University of Florida, Gainesville
- 3:40 p.m. Irrigation, fertilization, internalization: The on farm cycle of *E. coli* O157:H7. K.R. MATTHEWS. Rutgers University, New Brunswick, NJ
- 4:15 p.m. Discussion

1:00 – 5:00 p.m., 203AB

Epidemiology/Ecology/Environmental Plant Pathology

Symposium: New Applications of Statistical Tools in Plant Pathology

Sponsor: Epidemiology Committee

Presiding: Karen Garrett, Kansas State University, Manhattan, and Bill Pfender, USDA-ARS, Corvallis, OR

Sessions • Monday, July 29

This symposium offers a bird's-eye view of a number of statistical tools that can benefit research in plant pathology. The emphasis in this session is on what these tools offer to researchers and how they can improve the interpretation of experimental responses.

- 1:00 p.m. Introduction to symposium and to meta-analysis applications. K.A. GARRETT. Kansas State University, Manhattan
- 1:15 p.m. Epidemiological applications of failure time analysis. H. SCHERM. University of Georgia, Griffin
- 1:45 p.m. Use of linear mixed models for analyzing data obtained in designed experiments. L. MADDEN. Ohio State University, Wooster
- 2:15 p.m. Non-parametric tests in plant disease epidemiology. W.W. TURECHEK. Cornell University, Geneva, NY
- 2:45 p.m. Break
- 3:00 p.m. Using multivariate statistics in phytopathological research. S. SANOGO (1) and X.B. Yang (2). (1) New Mexico State University, Las Cruces; (2) Iowa State University, Ames
- 3:30 p.m. Squeezing the turnip with artificial neural nets. L.J. FRANCL. North Dakota State University, Fargo
- 4:00 p.m. Decision theory applications in plant pathology. G. HUGHES. University of Edinburgh, Edinburgh, UK
- 4:15 p.m. Bayesian analysis in plant pathology. A.L. MILA, X.B. Yang, and A.L. Carriquiry. Iowa State University, Ames
- 4:45 p.m. Discussion

1:30 – 3:30 p.m., 202D

Professionalism/Service/Outreach

Symposium: International Service in APS: Opportunities Abroad for Aspiring Plant Pathologists

Sponsors: Graduate Student Committee and Office of International Programs

Presiding: Lynn Sosnoskie, Ohio State University, Wooster, and George Abawi, Cornell University, Geneva, NY

This is a special time in our world's history. A time of openness, a new period of enlightenment. Political borders are porous. Trade is international. People are mobile. Information is abundant. But with this movement towards increased accessibility, we are finding that the problems faced in food production, especially those wrought by plant pathogens, are superceding the established boundaries as well. Agriculture is an international concern, and the dilemmas faced by one nation are shared with its neighbors and colleagues. We feel, that in this age of intense globalization, it is important for young agricultural scientists to develop a better understanding of the problems faced in foreign countries, as well as an appreciation for the peoples and the cultures of the world. The featured speakers in this symposium will address, using their own personal experiences as examples, the challenges and, more importantly, the benefits of seeking employment overseas.

- 1:30 p.m. Introduction. L.M. SOSNOSKIE. Ohio State University, Wooster
- 1:35 p.m. Opportunities in international research for students. K.A. GARRETT. Kansas State University, Manhattan
- 1:50 p.m. Skills base for international agricultural career – Do you have the tools in your toolbox? K. CARDWELL. USDA CSREES, Washington, DC
- 2:05 p.m. Career and family: Growth opportunities in international agriculture. R.S. ZEIGLER. Kansas State University, Manhattan
- 2:20 p.m. Opportunities for international research collaborations. A.R. BENNETT. USDA-ARS, Beltsville, MD
- 2:35 p.m. International agriculture: A means to improve your career. L. SEQUEIRA. University of Wisconsin, Madison
- 2:50 p.m. Career opportunities in international trade and agricultural biotechnology. I.A. SIDDIQUI. CropLife America, Washington, DC
- 3:10 p.m. Discussion

3:00 – 5:00 p.m., 202C

Hot Topics

Discussion: Implications for Plant Pathology of the NRC 2002 Report, “Countering Agricultural Bioterrorism: A Framework for Action”

Sponsor: APS Ad Hoc Committee on Bioterrorism

Presiding: Larry Madden, Ohio State University, Wooster, and R. James Cook, Washington State University, Pullman

In order to evaluate U.S. preparedness for biological threats directed towards agricultural plants and animals, the U.S. Department of Agriculture asked the National Research Council (NRC) in 2000 to convene a diverse group of experts to evaluate the ability of the U.S. to deter, prevent, detect, thwart, respond to, and recover from an intentional biological attack against the nation through its supply of food and fiber. The NRC formed a committee on Biological Threats to Agricultural Plants and Animals, which met several times, both before and after September 11, 2001. The report from the committee, being released during the summer, has many implications for plant pathology and plant protection. The Discussion Session will review the recommendations made in the report.

- 1:00 p.m. General discussion of the National Research Council report on biological threats to agriculture. L.V. MADDEN, R.J. COOK, and others (to be announced)

Sessions • Monday, July 29

3:15 – 4:30 p.m., 103DE

Oral Presentations

Bacteria—Systematics, Evolution, Ecology

Presiding: Norm Schaad, USDA-ARS, Ft. Detrick, MD, and
Brion Duffy, USDA-ARS, Albany, CA

- 3:15 p.m. Characterization of *Pantoea agglomerans* isolated from cranberry stem galls. A. VASANTHAKUMAR, V.M. Best and P.S. McManus. University of Wisconsin, Madison
- 3:30 p.m. Molecular differentiation of *Erwinia amylovora* strains and two Asian pear pathogens. S. Jock and K. GEIDER. MPI für Zellbiologie, Ladenburg, Germany
- 3:45 p.m. Investigation of outbreaks of bacterial canker of tomato in California. Q.J. SHI, R.M. Davis, and R.L. Gilbertson. University of California, Davis
- 4:00 p.m. Genotypic typing of *Serratia marcescens* strains associated with cucurbit yellow vine disease. Q. ZHANG (1), R. Weyant (2), U. Melcher (1), B. Bruton (3), and J. Fletcher (1). (1) Oklahoma State University, Stillwater; (2) CDC, Atlanta, GA; (3) USDA-ARS, Lane, OK
- 4:15 p.m. Compromised plant health increases risk of opportunistic colonization by human pathogenic *Salmonella* and *E. coli* O157:H7. B. DUFFY (1) and J.M. Raaijmakers (2). (1) USDA-ARS, Albany, CA; (2) Wageningen University, Netherlands

Daily Schedule • Tuesday, July 30

7:00 a.m. – 4:00 p.m. *Hall A*
Registration

7:00 a.m. – 5:00 p.m. *202E*
Speaker Ready Room open

2:00 – 6:00 p.m. *101B*
Open Meeting Room

7:00 – 9:00 a.m. *104D*
APS Business Meeting and Breakfast

8:00 a.m. – 6:00 p.m. *Hall A*
Session B posters available for viewing

9:00 a.m. – 12:00 p.m. *201CD*
APS Job Placement Service

9:00 a.m. – 12:00 p.m. *101C*
Office of Industry Relations

9:00 a.m. – 1:30 p.m.
Sessions and Oral Presentations
See session information beginning on page 50

10:00 a.m. – noon *Hall A*
Plant Disease Diagnosis Contest, answers displayed

10:00 a.m. – 4:00 p.m. *Hall A*
Exhibits

10:00 a.m. – 5:00 p.m. *Hall A*
APS PRESS

11:00 a.m. – 12:00 p.m. *101B*
North Central Division Business Meeting

12:00 – 1:00 p.m. *102B*
APS/APHIS Prevalent Bacteria Working Group

12:00 – 1:30 p.m. *101D*
Phytopathology News Advisory Board

12:00 – 2:00 p.m. *Hall A*
Authors present at Session B posters

1:00 – 5:00 p.m. *102D*
Diagnostics Working Group

1:00 – 5:30 p.m.
Sessions and Oral Presentations
See session information beginning on page 54

1:30 – 3:30 p.m. *101C*
Office of Public Affairs and Education Meeting,
visitors welcome

2:00 – 5:00 p.m. *201CD*
APS Job Placement Service

3:30 – 5:30 p.m. *202B*
2003 Annual Meeting Program Planning Committee

6:00 – 8:00 p.m. *102C*
Graduate Student Social

6:00 – 10:00 p.m. *Milwaukee Public Museum*
Industry-Extension Social

TUESDAY NOTES

9:00 – 10:00 a.m. 202A

Special Demonstration

Assess: Image Analysis Software for Plant Disease Quantification

This new and affordable Windows-based image analysis software provides fast, accurate, and routine disease measurement. Also optimized for measurement of ground cover, root length, and counting and sizing of objects, this powerful tool presents a user-friendly, intuitive interface making disease quantification possible without expertise in computer science or image analysis. This special session offers a short review of concepts and issues encountered in automated plant disease assessment, a live demonstration including measurement of leaf area, foliar disease (% leaf damage), ground cover, root length, object (lesions, seeds, etc.) counting, sizing, and characterization, followed by a short question-and-answer period. Attend this session and receive a special discount from APS PRESS!

