

# 1983 Annual Meeting Preliminary Program

June 26-30, 1983 • Iowa State University, Ames

In the program, room numbers indicate locations in the Scheman Continuing Education Building.

All poster numbers, authors, and titles are listed at the end of the program. Poster numbers are listed within the program at the times the posters may be viewed.

## Friday, June 24

0830-1700 **Financial Advisory Committee.** H. R. Cameron, presiding. Rm. 150, 154

## Saturday, June 25

0800-1700 **Registration.** Scheman

0830-1700 **APS Council Meeting.** President R. E. Ford, presiding. Rm. 150, 154

1930-2200 **SON Executive Board.** J. M. Webster, presiding. Rm. 158

## Sunday, June 26

0800-1200 **Registration.** Scheman

0800-1700 **SON Executive Board.** President J. M. Webster, presiding. Rm. 158

0900-1700 **MSA Council.** President H. D. Thiers, presiding. Rm. 167

1200-1700 **Exhibits.** Rm. 166, 175, 179, 182  
ALMACO (Allan Machine Co.)  
American Type Culture Collection  
Campbell Scientific, Inc.  
Environmental Growth Chambers  
LI-COR, Inc.  
Omnidata International, Inc.  
Percival Manufacturing Company  
Springer-Verlag NY Inc.  
WESCOR, Inc.

1300-1500 **Orientation of APS Committee Chairpersons.** Senior Councilor-at-large D. A. Slack, presiding. Rm. 250, 252

1300-1700 **Set up posters A153-A382, S7-S23, M30-M39 and M65-M73.** Coliseum

1300-1700 **Deciduous Tree Fruit Workers.** T. J. Burr, presiding. Rm. 275

1300-1700 **NE-87 Postharvest Pathology.** J. M. Ogawa, presiding. Rm. 204, 208

1300-1800 **Workshop: Pathogens carried with germplasm collections.** S. Dietz, presiding. Rm. 171

1500-1700 **1984 APS Program Committee.** Vice-President J. L. Lockwood, presiding; Vice-President-elect, assisting. Rm. 250, 252

1500-1700 **APS Committee Meetings.** Rm. 220, 230, 240  
**Archives.** C. L. Campbell, presiding

**Awards and Honors.** R. Lister, presiding  
**Illustrations of Plant Pathogens and Diseases.** L. W. Kress, presiding  
**Phytopathological Classics.** M. D. Simons, presiding  
**Placement.** E. L. Stromberg, presiding  
**Public Responsibilities.** D. W. Rasberg, presiding  
**Plant Disease Diagnosticians.** Gail Ruhl, presiding

1530-1750 **Department Chairmen's Meeting.** Garry Hooper, presiding. Rm. 260, 262

1600-1700 **Orientation of SON Committee chairpersons.** Vice-president D. W. Freckman, presiding. Rm. 150-154

1830-2030 **APS Committee Meetings.** Rm. 220, 230, 240, 260, 262

**Bacteriology.** M. J. Davis, presiding  
**Biological Control.** P. H. Tsao, presiding  
**Diseases of Ornamental Plant and Turf Grasses.** W. C. Stienstra, presiding  
**Disease and Pathogen Physiology.** L. D. Moore, presiding  
**Epidemiology.** R. F. Line, presiding  
**Extension.** R. P. Mulrooney, presiding  
**Genetics.** C. I. Kado, presiding  
**Membership.** D. E. Mathre, presiding  
**Mycology.** E. E. Butler, presiding  
**Mycorrhizae.** J. A. Menge, presiding  
**Plant Disease Detection.** V. L. Jons, presiding  
**Plant Disease Losses.** C. E. Main, presiding  
**Plant Virology.** L. C. Lane, presiding  
**Postharvest Pathology and Mycotoxicology.** G. A. Bean, presiding  
**Public Relations.** G. W. Bird, presiding  
**Publications Coordinating.** T. Kommedahl, presiding  
**Regulatory Work and Foreign Plant Diseases.** A. P. Roelfs, presiding  
**Seed Pathology.** M. T. Turner, presiding  
**Soil Microbiology and Root Diseases.** R. D. Lumsden, presiding  
**Tropical Plant Pathology.** L. H. Purdy, presiding

1830-2030 **SON Committee Meetings.** Rm. 204, 208, 167, 171

**Crop Loss Assessment**  
**Ecology**  
**Education**  
**Industry**  
**Placement Service**  
**Regulatory Nematology**  
**Long Range Planning Committee**  
**Meeting Site Selection Committee**