9:00 – 10:30 a.m., 202B

Oral Presentations

Forest Pathology

Presiding: Everett Hansen, Oregon State University, Corvallis, and Jennifer Juzwik, USDA Forest Service, St. Paul, MN


- 9:00 a.m. Loblolly pine decline, *Leptographium* spp. and root-feeding insects. L. ECKHARDT (1), J. Jones (1), N. Hess (2) and E. Carter (3). (1) Louisiana State University, Baton Rouge, LA; (2) U.S. Forest Service, Pineville, LA; (3) U.S. Forest Service, Auburn, AL
- 9:15 a.m. A nested PCR protocol to determine if *Sphaeropsis sapinea* is present in asymptomatic *Pinus nigra* tissue. J.L. FLOWERS, J.R. Hartman, and L.J. Vaillancourt. University of Kentucky, Lexington
- 9:30 a.m. Oak mortality, crown condition, and decline-associated damage in Minnesota, 1974-1990. K.W. KROMROY (1), J. Juzwik (1,2), and P.D. Castillo (2). (1) University of Minnesota and (2) USDA Forest Service, St. Paul, MN
- 9:45 a.m. Eradication of sudden oak death in Oregon. E.M. Goheen (1), E.M. HANSEN (2), A. Kanaskie (3), M.G. McWilliams (3), N. Osterbauer (4), and W. Sutton (2). (1) USDA Forest Service, Central Point, OR; (2) Oregon State University, Corvallis; (3) Oregon Dept. Forestry and (4) Oregon Dept. Agriculture, Salem
- 10:00 a.m. Role of *Clonostachys rosea* in preventing the overland transmission of *Ceratocystis fagacearum*. M.F. NEUMAN and J. Juzwik. University of Minnesota and USDA Forest Service, St. Paul, MN
- 10:15 a.m. Characterization of isolates of *Discula destructiva* in Michigan using AFLPs and RFLPs. Z.J. BLANKENHEIM and G.C. Adams. Michigan State University, East Lansing

9:00 – 11:00 a.m., 202D

Oral Presentations

Host-Parasite Relations/Biochemistry, Molecular Biology, Cell Biology

Presiding: Chris Smart, Cornell University, Ithaca, NY, and Dean Gabriel, University of Florida, Gainesville

- 9:00 a.m.  Identification of *Alternaria brassicicola* genes differentially expressed during pathogenesis on *Arabidopsis thaliana* using suppression subtractive hybridization. R.A. CRAMER and C.B. Lawrence. Colorado State University, Fort Collins
- 9:15 a.m. Molecular dissection of the *Alternaria brassicicola* - *Arabidopsis* interaction using functional genomics. C.B. LAWRENCE, R.A. Cramer, K. Morey and J. Wang. Colorado State University, Fort Collins
- 9:30 a.m. Induction of systemic resistance/susceptibility in *Pinus nigra* inoculated with *Sphaeropsis sapinea*. J.T. BLODGETT, M. Bellizzi, and P. Bonello. Ohio State University, Columbus
- 9:45 a.m. A profile of putative parasitism genes expressed in the esophageal glands of *Heterodera glycines*. B. GAO (1), T. Maier (2), E.L. Davis (3), T.J. Baum (2), and R.S. Hussey (1). (1) University of Georgia, Athens; (2) Iowa State University, Ames; (3) North Carolina State University, Raleigh
- 10:00 a.m. Cloning putative parasitism genes expressed in the esophageal glands of *Meloidogyne incognita*. G. HUANG (1), B. Gao (1), T. Maier (2), E.L. Davis (3), T.J. Baum (2), and R.S. Hussey (1). (1) University of Georgia, Athens; (2) Iowa State University, Ames; (3) North Carolina State University, Raleigh
- 10:15 a.m. Comparison of elicitor genes in closely related *Phytophthora* species. C.D. SMART, K.T. Hodge, C.H. Haney and W.E. Fry. Cornell University, Ithaca, NY
- 10:30 a.m. Identification of citrus genes responding to bacterial canker infection. B. El YACOUBI, T.E. Kornahk, J.M. Davis, and D.W. Gabriel. University of Florida, Gainesville
- 10:45 a.m. Molecular control of the rice blast disease. Y. JIA. USDA-ARS, Stuttgart, AR

9:00 – 11:00 a.m., 203C

Professionalism/Service/Outreach

Discussion: The APS Public Policy Board: Progress and Vision

Sponsor: Public Policy Board

Presiding: O.W. Barnett, North Carolina State University, Raleigh, and John Sherwood, University of Georgia, Athens

The APS Public Policy Board (PPB) has been actively involved with issues related to plant pathology. You are invited to attend this session to learn more about what the APS PPB does on your behalf

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and to give the board your suggestions of other activities needed to enhance plant pathology.

- 9:00 a.m. Biosecurity forum and presidential letters. J. FLETCHER. Oklahoma State University, Stillwater
- 9:10 a.m. Microbial genomics, priorities and Whitehead meeting. S. GOLD. University of Georgia, Athens
- 9:20 a.m. Plant-associated microbe genomics workshop. J. LEACH. Kansas State University, Manhattan
- 9:30 a.m. Progress on the DC front. K. EVERSOLE. Eversole Associates, Chevy Chase, MD
- 9:40 a.m. Plant pathogen permitting—Response to FR. S. TOLIN. Virginia Polytechnic Institute and State University, Blacksburg
- 9:50 a.m. Visit with USDA undersecretary. J. AMADOR. Texas Agricultural Experiment Station, Weslaco
- 10:00 a.m. Mid-year contacts in DC. B. CARROLL. Syngenta Crop Protection, Greensboro, NC
- 10:10 a.m. Seed pathology and food safety. D. MCGEE. Iowa State University, Ames
- 10:20 a.m. Sustainable agriculture initiative. J. SHERWOOD. University of Georgia, Athens
- 10:30 a.m. Discussion and impact. D. STUCKEY. Surprise, AZ

9:00 – 11:15 a.m., 201B

Oral Presentations

Diseases of Fruits and Nuts

Presiding: Roberta Spitko, New England Fruit Consultants, Montague, MA, and Gary Melchior, Gowan Company, Walla Walla, WA

- 9:00 a.m. Ecology of *Alternaria alternata* on citrus. A. BHATTIA (1), T. Peever (2), K. Akimitsu (3), L. Carpenter-Boggs (2) and L.W. Timmer (1). (1) University of Florida, Lake Alfred; (2) Washington State University, Pullman, (3) Kagawa University, Miki, Japan
- 9:15 a.m. Environmental influences on development of pseudothecia and the production and dispersal of ascospores of *Mycosphaerella citri*, the cause of citrus greasy spot. S.N. MONDAL and L.W. Timmer. University of Florida, Lake Alfred
- 9:30 a.m. PFD-FAD, an expert system for timing fungicide applications for control of postbloom fruit drop. N.A.R. PERES (1), S. Kim (2), H.W. Beck (2), N.L. Souza (1), and L.W. Timmer (3). (1) Sao Paulo State University, Botucatu, Brazil; (2) University of Florida, Gainesville; (3) University of Florida, Lake Alfred
- 9:45 a.m. Implications of current orchard renovation practices and market forces on the management of fire blight: The need for a new antibiotic for disease control and resistance management. R.A. SPITKO. New England Fruit Consultants, Montague, MA

- 10:00 a.m. A qualitative risk assessment regarding use of gentamicin to control fire blight disease and human health implications. V.W. Winkler and G.L. MELCHIOR. Gowan Company, Walla Walla, WA
- 10:15 a.m. Summary of efficacy tests on Agry-Gent, a new agricultural antibiotic formulation for control of fire blight in apple and pear. G.L. MELCHIOR and P.J. David. Gowan Company, Walla Walla, WA
- 10:30 a.m. Tagging flowers to validate an infection risk model for managing strawberry gray mold. L.E. HOFFMAN, K.J. Dell, and W.D. Gubler. University of California, Davis
- 10:45 a.m. Non-specific yield reductions caused by *Colletotrichum acutatum* and *C. gloeosporioides* on strawberry. J.C. MERTELY, S.J. Mackenzie, C.K. Chandler, and D.E. Legard. University of Florida, Dover
- 11:00 a.m. Phenotypic and genotypic variation among single-spore isolates from a single basidiome of *Armillaria tabescens*. G. SCHNABEL (1), M.R. Paradkar (1), and G.I. McDonald (2). (1) Clemson University, Clemson, SC; (2) USDA Forest Service, Moscow, ID

9:00 a.m. – 12:00 p.m., 202C

Professionalism/Service/Outreach

Discussion: Application of Quality Assurance and ISO Certification to Plant Pathology

Sponsor: Plant Pathogen and Disease Detection Committee
 Presiding: C. André Lévesque, Agriculture and Agri-Food Canada, Ottawa, ON, and Laurene Levy, USDA-APHIS, Beltsville, MD

There are issues related to quality assurance and laboratory certification that all of us have to deal with at some point. The objective of this session is to discuss the reasons for better quality assurance or laboratory certification standards and the approaches taken by different laboratories, companies and government agencies to best achieve this goal.

- 9:00 a.m. Introduction. C.A. LÉVESQUE. Agriculture and Agri-Food Canada, Ottawa, ON
- 9:05 a.m. From confusion to compliance: The bumpy road to accrediting a plant health diagnostic laboratory to ISO 17025. C.M. MASTERS. Canadian Food Inspection Agency, Sidney, BC
- 9:45 a.m. Use of a Quality Management System (ISO:9000) in addressing phytosanitary issues. G.L. LAMKA and W.E. DOLEZAL. Pioneer Hi-Bred International, Inc., Johnston, IA
- 10:15 a.m. Break
- 10:30 a.m. Agdia's journey on the road towards laboratory certification. M.G. TIFFANY and C.L. Sutula. Agdia Inc., Elkhart, IN

11:00 a.m. To ISO or not to ISO: APHIS and NSHS and their decision not to require ISO certification of accredited labs. M.D. WARD. USDA-APHIS, Riverdale, MD

11:30 a.m. Discussion

9:00 a.m. – 12:15 p.m., 203AB

Epidemiology/Ecology/Environmental Plant Pathology

Symposium: Managing Risk to Minimize Crop Loss

Sponsors: Plant Disease Losses and Regulatory Plant Pathology committees

Presiding: William Turechek, Cornell University, Geneva, NY

In production agriculture, the potential for catastrophic losses due to plant disease is always present. Growers and nurserymen are acutely aware that many of the varieties of plants they grow or propagate and their everyday horticultural and pest management practices place them at risk for serious epidemic of one or more endemic or possibly invasive pathogens. Moreover, the risk of introducing a foreign, new, and/or invasive pathogen is increased dramatically with international and cross-continental trade. Typically, this type of trade is out of the hands of the average grower. Seemingly, the risks are well managed. In this symposium, approaches to evaluating and managing risk in international trade and production agriculture will be addressed.

9:00 a.m. Introduction. W. TURECHEK. Cornell University, Geneva, NY

9:05 a.m. Virus resistant transgenic plants reduce crop loss directly and minimizes damage to nontransgenic plants in the vicinity. D. GONSALVES. Cornell University, Geneva, NY

9:30 a.m. Development of an infection risk forecaster for hop powdery mildew. W.F. MAHAFFEE (1), C.S. Thomas (2), W.W. Turechek (3), C.M. Ocamb (4), and W.D. Gubler (5). (1) USDA-ARS, Corvallis, OR; (2) FieldWise, Yubba City, CA; (3) Cornell University, Geneva, NY; (4) Oregon State University, Corvallis; (5) University of California, Davis

9:55 a.m. How to interpret a positive identification. L.G. BROWN. USDA APHIS, Raleigh, NC

10:20 a.m. The maximum pest limit concept. G. HUGHES. University of Edinburgh, Edinburgh, U.K.

10:45 a.m. Break

11:00 a.m. Bayesian approaches to plant disease forecasting. J.E. YUEN. Swedish University of Agricultural, Upsala

11:25 a.m. Risk assessment, concept, terminology, development and future opportunities. E.S. NICHOLS. USDA APHIS, Washington DC

11:50 a.m. Risk assessment, concept, terminology, development and future opportunities. X.B. YANG. Iowa State University, Ames

9:00 a.m. – 12:15 p.m., 103AB

Plant Disease Management

Discussion: Product Development in the Ornamental Market

Sponsors: Biological Control, Chemical Control, and Turfgrass Pathology committees

Presiding: Ann R. Chase, Chase Research Gardens Inc., Mt Aukum, CA

This session will explore the development of products in this specialty market from the perspective of worldwide fungicide development, needs of specialty markets compared to “target markets,” and the future of our industry. The speakers will present special insight into the limits and benefits of working in a small, very unique branch of the agchem industry.

9:00 a.m. Where are our new fungicides coming from? A.R. CHASE. Chase Research Gardens, Inc., Mt. Aukum, CA

9:30 a.m. Historical overview—Ornamentals in the big picture. D. HOUSEWORTH. Syngenta Crop Protection, Fernandina Beach, FL

10:00 a.m. Specialty company perspectives. M. BELL. SePRO Corporation, Carmel, IN

10:30 a.m. Break

10:45 a.m. Delivery systems for ornamentals. A. SECKINGER. Whitmire Micro-Gen, St. Louis, MO

11:15 a.m. The university perspective. M. DAUGHTREY. Cornell University, Riverhead, NY

11:45 a.m. Discussion

9:00 a.m. – 12:35 p.m., 103DE

Professionalism/Service/Outreach

Symposium: Extension and Teaching from a Distance

Sponsors: Extension and Teaching committees

Presiding: Martin Draper, South Dakota State University, Brookings, and Melissa Riley, Clemson University, Clemson, SC

Travel costs are increasing, student populations are becoming more diverse and distributed, and universities are calling for technology tools that improve instructional effectiveness and reduce the time to develop and deliver instruction to both traditional and non-traditional audiences. As a response, both teaching and extension programs are being offered through various distributed learning environments. In this session we will hear examples of existing programs and the challenges of the future for distance education in plant pathology.

9:00 a.m. Introduction. M. DRAPER. South Dakota State University, Brookings

9:05 a.m. Online core competency training for Kansas County agricultural agents. D.J. JARDINE, K.

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- Wright, G. Kepka, G. Snyder and S. Bales. Kansas State University, Manhattan
- 9:35 a.m. Teaching plant pathology online to non-majors. C.A. BAKER. University of Florida and Florida Division of Plant Industry, Gainesville
- 10:05 a.m. Collaborative graduate teaching via Internet 2. J.E. LEACH. Kansas State University, Manhattan
- 10:35 a.m. Teaching graduate level, laboratory-based plant pathology via interactive television. G.J. HOLMES, P. B. Shoemaker and M. A. Cubeta. North Carolina State University, Raleigh
- 11:05 a.m. Using the APSnet Education Center for online and residential instruction. G.L. SCHUMANN. University of Massachusetts, Amherst
- 11:35 a.m. The arrival of standards for web-based instruction and the re-thinking of distributed learning. E.W. MEACHEN. University of Wisconsin System, Madison
- 12:05 p.m. Panel discussion

9:00 a.m. – 1:00 p.m., 103C

Biology of Plant Pathogens

Symposium: Surface Interactions and Biofilms of Plant-Associated Microbes

Sponsors: Bacteriology and Phyllosphere Microbiology committees

Presiding: Clay Fuqua, Indiana University, Bloomington, and Steve Lindow, University of California Berkeley, Berkeley

Microorganisms often associate with surfaces in adherent assemblages called biofilms. Biofilms and other related multicellular aggregates that form at interfaces allow bacteria to persist in specific microenvironments, facilitate access to nutrients concentrated at surfaces, and provide protection from predation and antimicrobial treatments. Bacterial pathogens also must associate with host surfaces during the process of infection and can often form biofilms at these surfaces. A large percentage of bacterial infections in animals are thought to involve biofilms that can form infective foci on host tissue. For plant pathogens, there has been significant work on the initial attachment to plant surfaces. However, until recently, plant-associated microbes have not been studied in the context of biofilms. Speakers in this session will provide insights into the similarities and differences between the surface interactions of plant and animal pathogens, and examine the extent to which microbial biofilm formation is integrated with plant pathogenesis.

- 9:00 a.m. Differential survival of solitary and aggregated cells of *Pseudomonas syringae* on leaves. S.E. LINDOW. University California, Berkeley
- 9:30 a.m. Role of water availability during colonization of leaf surfaces. G.A. BEATTIE and C.A. Axtell. Iowa State University, Ames
- 10:00 a.m. Surface attachment and biofilm formation in *Pantoea stewartii* subsp. *stewartii*: Key features of Stewarts wilt disease development. S.B. VON

BODMAN, M. Koutsoudis, and T. D. Minogue. University of Connecticut, Storrs

- 10:30 a.m. Interactions of *Agrobacterium tumefaciens* with inert surfaces. C. FUQUA (1) and A.G. Matthyse (2). (1) Indiana University, Bloomington; (2) University of North Carolina, Chapel Hill
- 11:00 a.m. Interactions of *Agrobacterium tumefaciens* with plant surfaces. A.G. MATTHYSSE. University of North Carolina, Chapel Hill
- 11:30 a.m. Biofilm development on surfaces in terrestrial habitats. L.J. HALVERSON. Iowa State University, Ames
- 12:00 p.m. Biofilm formation on abiotic surfaces by a fluorescent pseudomonad. S. HINSA (1), M. Espinosa-Urgel (2), and G.A. O'Toole (1). (1) Dartmouth Medical School, Hanover, NH; (2) Estacion Exerimental del Zaidin CSIC, Spain
- 12:30 p.m. The cep quorum-sensing system of *Burkholderia cepacia* is a regulatory checkpoint for biofilm development. L. EBERL. Technical University of Munich, Freising, Germany

9:00 a.m. – 1:10 p.m., 201A

Plant Disease Management

Symposium: Strobilurins and Turfgrass Disease Management

Sponsor: Turfgrass Pathology Committee

Presiding: Jon Powell, University of Minnesota, St. Paul

The first half of the program will address the history of QoI (strobilurin) fungicides, their mode of action, and factors associated with in vivo and in vitro assessment sensitivity of fungal pathogens to this class of fungicides. The second half of the program will explore the efficacy of these fungicides for managing turfgrass diseases and issues pertaining to resistance management. This program will offer opportunities for open discussions.

- 9:00 a.m. Introduction. J.F. POWELL. University of Minnesota, St. Paul
- 9:05 a.m. Strobilurins and turfgrass disease management: Historical review, mode of action and range of pathogen activity. F.P. WONG. University of California, Riverside
- 9:30 a.m. A tricky class of fungicides: Challenges for *in vitro* fungicide sensitivity testing. W. KOELLER. Cornell University, Geneva, NY
- 10:00 a.m. Methods for assessing sensitivity of fungal pathogens to QoI fungicides. G. OLAYA. Syngenta Ag Products, Vero Beach, FL
- 10:30 a.m. Open forum
- 10:45 a.m. Break
- 11:00 a.m. Response of dollar spot to strobilurins and other fungicides. W. UDDIN. Pennsylvania State University, University Park

- 11:20 a.m. Case studies of strobilurin resistance in turfgrass: Gray leaf spot. P. VINCELLI. University of Kentucky, Lexington
- 11:40 a.m. Molecular genetics of QOI resistance in *Pyricularia grisea* from Perennial ryegrass. M.L. FARMAN. University of Kentucky, Lexington
- 12:00 p.m. Case studies of strobilurin resistance in turfgrass: Anthracnose. L. BURPEE. University of Georgia, Griffin
- 12:20 p.m. Overview of QOI resistance management strategies in other cropping systems. H.L. YPEMA. BASF Corp., Durham, NC
- 12:40 p.m. Interactive session: Possible QOI resistance management strategies in turfgrass disease management. J.F. POWELL. University of Minnesota, St. Paul
- 12:55 p.m. Closing remarks. J.F. POWELL. University of Minnesota, St. Paul

12:00 – 1:30 p.m., 102C

Professionalism/Service/Outreach

Cultural Diversity Luncheon and Social: Plant Pathology: A Positive Career Choice

Sponsor: Cultural Diversity Committee

Presiding: Dilantho Fernando, University of Manitoba, Winnipeg, MB, Canada, and Anne Dorrance, Ohio State University, Wooster

At this session we welcome undergraduate students who are members of Minorities in Agriculture and Natural Resources and Related Sciences, as well as APS members who represent the Societies' cultural diversity, to learn more about plant pathology as a career. Topics to be covered include an overview of the types of jobs plant pathologists hold, where to look and how to apply for graduate school, as well as some personal stories from members that focus on the paths that prepared them for their careers.