1930-2200 **No-host social, everyone welcome.** Scheman, Plaza

## Monday, June 27

0630-0815 **NE-87 Breakfast Meeting.** Rm. 204, 208

0630-0815 **Extension Breakfast.** Rm. 220, 230, 240

0630-0815 **West Virginia Alumni Breakfast.** Rm. 250

0730-1700 **Registration.** Scheman

0830-1200 **Opening Plenary Session.** Plant Health and Sustainable Agriculture and Forestry. R. E. Ford, presiding. Stephens

0830-0900 **Welcome and Introductions**

0900-0940 **The challenge we face in the age of plants.** Lester Brown, President, Worldwatch Inst., Washington, DC

0940-1010 **The concept of a sustainable yield agroecosystem.** H. R. Lund, Dean, College of Agriculture, North Dakota State Univ, Fargo

1010-1020 **Break**

1020-1050 **Plant health with low energy biological farming.** R. Rodale, Publisher, Rodale Press, Emmaus, PA

1050-1120 **Constraints to plant health in natural ecosystems.** W. H. Smith, Dean, Yale School of Forestry-Greeley, New Haven

1120-1150 **The nation's plant health care system.** J. A. Browning, Chairman, Dept. Plant Sciences, Texas A&M, College Station

1000- **Spouses' Get Acquainted Brunch.** Campanile Room, Memorial Union

1200-1300 **Past Presidents' Luncheon.** R. E. Ford, presiding. Oak Room, Memorial Union

1200-1700 **Commercial exhibits open.** Rm. 166, 175, 179, 182

1300-1500 **Authors available at posters A153-A193 and S7-S15.** Coliseum

1320-1700 **Symposium: Taxonomy and Nomenclature of Fungi.** R. T. Hanlin, presiding. Fisher Theater

1320-1330 **M1. Introduction.** R. T. Hanlin, Univ Georgia, Athens

1330-1400 **M2. Terminology.** R. A. Shoemaker, Biosyst Res Inst, Ottawa

1400-1430 **M3. Taxonomic criteria used in classifying plant pathogenic fungi.** R. T. Hanlin, Univ Georgia, Athens

1430-1445 **Break**

1445-1520 **M4. The Helminthosporium complex.** K. J. Leonard, North Carolina State Univ, Raleigh

1520-1555 **M5. Name changes in plant pathogenic Coleomycetes.** B. C. Sutton, CMI, Kew, England

1555-1630 **M6. Nomenclature and taxonomy of sclerotial plant pathogenic fungi.** L. M. Kohn, Univ Toronto, Toronto, Ontario

1630-1700 **Discussion**

1330-1700 **Symposium: Mycotoxicology.** G. A. Bean, presiding. Stephens

1330-1405 **A1. Aflatoxins, the birth of modern mycotoxicology.** R. J. Cole, USDA, Dawson, GA

1405-1440 **A2. Fusarium toxins and their importance in mycotoxicology.** E. B. Smalley, D. Cullen and R. W. Caldwell, Univ Wisc, Madison

1440-1515 **A3. Increasing awareness of mycotoxins other than Fusarium toxins.** A. W. Hays, Rohm and Haas, Spring House, PA

1515-1535 **Break**

1535-1610 **A4. Introduction to the mycology, plant pathology, chemistry, toxicology, and pathology of naturally occurring mycotoxicoses in animals and man.** W. F. O. Marasas, Tygerberg, South Africa

1610-1645 **A5. Mycotoxins as chemical/biological warfare agents.** C. J. Mirocha, Univ Minn, St. Paul

1645-1700 **Discussion**

1330-1700 **Symposium: Use of Predictive Systems in Disease Management.** R. F. Line,

- presiding; S. Thomson, assisting. Rm. 220, 230, 240
- 1330-1340** Introduction
- 1340-1410** **A6.** Twenty-five years of disease forecasting. J. C. Zadoks, Wageningen, The Netherlands
- 1410-1425** **A7.** Predictive systems for potato late blight. W. E. Fry, Cornell Univ, Ithaca
- 1425-1440** **A8.** Predictive systems for fire blight. S. V. Thomson, Utah State Univ, Logan
- 1440-1455** **A9.** Predictive systems for stripe and leaf rust of wheat. R. F. Line, USDA, Wash State Univ, Pullman
- 1455-1510** **A10.** Predictive systems for plant viruses. J. E. Duffus, USDA, Salinas, CA
- 1510-1525** **A11.** Predictive systems for nematodes. L. Duncan, Univ Calif, Riverside
- 1525-1545** **Break**
- 1545-1625** **Discussion of predictive systems in use**
- 1615-1645** **A12.** Future trends and development in the use of predictive system in disease management. D. R. MacKenzie, Penn State Univ, Univ Park
- 1645-1700** **General Discussion**
- 1330-1700** **Symposium: Recognition and Specificity in Plant Disease.** N. T. Keen, presiding. Benton Auditorium
- 1330-1405** **A13.** Virus-host specificity. G. A. de Zoeten, Univ Wisc, Madison
- 1405-1440** **A14.** Recognition and specificity in bacterial diseases. A. G. Matthyse, Univ North Carolina, Chapel Hill
- 1440-1500** **Break**
- 1500-1535** **A15.** Recognition and specificity in fungal diseases. C. A. West, Univ Calif, Los Angeles
- 1535-1610** **A16.** Recognition and specificity in nematode diseases. U. Wyss, Kiel, W. Germany
- 1610-1700** **Discussion**
- 1330-1700** **Symposium: Host Plant Resistance from a Tropical and Temperate Crop Perspective.** R. Frederiksen, presiding. Rm. 250, 252
- 1330-1410** **A17.** Disease resistance in beans for the tropics. M. Pastor-Corrales, CIAT, Colombia, South Am
- 1410-1450** **A18.** Multi-adversity resistance for developing durable host protection from diseases and insects. L. S. Bird, Texas A&M, College Station
- 1450-1510** **Break**
- 1510-1550** **A19.** A breeder's perspective of durable resistance. N. W. Simmonds, Edinburgh, Scotland
- 1550-1630** **A20.** A commercial perspective of durable resistance. J. L. Dodd, Aurora Res Sta, Aurora, IL
- 1630-1700** **Discussion**
- 1330-1700** **Discussion: New Products and Services.** Presentations on new commercially available products and services. H. V. Morton, presiding; J. R. James, assisting. Rm. 260, 262
- 1330** Everest Interscience: a) Complete line of microscopic infrared thermometers. b) Sealed fixed mounted infrared thermometers. M. M. Everest
- 1345** LiCor, Inc. LI-6000 Portable Photosynthesis System. L. Middelndorf
- 1355** Omnidata International, Inc. Omnidata's new data logger. R. H. Campbell
- 1405** Spraying Systems Co. The new product line of "Quick Jet" spray nozzles. T. F. Reed
- 1415** BASF Wyandotte Corp. Ronilan, for control of disease caused by *Botrytis* spp., *Sclerotinia* spp., *Monilinia* spp., and certain pathogens in the genus *Sclerotium*. D. Soarajak
- 1425** CIBA-GEIGY Corp. New labels for Ridomil 2E and Ridomil MZ. L. D. Houseworth
- 1435** Rhone-Poulenc, Inc. Rovral and Alette, new uses. R. Hanrahan
- 1445** Diamond Shamrock Corp. Bravo 500, new registrations for use on soybeans, dry beans, mint and stone fruits. J. R. French
- 1455** Mobay Chemical Corp. New developments with the fungicides Bayleton, Baytan, and Baycur. K. Noegel
- 1505** Janssen Pharmaceutica. Fungaflo (Imazalil), a new postharvest fungicide. W. R. Goodwine
- 1515** CIBA-GEIGY Corp. Apron, a new systemic seed dressing for control of *Pythium* spp., *Phytophthora* spp., and systemic downy mildews. J. R. James
- 1525** Gustafson. Epic, a new control for *Rhizoctonia solani* in cotton. K. W. Rushing
- 1535** Mallinckrodt, Inc. a) Ornalin smoke. b) Koban/Truban Flowable for use on ornamentals and turf, including seed treatment. c) Banrot granular for control of soil pathogens of ornamental plants. W. A. Small
- 1555** Nor-Am Agricultural Products. SN-78314, a new fungicide. E. Pieters
- 1605** CIBA-GEIGY Corp. Banner 1.1E, a new fungicide for turf. L. D. Houseworth
- 1615** Union Carbide Agricultural Products Co. A status report on Standak. M. E. Zirakparvar
- 1625** FMC Corp. Reduction of soybean cyst nematode females using Furadan. A. Howard