- 12:00 p.m. Introduction. D.G. FERNANDO. University of Manitoba, Winnipeg, MB, Canada
- 12:15 p.m. Welcome to APS and plant pathology. D.E. MATHRE. Montana State University, Bozeman
- 12:30 p.m. The what, where and how of APS and careers. C.J. D'ARCY. University of Illinois, Urbana
- 12:45 p.m. Graduate schools—Where to look and how to apply. R.C. ROWE. Ohio State University, Wooster
- 1:00 p.m. Extension/teaching as a career choice. T.L. KIRKPATRICK. University of Arkansas, Hope

1:00 – 2:30 p.m., 103AB

Oral Presentations

Virology

Presiding: Judith Brown, University of Arizona, Tucson, and Margaret Redinbaugh, USDA-ARS, Wooster, OH

- 1:00 p.m. Virus induced gene silencing in protoplasts. W.P. QIU and H.S. Hou. Southwest Missouri State University, Mountain Grove

- 1:15 p.m. CMVdelta2b can interfere with the accumulation of wild type CMV in zucchini squash plants in a cross-protection like phenomenon that involves RNA silencing. M.N. YASSI and M.J. Roossinck. Samuel Roberts Noble Foundation, Ardmore, OK
- 1:30 p.m. Monopartite begomovirus genomes associated with tomato leaf curl disease from the Nile Basin and evidence for interspecies recombination. A.M. IDRIS and J.K. Brown. University of Arizona, Tucson
- 1:45 p.m. Cotton leaf crumple virus is the first member of a previously undiscovered phylogenetic group of New World begomoviruses. J.K. BROWN and A.M. Idris. University of Arizona, Tucson
- 2:00 p.m. *Maize necrotic streak virus* is most closely related to members of the genus tombusvirus. M.G. REDINBAUGH (1) and K. Scheets (2). (1) USDA-ARS, Wooster, OH; (2) Oklahoma State University, Stillwater
- 2:15 p.m. Host resistance and cultural practices as measures to control faba bean necrotic yellows virus. L.R. RIZKALLA. Plant Pathology Research Institute, Giza, Egypt

1:00 – 2:30 p.m., 103DE

Oral Presentations

Host Resistance

Presiding: Bill Fry, Cornell University, Ithaca, NY, and Eugene Milus, University of Arkansas, Fayetteville

- 1:00 p.m. Genes for seedling and adult-plant resistance to leaf rust in soft red winter wheats. Y.A. WAMISHE, E.A. Milus, and K.C. Thomson. University of Arkansas, Fayetteville
- 1:15 p.m. Genetic variability and QTL mapping of resistance to gray leaf spot in a *Lolium* pseudo-testcross population. J. CURLEY (1), S. Warnke (2), R. Barker (2), S. Leong (1) and G. Jung (1). (1) University of Wisconsin, Madison; (2) USDA-ARS, Oregon State University, Corvallis
- 1:30 p.m. Identification of quantitative resistance in *Lycopersicon pennellii* to *Phytophthora infestans*. C.D. Smart and W.E. FRY. Cornell University, Ithaca, NY
- 1:45 p.m. Structure-function analysis of the *Arabidopsis* disease resistance gene *RPS4*. X. Zhang and W. GASSMANN. University of Missouri, Columbia
- 2:00 p.m. Epistasis analysis of *dnd1* -mediated resistance responses. G. JUPKOWSKI, A. Rettler, and A. Bent. University of Wisconsin, Madison
- 2:15 p.m. Study of genetics of resistance and identification of genes involved in resistance in *Phaseolus vulgaris* cv. Othello to *Bean dwarf mosaic virus*. Y. SEO, W.J. Lucas and R.L. Gilbertson. University of California, Davis

Sessions • Tuesday, July 30

1:00 – 3:00 p.m., 202C

Hot Topic

Discussion: Building a Distributed Laboratory Network for Plant Pests and Disease Diagnostics and Training

Sponsor: Public Policy Board

Presiding: R. James Cook, Washington State University, Pullman

The USDA allocated several million dollars to states in May 2002 for plant disease biosecurity. How will this money be used to network states, counties, departments of agriculture, and others? What areas need to be thought about in assuring coordination of efforts? Come help with your ideas!

1:00 – 3:10 p.m., 203DE

Epidemiology/Ecology/Environmental Plant Pathology

Symposium: 3rd IE Melhus Graduate Student Symposium: New Thesis Research Contributions to Plant Disease Epidemiology

Sponsor: Epidemiology Committee

Presiding: Bill Pfender, USDA-ARS, Corvallis, OR

The 3rd annual IE Melhus Graduate Student Symposium will feature selected papers by graduate students in the field of plant disease epidemiology.

- 1:00 p.m. Introduction. B. PFENDER. USDA-ARS, Oregon State University, Corvallis
- 1:05 p.m. The I.E. Melhus Fund. D. MATHRE. Montana State University, Bozeman
- 1:10 p.m. Epidemiology of downy mildew of oilseed poppy. J.B. SCOTT (1), F.S. Hay (1), C.R. Wilson (1), P.J. Cotterill (2) and A.J. Fist (3). (1) University of Tasmania, Burnie, TAS, Australia; (2) GlaxoSmithKline, Latrobe, TAS, Australia; (3) Tasmanian Alkaloids, Westbury, TAS, Australia
- 1:50 p.m. The influence of environment and host growth for improved fungicide applications for control of southern stem rot of peanut. S.L. RIDEOUT (1), T.B. Brenneman (1), and K.L. Stevenson (2). (1) University of Georgia, Tifton; (2) University of Georgia, Athens
- 2:30 p.m. Bayesian mapping of soybean Sclerotinia stem rot in the U.S. north-central region: An approach from human epidemiology. A.L. MILA, X.B. Yang, and A.L. Carriquiry. Iowa State University, Ames

1:00 – 3:30 p.m., 201B

Oral Presentations

Diseases of Fruits and Nuts

Presiding: Barbara Smith, USDA-ARS, Poplarville, MS, and Fred Gildow, Pennsylvania State University, University Park, PA

- 1:00 p.m. Aphid vector competence and transmission of Pennsylvania isolates of plum pox virus from infected peach fruit. F.E. GILDOW (1), V.D. Damsteegt (2), A.L. Stone (2), and D.G. Luster (2). (1) Pennsylvania State University, University Park; (2) USDA-ARS, Ft. Detrick, MD
- 1:15 p.m. Prevalence and incidence of Phacidiopycnis rot, a newly recognized postharvest disease of pears in U.S. C.L. XIAO (1), R.J. Boal (1), and R.G. Roberts (2). (1) Washington State University and (2) USDA-ARS, Wenatchee, WA
- 1:30 p.m. Evaluation of captan/sulfur tank-mixes for scab control on peaches. E.J. SIKORA (1), J.A. Pitts (1), R. Boozer (1), and E.M. Bauske (2). (1) Auburn University, Auburn, AL; (2) AWIS Weather Services, Auburn, AL
- 1:45 p.m. Plant-parasitic nematodes associated with peach production in southern Illinois. J.B. RUSSELL, S.A. Walters, and J.P. Bond. Southern Illinois University, Carbondale
- 2:00 p.m. Susceptibility of grapevine pruning wounds to infection by *Phaeoconiella chlamydospora* and *Phaeoacremonium* spp. W.D. GUBLER, A. Eskalen, S.N. Rooney, A.J. Feliciano and A. Khan. University of California, Davis
- 2:15 p.m. First report of the pycnidial state of *Phaeoconiella chlamydospora*, a causal agent of black measles (esca) and Petri disease in California vineyards. A. ESKALEN, S.N. Rooney, and W.D. Gubler. University of California, Davis
- 2:30 p.m. Survey of north Georgia wine grapes for Pierces disease as related to elevation. P.M. BRANNEN (1) and C.J. Chang (2). (1) University of Georgia, Athens; (2) Georgia Experiment Station, Griffin
- 2:45 p.m. Early Botrytis infections as sources of secondary inoculum for ripening grape berries. S.M. ZITTER and W. Wilcox. Cornell University, Geneva, NY
- 3:00 p.m. Limited fungicide applications affect berry rot severity and resveratrol content of muscadine grapes (*Vitis rotundifolia* Michx.). B.J. SMITH and J.B. Magee. USDA-ARS, Poplarville, MS
- 3:15 p.m. Control of leaf and nut scab in pecans with trifloxystrobin/propiconazole, a new combination fungicide from Bayer Corporation. W.D. SCOTT (1), T.D. Hunt (2), and R. Rudolph (3). Bayer Corporation, (1) Kansas City, MO, (2) Opelika, AL, and (3) Peachtree City, GA

1:00 – 4:00 p.m., 202A

Plant Disease Management

Symposium: Plant Diseases Impacting Resource-Poor Farmers in Developing Countries: Can They Be Successfully Controlled?

Sponsors: OIP Policies and Programs and OPAGE; Integrated Pest Management, Plant Disease Losses, and Tropical Plant Pathology committees

Presiding: H. Jesse Dubin, Frederick, MD

The symposium will focus on the realities of some significant diseases in developing countries and successes and problems in their management. The speakers will concentrate on methodology, innovativeness, sustainability and profitability, and problems and issues related to disease control, as well as the future of disease management for resource-poor farmers. Symposia of this type are particularly important in today's globalized economy and ever-shrinking world. APS members are exposed to the realities of farmers in developing countries and how we can help them, and conversely, how they can help us.

- 1:00 p.m. Introduction. G. ABAWI. Cornell University, Geneva, NY
- 1:05 p.m. 10,000 years of experience with sustainable plant disease control. H.D. THURSTON. Cornell University, Ithaca, NY
- 1:35 p.m. Controlling foliar blights of wheat in the rice-wheat systems of Asia. E. DUVEILLER. CIMMYT South Asia, Kathmandu, Nepal
- 2:05 p.m. Management of Begomoviruses by resource-poor farmers in the tropics. P.K. ANDERSON (1), F.J. Morales (1), J.P. Legg (2), and P.M. Hanson (3). (1) Centro Internacional de Agricultura Tropical, Cali, Colombia; (2) International Institute of Tropical Agriculture, Kampala, Uganda; (3) Asian Vegetable Research and Development Center, Tainan, Taiwan, ROC
- 2:35 p.m. Break
- 2:50 p.m. Late blight management in the Peruvian highlands. K.A. GARRETT (1), O. Ortiz (2) and R. Nelson (3). (1) Kansas State University, Manhattan; (2) International Potato Center, Lima, Peru; (3) Cornell University, Ithaca, NY
- 3:20 p.m. Application of rice seed-associated antagonistic bacteria to manage rice diseases in developing countries. T.W. MEW (1), R. Pamplona (1), H. Barrios (1), L. Xiangmin (1), Z. Chen (2), F. Lu (2), N. Nilpanit (3), P. Arunyanart (3), K.P. Van (4), and P.V. Du (5). (1) International Rice Research Institute, Metro Manila, Philippines; (2) Jiangsu Academy of Agricultural Sciences, Nanjing, China; (3) Dept. of Agriculture, Bangkok, Thailand; (4) Cantho University, Vietnam; (5) Cuu Long Rice Research Institute, Vietnam
- 3:50 p.m. Discussion

1:00 – 4:15 p.m., 202D

Plant Disease Management

Symposium: Commercial Biopesticides: Practice and Experience

Sponsor: Biological Control Committee

Presiding: William F. Stoneman, Encore Technologies, McFarland, WI, and Prem Warrior, Valent BioSciences, Libertyville, IL

*Thousands of research hours and dollars are spent each year studying biological agents for control of plant diseases and other crop pests. Nearly every university or USDA-ARS plant pathologist has some experience with a fungal or bacterial agent that has potential to control plant disease. Few of these agents make it to practical field application. Practicality, efficacy, economics, regulatory concerns and commercial manufacturing limitations are among the reasons many agents never reach producers. This symposium will explore three commercial biopesticides that are in the market and have a position in commercial production of food and fiber. *Coniothyrium minitans* is commercially marketed under the trade names Contans WG and Intercept WG. This commercial product was recently registered with the EPA. It is very useful to control plant diseases caused by *Sclerotinia sclerotiorum* and *Sclerotinia minor*. The 2002 growing season is its second in North America. DiTera is a biological nematicide effecting against a range of species. DiTera provides effective control of some of the toughest nematodes through a unique mode of action. The benefits of using DiTera can be seen through increases in crop yield and/or crop quality. DiTera ES, a liquid formulation, can be used to control nematodes on cole crops, grapes and some tree crops. The granular formulations, DiTera G and DiTera WDG, are for use on banana tree crops and ornamentals. Bio-Save 1000, Bio-Save 100 and Bio-Save 110 have been in the commercial market for 5+ years. The active agents in these postharvest biofungicides are select strains of *Pseudomonas syringae*. Bio-Save 1000 has been tested for use postharvest to control dry rot and silver scurf of potatoes in storage. A survey of the work done in Idaho and Montana will be presented.*

- 1:00 p.m. *Coniothyrium minitans* for practical control of sclerotinia diseases. W.F. STONEMAN. McFarland, WI
- 1:20 p.m. Practical alternatives for controlling white mold in snap bean production. W.R. STEVENSON, R.V. James and R.E. Rand. University of Wisconsin, Madison
- 1:40 p.m. Parasitism of sclerotia of *Sclerotinia sclerotiorum* by *Coniothyrium minitans*. H.R. DILLARD and A.C. Cobb. Cornell University, Geneva, NY
- 2:00 p.m. DiTera: Mode of action of a biological nematicide. R.N. PERRY. Plant Pathogen Interactions Division, IACR-Rothamsted, Harpenden Herts, UK
- 2:30 p.m. Break
- 2:45 p.m. Experiences in the field development of a biological nematicide. B.B. WESTERDAHL. University of California, Davis

TUESDAY

Sessions • Tuesday, July 30

- 3:15 p.m. Biological management of postharvest diseases. J.P. STACK. University of Nebraska, Clay Center
- 3:45 p.m. Control of Fusarium dry rot and silver scurf of potato with *Pseudomonas syringae* containing products Bio-Save 100 and Bio-Save 1000. B.J. JACOBSEN. Montana State University, Bozeman

1:00 – 5:00 p.m., 203AB

Biology of Plant Pathogens

Symposium: Chestnut Blight: A 10-Year Study of Disease Management Using Hypoviruses

Sponsors: Forest Pathology, Biological Control, Epidemiology, and Regulatory Plant Pathology committees

Presiding: Jane Cummings Carlson, DNR, Fitchburg, WI

Chestnut blight caused by Cryphonectria parasitica is responsible for the demise of the chestnut forests of eastern North America and Europe. In the 1960s chestnut trees surviving chestnut blight were observed in Italy. These trees were infected with strains of the fungus infected with hypoviruses that reduce the virulence of the pathogen. A large stand of American chestnut trees in West Salem, WI, became infected with chestnut blight in 1987. After a brief attempt at eradication, hypoviruses were introduced in 1992 and their dissemination followed through the stand for the past decade. While virulent strains still predominate and are infecting previously healthy trees, data suggest the hypoviruses are disseminating and that trees are beginning to respond with wound callus.

- 1:00 p.m. Ecological history and early disease management of an isolated stand of American chestnut in Wisconsin. J.E. CUMMINGS CARLSON (1), F.L. PAILLET (2), and S.E. DAHIR (1). (1) Wisconsin Dept. of Natural Resources, Madison; (2) U.S. Geological Survey, Denver, CO
- 1:25 p.m. The decision to disseminate hypovirulent strains at West Salem: The Michigan experience. D.W. FULBRIGHT. Michigan State University, East Lansing
- 1:50 p.m. Clonal population structure and reproductive biology of *Cryphonectria parasitica*. I.C. MCGUIRE and M.G. MILGROOM. Cornell University, Ithaca, NY
- 2:15 p.m. Hypovirus deployment, establishment and spread: Results after six years of canker treatment. M.L. DOUBLE and W.L. MACDONALD. West Virginia University, Morgantown
- 2:55 p.m. Break
- 3:10 p.m. Spatial patterns of blight and hypovirus spread within the West Salem chestnut stand. A.M. JAROSZ (1), S.E. DAHIR (2) and M.L. DOUBLE (3). (1) Michigan State University, East Lansing; (2) Wisconsin Dept. of Natural Resources, Madison; (3) West Virginia University, Morgantown
- 3:35 p.m. Evaluation of recovery at the West Salem chestnut stand: A demographic analysis. A.L. DAVELOS (1), A.M. JAROSZ (2), S.E. DAHIR (3), and J.E.

Cummings Carlson (3). (1) University of Minnesota, St. Paul; (2) Michigan State University, East Lansing; (3) Wisconsin Dept. of Natural Resources, Madison

- 4:00 p.m. Chestnut breeding and hypovirulence: Integrated approaches to the restoration of the American chestnut. J.H. CRADDOCK. University of Tennessee, Chattanooga
- 4:40 p.m. Discussion

1:00 – 5:30 p.m., 203C

Molecular/Cellular Plant-Microbe Interactions

Symposium: Functional Genomics of Plant-Pathogen Interactions

Sponsors: Genetics and Biochemistry, Physiology, and Molecular Biology committees

Presiding: Seogchan Kang, Pennsylvania State University, University Park, and Sophien Kamoun, Ohio State University, Wooster

At present, the genomes of more than 150 microorganisms have been sequenced or sequencing projects are underway. Although plant pathogens have been underrepresented in this group, this situation is rapidly improving due to the community-wide efforts to promote the genomics of plant pathogenic organisms. Information and technology resources derived from these efforts will significantly enhance our ability to develop effective measures to control important plant diseases. This symposium will not only highlight the progress of genome sequencing efforts for selected plant pathogens, but also present how genome sequence data have been utilized to investigate the biology and evolution of pathogens and the mechanisms of their interactions with host plants.

- 1:00 p.m. Introduction. S. KANG. Pennsylvania State University, University Park
- 1:05 p.m. The rice blast genome project takes off! M. THON. North Carolina State University, Raleigh
- 1:40 p.m. Comparative genomic analysis of fungal plant pathogens. B.G. TURGEON (1,2), P. AMEDEO (2), S.E. BAKER (2), B.-N. LEE (2), S. KROKEN (2), N. CATLETT (2), U. GUNAWARDENA (2), B. ROBBERTSE (2), J. WU (2), E. WAGNER (2), and O.C. YODER (2). (1) Cornell University, Ithaca, NY; (2) Torrey Mesa Research Institute, San Diego, CA
- 2:15 p.m. Functional genomics of Phytophthora-plant interactions. T.A. TORTO (1), A. TESTA (1), M. TIANG (1), W.R. MORGAN (2), D. KINNEY (1), E. HUITEMA (1), W. HAMADA (1), S. DONG (1), J. BOS (1), and S. KAMOUN (1). (1) Ohio State University, Wooster; (2) College of Wooster, Wooster, OH
- 3:50 p.m. Break
- 4:05 p.m. *Pseudomonas syringae* pv. *tomato* DC3000: Genomics and phytopathogenicity. A. COLLMER (1), J.R. ALFANO (2), A.M. BALDO (3), C.R. BUELL (4), S. CARTINHO (3), A.K. CHATTERJEE (5), T.P.

Sessions • Tuesday, July 30

Delaney (1), S.G. Lazarowitz (1), G.B. Martin (1), D.J. Schneider (3), and X. Tang (6). (1) Cornell University, Ithaca, NY; (2) University of Nebraska, Lincoln; (3) USDA-ARS, Ithaca, NY; (4) Institute for Genomic Research, Rockville, MD; (5) University of Missouri, Columbia; (6) Kansas State University, Manhattan

4:40 p.m. Discovery of plant genes required for disease resistance through a combination of expression profiling and reverse genetics. J. GLAZEBROOK, J.D. Clarke, B. Estes, W. Chen, H.-S. Chang, and T. Zhu. Torrey Mesa Research Institute, San Diego, CA

5:15 p.m. Discussion

Daily Schedule • Wednesday, July 31

7:00 a.m. – 3:00 p.m. 202E

Speaker Ready Room

8:00 a.m. – 12:00 p.m. Hall A

Registration

8:00 a.m. – 4:00 p.m. 101B

Open Meeting Room

7:00 – 10:00 a.m. *Kilbourn/Milwaukee Hilton*

APS Foundation

7:30 – 10:30 a.m. *Juneau/Milwaukee Hilton*

Office of International Programs Board Breakfast

8:00 a.m. – 12:00 p.m.