- 1635** Iowa State University. Biology of the plant rusts: an introduction. M. B. Sealine
- 1645** Open Discussion
- 1500-1700** **Authors available at posters A194-A230A, Coliseum**
- 1600-1800** **North Carolina State Alumni Social.** Gateway Center
- 1700-1900** **Colorado State Alumni Social.** Rm. 150, 154
- 1700-1900** **Cornell Alumni Social.** Ed Braun's residence, 1219 Ninth St.
- 1700-1900** **Ohio State Alumni Social.** Oak Room, Memorial Union
- 1700-1900** **Texas A&M Social.** Campanile Room, Memorial Union
- 1700-1900** **Washington State Alumni Social.** Cardinal Room, Memorial Union
- 1700-1900** **Wisconsin Alumni Social.** Rm. 171, 167
- 1730-1900** **Women in Plant Pathology Social.** Rm. 275
- 1800-2000** **APS Committee Meetings.** Rm. 204, 208, 220, 230, 240
- Chemical Control.** D. L. Coyier, presiding
- Collections and Germplasm.** S. Anagnostakis, presiding.
- Forest Pathology.** S. A. Alexander, presiding
- Industry.** W. Small, presiding
- Integrated Pest Management.** M. G. Eversmeyer, presiding
- International Cooperation.** J. Amador, presiding
- New fungicide/nematicide data.** R. E. Stuckey, presiding
- Phytopathology News.** Abe Epstein, presiding
- Plant Nematology.** M. McKenry, presiding
- Plant Disease.** W. H. Horne, presiding
- Plant Disease Compendia.** C. W. Roane, presiding
- Pollution effects in plants.** D. S. Lang, presiding
- Standardization of common names of plant diseases.** J. D. Hansen, presiding
- Sustaining associates.** D. J. Hagedorn, presiding
- 1800-2000** **SON Committee Meetings.** Rm. 250, 252
- Honors and Awards**
- Geographical Distribution Subcommittee**
- Extension**
- Journal of Nematology Back Issues**
- Plant Resistance to Nematodes**
- SON Membership**
- Sustaining Members**
- Systematic Resources**
- Translation and Exchange**
- 2000-2030** **APS Presidential Address.** Excellence in Plant Pathology. R. E. Ford. Stephens
- 2030-2130** **APS Special Awards Ceremony.** President R. E. Ford, presiding. Stephens
- 2130-2300** **Reception Honoring APS Awardees.** Admission by ticket only. Scheman
- 
- Tuesday, June 28**
- 
- 0630-0800** **Deciduous Tree-Fruit Workers Breakfast.** Rm. 167, 171
- 0630-0800** **Greensboro College Breakfast.** Rm. 150, 154
- 0630-0800** **Iowa State Alumni Breakfast.** Cardinal Room, Memorial Union
- 0730-1830** **Registration.** Scheman
- 0800-1000** **Authors available at posters A231-A271.** Coliseum
- 0800-1600** **Commercial exhibits open.** Rm. 166, 175, 179, 182
- 0815-1200** **MSA Contributed Papers: Taxonomy.** C. B. Wolfe, Jr., presiding. Rm. 204, 208
- 0815** **M6.** R. A. Hill, R. J. Cole, D. M. Wilson, T. H. Sanders, P. D. Blankenship, K. E. Ashley and J. W. Dörner. Species of the *Aspergillus flavus* group associated with southeastern corn and peanuts: Their occurrence, taxonomy, and mycotoxin production. Univ Georgia, Tifton
- 0830** **M7.** M. J. Thirumalachar. Influence of growth conditions on the *Cladosporium* or *Phialophora* types of conidial development. Jeersannidhi Anderson Institute, Walnut Creek, CA
- 0845** **M8.** M. B. Saffo. *Nephromyces*: a fungal(?) symbiont of marine invertebrates. Swarthmore College, Swarthmore, PA
- 0905** **M9.** R. S. Currah and J. W. Carmichael. New isolations of *Onygenaceae* s. l. from southern Alberta. Univ Alberta Mold Herbarium, Edmonton
- 0920** **M10.** A. S. Methven. A taxonomic survey of the genus *Lactarius* in northern California. San Francisco State Univ
- 0935** **M11.** R. J. Pinette. A reexamination of three polypore genera using electrophoretic data. Iowa State Univ, Ames
- 0955** **M12.** G. M. Mueller. Somatic culture mat analysis as a taxonomic tool in *Laccaria*. Univ Tennessee, Knoxville
- 1010-1030** **Recess**
- 1030** **M13.** K. K. Nakasone and H. H. Burdsall, Jr. Merulius, just an alias for Phlebia? Center for Forest Mycology Research, Madison
- 1045** **M14.** E. F. Haskins and M. D. McGuinness. Light and electron microscopical studies on *Seminorula liquescens* and selected species of *Echinostelium* and *Cavostelium*. Univ Wash, Seattle
- 1100** **M15.** L. Sigler and M. S. Goettel. Taxonomy of the entomopathogenic Hyphomycete *Culicinomyces clavosporus*. Mold Herbarium and Culture Collection, Univ Alberta, Edmonton, Alberta, Canada