Sessions and Oral Presentations

See session information beginning on page 61

8:00 a.m. – 1:00 p.m. *Wright Ballroom A/Milwaukee Hilton*

APS Council

8:00 a.m. – 2:00 p.m. *Hall A*

APS PRESS

8:00 a.m. – 3:00 p.m. *Hall A*

Session B posters available for viewing

9:00 a.m. – 12:00 p.m. 201CD

APS Job Placement Service

12:00 – 12:30 p.m. *Hall A*

Publishers Book Display Drawing

1:00 – 2:00 p.m. *Wright Ballroom A/Hilton*

New Council Orientation

1:00 – 5:00 p.m.

Sessions and Oral Presentations

See session information beginning on page 64

3:00 – 4:00 p.m. *Hall A*

Authors take down posters in Session B

WEDNESDAY NOTES

8:00 – 9:15 a.m., 202A

Oral Presentations

Host Resistance

Presiding: Judy Thies, USDA-ARS, Charleston, SC, and
Rebecca Grube, USDA-ARS, Salinas, CA

8:00 a.m. Evaluating lettuce (*Lactuca* spp.) germplasm for resistance to *Sclerotinia* minor. R.C. GRUBE and E.J. Ryder. USDA-ARS, Salinas, CA

8:15 a.m. Field efficacy of root-knot nematode resistance in 'Charleston Belle' and 'Carolina Wonder' bell peppers. J.A. THIES (1), R.L. Fery (1), J.D. Mueller (2), G. Miller (2), and J. Varn (2). (1) USDA-ARS, Charleston, SC; (2) Clemson University, Blackville, SC

8:30 a.m. Discovery and characterization of a necrotic response on leaves of *Nicotiana trigonophylla* induced by the tobacco blue mold pathogen, *Peronospora tabacina*. E.P. HEIST, W.C. Nesmith and C.L. Schardl. University of Kentucky, Lexington

8:45 a.m. Polygalacturonases of *Sclerotinia sclerotiorum*: expression during saprophytic and parasitic modes of growth. R. LI, R. Rimmer, A. Sharpe, G. Seguin-Swartz, and D. Hegedus. Agriculture and Agri-Food Canada, Saskatoon, SK

9:00 a.m. Characterization of an endosperm protein expressed at higher levels in maize genotypes resistant to *Aspergillus flavus* infection/aflatoxin production. Z.-Y. CHEN (1), R.L. Brown (2), K.E. Damann (1), and T.E. Cleveland (2). (1) Louisiana State University, Baton Rouge; (2) USDA-ARS, New Orleans, LA

8:00 – 9:30 a.m., 202B

Oral Presentations

Virology

Presiding: Robert Martin, USDA-ARS, Corvallis, OR and
Robert Gilbertson, University of California, Davis

8:00 a.m. Development and application of a PCR detection method to study the distribution and rate of movement of *Beet curly top virus* in the beet leafhopper (*Circulifer tenellus*). M.J. SOTO and R.L. Gilbertson. University of California, Davis

8:15 a.m. Replication of *Tomato spotted wilt virus* ingested into the alimentary canal of adult thrips. F.M. ASSIS FILHO, C.M. Deom, and J.L. Sherwood. University of Georgia, Athens

8:30 a.m. A *Crinivirus* is associated with the Strawberry Pallidosis disease. I.E. TZANETAKIS (1), A.B. Halgren (1), K.E. Keller (2), and R.R. Martin (1,2). (1) Oregon State University and (2) USDA-ARS, Corvallis

- 8:45 a.m. Assessments of Rio Red grapefruit scions with a *Citrus tristeza virus* untranslatable coat protein transgene for resistance to the virus. C.M. HERRON (1) Z.N. Yang (1) J. Molina (1) J.V. da Graça (1) S.P. van Vuuren (2) and T.E. Mirkov (1). (1) Texas A&M University, Weslaco; (2) Institute for Tropical and Subtropical Crops, Nelspruit, South Africa
- 9:00 a.m. The amino-terminal encoding portion of CaMV Gene VI controls resistance-breakage in *Arabidopsis thaliana* ecotype Tsu-0. S. LEISNER (1), Y. Li (1), M. Hapiak (1), J. Schoelz (2), and K. Agama (1). (1) University of Toledo, Toledo, OH; (2) University of Missouri, Columbia
- 9:15 a.m. Characterization of a tobamovirus from hibiscus. S. ADKINS (1), D. Achor (2) and D.J. Lewandowski (2). (1) USDA-ARS-USHRL, Fort Pierce, FL; (2) University of Florida, Lake Alfred


8:00 – 10:00 a.m., 202C

Oral Presentations

Fungi—Genetics, Molecular Biology, Cell Biology

Presiding: Lisa Vaillancourt, University of Kentucky, Lexington, and Stephen Goodwin, USDA-ARS, West Lafayette, IN

- 8:00 a.m. Sequencing status of the *Magnaporthe grisea* chromosome 7. M.R. THON, T. Mitchell, D. Brown, and R.A. Dean. North Carolina State University, Raleigh
- 8:15 a.m. A transcription factor regulating appressorial penetration and infectious hyphae growth in *Magnaporthe grisea*. G. PARK and J.R. Xu. Purdue University, West Lafayette, IN
- 8:30 a.m. Ultrastructural characterization of infection and colonization of maize leaves by *Colletotrichum graminicola*, and by a *C. graminicola* pathogenicity mutant. C.W. Mims (1) and L.J. VAILLANCOURT (2). (1) University of Georgia, Athens; (2) University of Kentucky, Lexington
- 8:45 a.m. Comparison of AFLP and ISSR genetic markers in the study of populations within *Pythium* species. C.D. GARZON, D.M. Geiser and G.W. Moorman. Pennsylvania State University, University Park
- 9:00 a.m. Possible repeat induced point mutation (RIP) in coding and flanking regions of a transposable element from the wheat pathogen *Mycosphaerella graminicola*. Y. TIAN (1) and S.B. Goodwin (2). (1) Purdue University and (2) USDA-ARS, West Lafayette, IN
- 9:15 a.m. The barley pathogen *Septoria passerinii* probably has an unobserved sexual cycle. S.B. GOODWIN (1), C. Waalwijk (2), G.H.J. Kema (2), J.R. Cavaletto (1), and G. Zhang (1). (1) USDA-ARS, Purdue University, West Lafayette, IN; (2) Plant Research International, Wageningen, Netherlands

- 9:30 a.m.  Virulence to pine in the progeny of a hybrid cross in the *Gibberella* mating population complex. C.J. FRIEL, S.C. Kirkpatrick, and T.R. Gordon. University of California, Davis
- 9:45 a.m. Geographical distribution of *Typhula* snow molds in Wisconsin using species-specific PCR markers and GIS. E.A. SCHEEF, K. Burke-Scoll, G. Gregos, and G. Jung. University of Wisconsin, Madison

8:00 – 11:10 a.m., 202D

Plant Disease Management

Discussion: Diagnosis and Management of Nematodes on Ornamental Plants

Sponsoring Committee: Nematology

Presiding: William T. Crow, University of Florida, Gainesville

- 8:00 a.m. Current nematode management research on landscape plants in Florida. W.T. CROW (1), R. McSorley (1), J. Brito (2), D.W. Dickson (1), and R.D. Lima (3). (1) University of Florida, Gainesville; (2) Florida Department of Agriculture and Consumer Services, Gainesville; (3) Universidade Federal de Vicosa, Vicosa, MG
- 8:30 a.m. Nematode management on herbaceous perennial ornamentals. J.A. LAMONDIA. Connecticut Agricultural Experiment Station, Windsor
- 9:00 a.m. Break
- 9:15 a.m. Field diagnosis of nematodes in ornamentals. R.A. DUNN. Scottsville, VA
- 9:45 a.m. Foliar nematodes in nursery production: An industry perspective. N.A. REHCIGL. Yoder Brothers, Inc., Parrish, FL
- 10:15 a.m. Panel. C.Y. WARFIELD, North Carolina State University, Raleigh, and J.A. LAMONDIA, R.A. DUNN, and N.A. REHCIGL
- 10:55 a.m. Discussion

8:00 – 11:20 a.m., 201A

Plant Disease Management

Symposium: IPM Labeling – Has the Time Come?

Sponsors: Integrated Pest Management and Chemical Control committees

Presiding: Greta Schuster, West Texas A&M University, Canyon, and David Langston, University of Georgia, Tifton

IPM has progressed significantly since its original conception in 1972 and may now answer concerns of many consumers. The acceptance of the IPM philosophy by most producers, administrators and legislatures suggest that it is now time to examine whether consumers will offer marketing opportunities for IPM producers. Today's producer is familiar with IPM practices and implements such practices on a daily basis but consumers have little ability to distinguish IPM

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from non-IPM products. As one of the speakers, Tom Green of the IPM Institute of North America stated in his abstract "Consumers face a continuous barrage of negative news about agricultural and agrochemical impacts on the environment and health." With emerging issues such as genetically modified foods, pesticide use and misuse, and the impact FQPA is having on the cancellations of important pesticides to agriculture, this session was formed to discuss concerns dealing with the labeling of foods. These issues deal with the concerns in accepting IPM-labeled foods, IPM standards, the enforcement and monitoring of such crops and/or documentation of such crops, the litigation issues, and the education of consumers about the environmental benefits of IPM production practices. Speakers will discuss successes and failures of labeling of vegetables, marketing as well as the federal agencies viewpoint.

- 8:00 a.m. Introduction. G. SCHUSTER. West Texas A&M University, Canyon, TX
- 8:05 a.m. The Massachusetts IPM certification experience: Partners with Nature. C.S. HOLLINGSWORTH and W.M. Coli. University of Massachusetts, Amherst
- 8:35 a.m. Using IPM to communicate with consumers about pest management. C.H. PETZOLDT. Cornell University, Geneva, NY
- 9:05 a.m. A retailers experience with IPM marketing. W.M. POOL. Wegmans Food Markets, Rochester, NY
- 9:35 a.m. Break
- 9:50 a.m. An overview of the IPM-based eco-labeling industry. T.A. GREEN. IPM Institute of North America, Inc., Madison, WI
- 10:20 a.m. IPM labeling: Challenges and opportunities from the federal perspective. H.D. COBLE. USDA, Raleigh, NC
- 10:50 a.m. Panel discussion/questions. S. ALEXANDER. Virginia Polytechnic Institute and State University, Painter

8:00 – 11:30 a.m., 201B

Diseases of Plants

Discussion: Sudden Oak Death: A New Disease Reported On Oaks and Rhododendrons

Sponsors: Forest Pathology, Regulatory Plant Pathology, Diseases of Ornamental Plants, and Mycology committees
Presiding: Sue Cohen, USDA-APHIS, St. Paul, MN, and Jennifer Juzwik, U.S. Forest Service, St. Paul, MN

*This session will provide a discussion forum on the impacts of a newly described fungal pathogen, *Phytophthora ramorum* (Sudden Oak Death) on the forest ecosystems and ornamental nursery industry in the United States. This disease has caused significant mortality in tanoak (*Lithocarpus densiflorus*), coast live oak (*Quercus agrifolia*), and California black oak (*Q. kelloggii*) species in the coastal areas of central California. Speakers will review and discuss the current research studies on the pathogen biology, host range, survey methodology, and treatments for disease control.*

- 8:00 a.m. Introduction. S. COHEN. USDA-APHIS, University of Minnesota, St. Paul
- 8:05 a.m. A molecular approach to the study of the distribution, host range, and variability across populations of *Phytophthora ramorum*. M. GARBELOTTO. University of California, Berkeley
- 8:25 a.m. Epidemiology of *Phytophthora ramorum* (Sudden Oak Death) in California oak woodlands. J. DAVIDSON. University of California, Davis
- 8:45 a.m. Monitoring and detection of Sudden Oak Death in forest environments. B. TKACZ. U.S. Forest Service, Washington, DC
- 9:05 a.m. Break
- 9:20 a.m. Infectivity of *Phytophthora ramorum* on selected ericaceous host species. P. TOOLEY. USDA-ARS, Ft. Detrick, MD
- 9:40 a.m. Plants, trade, and the pest parade: Industry perspectives on international movement of plant propagative materials and plant pests like Sudden Oak Death. C. REGELBRUGGE. American Nursery and Landscape Association, Washington, DC
- 10:00 a.m. Risk assessment as a tool for change: Impacts on regulatory issues of Sudden Oak Death. S. COHEN. USDA-APHIS, St. Paul, MN
- 10:30 a.m. Discussion

8:00 – 11:40 a.m., 203AB

Plant Disease Management

Symposium: Innovations in Bacterial Disease Control Materials

Sponsors: Chemical Control, Bacteriology, and Integrated Pest Management committees

Presiding: Norman Lalancette, Rutgers University, Bridgeton, NJ, and David Langston, University of Georgia, Tifton

Some of the most difficult plant diseases to manage are those incited by bacterial plant pathogens. Integration of cultural practices, disease resistance, and bactericide applications is often necessary to achieve adequate control. However, unlike many fungal diseases, the choice of application materials, whether chemical or biological in nature, is limited in number, type, and degree of efficacy. This symposium reviews our current standards, copper and antibiotics, and explores some of the most recent alternative materials used for bacterial disease management.

- 8:00 a.m. Introduction. N. LALANCETTE. Rutgers University, Bridgeton, NJ
- 8:05 a.m. The role of copper in bacterial disease management. D.F. RITCHIE. North Carolina State University, Raleigh
- 8:35 a.m. The uncertain future of antibiotics for control of bacterial diseases of plants. V. STOCKWELL. Oregon State University, Corvallis
- 9:05 a.m. Biological controls for bacterial diseases: How do they work and how effective are they? T.J. BURR. Cornell University, Geneva, NY

- 9:35 a.m. Break
- 9:50 a.m. Bacterial disease protection with acibenzolar-s-methyl. A. TALLY (1), D. McKenzie (2), and G. Cloud (1). Syngenta Crop Protection, (1) Greensboro, NC, and (2) Basle, Switzerland
- 10:10 a.m. A beta 1-3 glucan, specific in marine alga, stimulates plant defense reactions and induces resistance against certain pathogens. S.P. KELLY (1) and K. OLIVIER (2). (1) Agrimar Corporation, Flowery Branch, GA; (2) Centre National de la Recherche Scientifique, St. Pol de Leon, France
- 10:40 a.m. Plant growth regulators: A novel approach to managing fire blight of apple shoots. K.S. YODER. Virginia Polytechnic Institute and State University, Winchester
- 11:10 a.m. Control of bacterial leaf spot on tomato with bacteriophages. J.B. JONES (1), A. Obradovic (1), B. Balogh (1), M. T. Momol (2) and L.E. Jackson (3). University of Florida, (1) Gainesville and (2) Quincy; (3) AgriPhi, Inc., Logan, UT

8:00 a.m. – 12:00 p.m., 203E

Epidemiology/Ecology/Environmental Plant Pathology

Workshop: Meta-Analysis: Synthesis Across Studies in Plant Pathology

Sponsors: Epidemiology and Plant Disease Losses committees
 Presiding: Sarah Jane Pethybridge, University of Tasmania, Burnie, TAS, Australia, and Karen Garrett, Kansas State University, Manhattan

Meta-analysis is the quantitative synthesis of the results of independent experiments. In this hands-on workshop participants will be introduced to this powerful statistical technique and its applicability in plant pathology. Participants will gain a comprehensive understanding of the questions answered by this type of analyses and key components of the analyses such as effect sizes, data collection, the choice and models and variations available, and other issues involved in the use of such analyses. Examples of results from sample data from the field of plant pathology and the steps involved in a typical meta-analysis will be featured. This session is limited to 30 participants with their own laptop computer. The computer must have an operating system of Windows 95 or above.

- 8:00 a.m. Introduction. S. PETHYBRIDGE. University of Tasmania, Burnie, TAS, Australia
- 8:10 a.m. Workshop
- Meta-analysis. M.S. ROSENBERG. Arizona State University, Tempe
 - Meta-analysis: Synthesis across studies in plant pathology. K.A. GARRETT. Kansas State University, Manhattan, KS

8:00 am – 12:00 pm, 203C

Professionalism/Service/Outreach

Workshop: Resources and Funding for Plant Pathology Outreach

Sponsor: Youth Programs Committee

Presiding: Kisha Shelton, University of Georgia, Athens

Teachers, are you tired of teaching the same old basic concepts in science classes? APS members, are you wanting to reach out to area schools and organizations to get them interested in plant pathology but not sure how? Well, the Youth Programs Committee would like to give you the opportunity to explore the answer to these and many other questions that you may have. The Resources and Funding for Plant Pathology Outreach Workshop is being presented to middle and high school teachers and APS members. Speakers will focus on ideas they have put into action and how you can do the same. We will also offer you the chance to visit five demonstration tables to learn a little about plant pathology. Each demonstration table will consist of an exercise that you can take back to the classroom. The workshop will help bring new life to your classroom and help make your outreach more effective.

- 8:00 a.m. Introduction. K.L. SHELTON. University of Georgia, Athens
- 8:10 a.m. Girls and SHADES: The future is so bright. K.D. GWINN. University of Tennessee, Knoxville
- 8:30 a.m. The APSnet Education Center: New free resources for teachers. G.L. SCHUMANN. University of Massachusetts, Amherst
- 8:50 a.m. Plants in the classroom. D.L. SCHADLER. Oglethorpe University, Atlanta, GA
- 9:10 a.m. Break
- 9:25 a.m. To be announced
- 9:45 a.m. To be announced
- 10:25 a.m. Demonstrations:
- Symptoms and signs. J.H. BROCK. University of Georgia, Tifton
 - Bacteria and Kochs Postulates. R.B. CARROLL and T.A. Evans. University of Delaware, Newark
 - Using the Internet. D.M. EASTBURN and C.J. D'ARCY. University of Illinois, Urbana
 - Nematodes. G.L. TYLKA. Iowa State University
 - DNA the easy way. G.L. SCHUMANN. University of Massachusetts, Amherst

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1:00 – 2:10 p.m., 203AB

Professionalism/Service/Outreach

Discussion: The Food Quality Protection Act (FQPA): Expected Impact on Agriculture and the Consumer

Sponsors: Chemical Control and Integrated Pest Management committees

Presiding: Kent Smith, USDA, Washington, DC

This session is planned as an informal discussion of a federal law enacted unanimously in 1996 that may have far-reaching effects on disease management. We have convened a group of experts on its implementation who have first-hand knowledge of its current and expected impact. After this panel of experts answers each question, the audience will have an opportunity to comment and pose additional questions.

1:00 p.m. Panel discussion: The Food Quality Protection Act: Expected impact on agriculture and the consumer. N.B. CARROLL (1), H.D. COBLE (2), L.P. GIANESSI (3), M.K. HAUSBECK (4), P.I. LEWIS (5), L.A. ROSSI (5), and D.C. THOMPSON (6). (1) Syngenta, Greensboro, NC; (2) USDA, North Carolina State University, Raleigh; (3) National Center for Food and Agricultural Policy, Washington, DC; (4) Michigan State University, East Lansing; (5) USEPA, Washington, DC; (6) IR-4, Rutgers University, North Brunswick, NJ

1:50 p.m. Discussion

1:00 – 2:15 p.m., 202B

Oral Presentations

Host-Parasite Relations—Biochemistry, Molecular Biology, Cell Biology

Presiding: Wolfram Koller, Cornell University, Geneva, NY, and William Conway, USDA-ARS, Beltsville, MD

1:00 p.m. Digital image analysis of the internal light spots in appressoria of *Colletotrichum acutatum*. J. DIEGUEZ-URIBEONDO, H. Förster, and J. Adaskaveg. University of California, Riverside

1:15 p.m. The effect of calcium chloride infiltration into apples on pathogenicity of *Colletotrichum acutatum* during early stages of infection. E. PARK (1) J.L. McEvoy (1), W.S. Conway (1), and C.E. Sams (2). (1) USDA, Beltsville, MD; (2) University of Tennessee, Knoxville

1:30 p.m. Direct inhibition of fungal pathogens by a synergistic mixture of Cutinase and Tween 20. D.M. PARKER and W.K. Köller. Cornell University, Geneva, NY

1:45 p.m. Acidification of host tissue by *Penicillium* spp. as a mechanism to increase virulence. D. PRUSKY (1), J.L. McEvoy (2), R.A. Saftner (2), and W.S.

Conway (2). (1) Volcani Center, Bet Dagan, Israel; (2) USDA-ARS, Beltsville, MD

2:00 p.m. Effect of triiodobenzoic acid on broomrape (*Orobancha ramosa*) infection and development on tomato plants. A.M. Harb, K.M. HAMEED, and R. Shibli. Jordan University of Science and Technology, Irbid, Jordan

1:00 – 3:15 p.m., 201B

Oral Presentations

Diseases of Cereals and Field and Fiber Crops

Presiding: Robert Hunger, Oklahoma State University, Stillwater, and Caroline Malmstrom, Michigan State University, East Lansing

1:00 p.m. Identification of critical factors that influence the screening of cotton cultivars for bacterial blight resistance. U.S. SAGARAM (1), T.A. Wheeler (2), G.L. Schuster (1), and J.R. Gannaway (2). (1) West Texas A&M University, Canyon; (2) Texas Agricultural Experimental Station, Lubbock

1:15 p.m. Impact of soybean canopy on aphid immigration and *Soybean mosaic virus* incidence. M.E. LEE, N.C. Kurtzweil, C. Boerboom, J. Gaska, and C.R. Grau. University of Wisconsin, Madison

1:30 p.m. Root system characteristics related to the resistance of commercial soybean varieties to sudden death syndrome. L.M. ORTIZ-RIBBING and D.M. Eastburn. University of Illinois, Urbana

1:45 p.m. Resistance to *Phialophora gregata* is expressed in the stem of resistant soybeans. G.M. TABOR, G.L. Tylka and C.R. Bronson. Iowa State University, Ames

2:00 p.m. Impact of *Meloidogyne incognita* on soybean varieties in Illinois. J.B. ALLEN, J.P. Bond, M.E. Schmidt, S.A. Walters, and J.S. Russin. Southern Illinois University, Carbondale

2:15 p.m. Assessment with microsatellite markers of diversity of *Sclerotinia sclerotiorum* from potato fields in the Columbia Basin of Washington. Z. KANAAN-ATALLAH, D.A. Johnson, and X. Chen. Washington State University, Pullman

2:30 p.m. Effect of planting date, tillage and burning of residue on eyespot of winter wheat. R.M. HUNGER, L.L. Singleton, E.G. Krenzer, R. Sidwell, and M.E. Payton. Oklahoma State University, Stillwater

2:45 p.m. Barley yellow dwarf viruses in California native perennial grasses. C.M. MALMSTROM. Michigan State University, East Lansing


3:00 p.m. Mn oxidation in plant pathogenic fungi. I.A. THOMPSON, L. Li, D.M. Huber, and D.G. Schulze. Purdue University, West Lafayette, IN

1:00 – 3:45 p.m., 202A

Oral Presentations

Epidemiology

Presiding: Sharon Von Broembsen, Oklahoma State University, Stillwater, and Forrest Nutter, Iowa State University, Ames

- 1:00 p.m. Survival of sporangia and zoospores of *Phytophthora infestans* in surface water. L.D. PORTER and D.A. Johnson. Washington State University, Pullman
- 1:15 p.m. Vertical redistribution of motile *Phytophthora parasitica* zoospores in water and implications for pathogen management in recycling irrigation systems. S.L. VON BROEMBSEN. Oklahoma State University, Stillwater
- 1:30 p.m. Modeling survival of oospores of *Aphanomyces cochlioides*. A.T. DYER and C.E. Windels. University of Minnesota, Crookston
- 1:45 p.m. Threshold conditions leading latent infection to prune fruit rot caused by *Monilinia fructicola*. Y. LUO and T.J. Michailides. University of California-Davis, Parlier
- 2:00 p.m. Virulence of wheat yellow (stripe) rust disease in western and central Asia. A.H. YAHYAOU. International Center for Agricultural Research in the Dry Areas, Aleppo, Syria
- 2:15 p.m. Effects of seeding rate, row pattern, and fungicide treatment on incidence of peanut stem rot. L.E. SCONYERS (1), T.B. Breneman (1) and K.L. Stevenson (2). University of Georgia, (1) Tifton and (2) Athens
- 2:30 p.m. Mapping the prevalence of Moko disease of banana using GPS and GIS. F.W. NUTTER, JR (1) and R.A. Coelho Netto (2). (1) Iowa State University, Ames; (2) INPA, Manaus, Brazil
- 2:45 p.m. A uniformity trial investigating variation in yield and the incidence of Botrytis fruit rot in annual strawberry. S.J. MACKENZIE, C.L. Xiao, J.C. Mertely, and D.E. Legard. University of Florida, Dover
- 3:00 p.m.  Comparison of the spatial pattern of two foliar diseases of strawberry. M. NITA and L.V. Madden. Ohio State University, Wooster
- 3:15 p.m. Spatial patterns of grapevines with Pierce's disease in the lower San Joaquin valley. K.M. TUBAJIKA (1), E.L. Civerolo (1), D. Bartels (2), and J.M. Hashim (3). (1) USDA-ARS, Davis, CA; (2) USDA APHIS, Mission, TX; (3) University of California Cooperative Extension, Bakersfield
- 3:30 p.m. Citrus canker: Plant pathology versus public policy. T.R. GOTTWALD (1) and T.S. Schubert (2). (1) USDA-ARS, Ft. Pierce, FL; (2) Florida Department of Agriculture and Consumer Services, Gainesville

1:00 – 3:55 p.m., 202D

Plant Disease Management

Discussion: Real-Time PCR for Field Diagnosis of Bacterial Diseases

Sponsors: Bacteriology and Diagnostics committees

Presiding: Frank Louws, North Carolina State University, Raleigh, and Julie Beale, University of Kentucky, Lexington

Recent advances in real-time PCR technologies have paved the way for PCR to become a routine tool in plant disease diagnostic laboratories. This session will include a review of real-time PCR techniques, use of a high throughput system for large numbers of samples, description of newer rapid portable PCR platforms, and examples of several protocols and assays for detecting bacterial pathogens in natural samples.

- 1:00 p.m. Introduction. N.W. SCHAAD, USDA-ARS, Ft. Detrick, MD
- 1:05 p.m. Fluorescent, real-time PCR technologies: A review and an update. J.S. SKAF. Applied Biosystems, Foster City, CA
- 1:35 p.m. Use of real-time PCR and high throughput detection of *Clavibacter michiganensis* subsp. *sepedonicus*. D. MILLS. Oregon St. University, Corvallis
- 2:05 p.m. Detection of plant pathogenic bacteria by real-time PCR. D.E. STEAD, J.G. Elphinstone, S. Simpkins and S.A. Weller. Central Science Laboratory, Sand Hutton, York, UK
- 2:35 p.m. Use of real-time LightCycler-32 PCR system for detection and identification of citrus canker. M.T. KINGSLEY. Pacific Northwest National Laboratory, Richland, WA
- 3:05 p.m. Rapid, real-time PCR with fully integrated specimen preparation. W.A. MCMILLAN. Cepheid, Sunnyvale, CA
- 3:35 p.m. Use of portable real-time PCR for same-day on-site field diagnosis of bacterial diseases. N.W. SCHAAD, P. Gaush, and E. Postnikova. USDA-ARS, Fort Detrick, MD

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1:00 – 4:55 p.m., 201A

Biology of Plant Pathogens

Symposium: Forces that Shape Microbe Populations in Forest Ecosystems

Sponsors: Forest Pathology and Environmental Quality and Plant Health committees

Presiding: Mee-Sook Kim, University of Idaho, Moscow, and Ned Klopfenstein, USDA Forest Service, Moscow, ID

Forest ecosystems present a unique opportunity to study forces that shape microbial populations. This symposium is designed to reflect understanding of population genetic processes of forest microbes and to contrast these processes with those of microbes in agricultural ecosystems. Several examples of population structure of forest pathogens will be presented and implications for disease management will be discussed.

- 1:00 p.m. Introduction. N.B. KLOPFENSTEIN. USDA Forest Service, Moscow, ID
- 1:05 p.m. Forces shaping pathogen population structure in crop ecosystems: Relevance to forest ecosystems? C.C. MUNDT. Oregon State University, Corvallis
- 1:35 p.m. Forest clearing and fire exclusion and their impact on microbial populations: Examples from tropical and temperate forests. M. GARBELOTTO (1), W. Otrrosina (2), I. Chapela (1), and G. Gilbert (3). (1) University of California, Berkeley; (2) U.S. Forest Service, Athens, GA; (3) University of California, Santa Cruz
- 2:00 p.m. Crawling through the botryosphaerial mire: Species definition as a prelude to population studies. G.R. STANOSZ, D.R. Smith, and S. Zhou. University of Wisconsin, Madison
- 2:25 p.m. Genetic variation and potential for adaptation and gene flow in *Cronartium ribicola*. P.J. ZAMBINO (1), R. Hamelin (2), and G.I. McDonald (1). (1) USDA Forest Service, Moscow, ID; (2) Natural Resources Canada, Sainte-Foy, QC, Canada
- 2:50 p.m. Break
- 3:05 p.m. Toward defining *Armillaria* populations and determining relationships to ecological behavior. M.-S. KIM (1), N.B. Klopfenstein (2), J.W. Hanna (1,2), and G.I. McDonald (2). (1) University of Idaho, Moscow, and (2) USDA Forest Service, Moscow, ID
- 3:25 p.m. Swiss needle cast—Climate, forest practices, and pathogen genetics create an epidemic. L.M. WINTON, J.K. Stone, E.M. Hansen, and P.W. Reeser. Oregon State University, Corvallis
- 3:50 p.m. Life in the woods and in wood products: Genetic tales from the ophiostomatoid front. L. BERNIER. CRBF, Université Laval, Québec, QC, Canada
- 4:15 p.m. Phenotypic plasticity and ecotypic adaptation: Responses of microbial populations to environmental and host variation through time and space. G.I. McDONALD. USDA Forest Service, Moscow, ID
- 4:45 p.m. Discussion