- 1115 **M16.** *D. A. Glawe.* Further studies on conidial states of diatrypeaceous fungi. Univ Ill, Urbana
- 1130 **M17.** *F. W. Spiegel.* Is Eumycetozoa a monophyletic group? Univ Arkansas, Fayetteville
- 0815-1200 **MSA contributed papers: ultrastructure.** John W. Taylor, presiding. Rm. 275
- 0815 **M18.** *C. W. Mims* and R. N. Conner. Ultrastructure of Basidium and Basidiospore development in *Phaseolus schweinitzii*. Stephen F. Austin State Univ, Nacogdoches, TX
- 0830 **M19.** *C. W. Mims* and R. W. Roberson. Ultrastructure of ornamentation development on Aeciospores of *Cronartium quercuum* f. sp. *fusiforme*. Stephen F. Austin State Univ, Nacogdoches, TX
- 0845 **M20.** *M. J. Powell.* Evidence for the localization of calcium in rumposomes of zoospores of *Chytriumyces hyalinus*. Miami University, Oxford, OH
- 0905 **M21.** *J. P. Braselton.* Zoospores of *Spongospora subterranea*. Ohio Univ, Athens, OH
- 0920 **M22.** *D. E. Hemmes.* Ultrastructural aspects of calcium mediated germination in cysts and sporangia of *Phytophthora palmivora*. Univ Hawaii at Hilo
- 0935 **M23.** *C. A. Wagner* and C. E. Miller. Ultrastructure of the Cytosorus of *Woronina pythii*. Ohio Univ, Athens, OH
- 0950 **M24.** *R. W. Martin* and Charles E. Miller. Mitosis in the endoparasite *Olpidiopsis varians* (Lagenidiales). Ohio Univ, Athens, OH
- 1005-1020 **Recess**
- 1020 **M25.** *J. D. Schoknecht* and J. L. Crane. Tretic Conidium development in *Helminthosporium velutinum*. Indiana State Univ, Terre Haute
- 1035 **M26.** *R. N. Bortnick* and M. J. Powell. Zoospore formation in *Olpidiopsis* sp. Miami Univ, Oxford, OH
- 1050 **M27.** *J. R. Newhouse*, H. C. Hoch and W. L. MacDonald. Virus-like particles in *Endothia parasitica*: Evidence for RNA content and a site of replication. West Virginia Univ, Morgantown
- 1105 **M28.** *T. E. Dolan.* The mitotic apparatus of *Monoblepharella* sp. Univ Georgia, Athens
- 1120 **M29.** *A. Hopkin*, J. Reid and J. A. Dowsett. A developmental study of the chytrid *Catenaria anguillulae* Sorokin employing light and electron microscopy. Univ Manitoba, Winnipeg, Manitoba, Canada
- 0830-1200 **Symposium: Losses from Plant Diseases (I).** Stan Pennypacker, presiding. Fisher Theater
- 0830-0915 **A21.** Global impact of crop losses. Lucas Brader, Shell International, The Hague, The Netherlands
- 0915-1000 **A22.** World-wide impact of forest diseases on wood and fiber production. F. G. Hawksworth, USDA, Fort Collins, CO
- 1000-1020 **Break**
- 1020-1105 **A23.** Crop protection economics: stability and sustainability. T. C. Edens, Mich State Univ, East Lansing
- 1105-1150 **A24.** The energy factor in crop loss and crop protection. H. E. Koenig, Mich State Univ, East Lansing
- 0830-1200 **Symposium: Molecular Basis for Disease Resistance and Susceptibility.** L. D. Moore, presiding. Rm. 250, 252
- 0830-0905 **A25.** Role of toxins in plant disease development. R. P. Scheffer, Mich State Univ, East Lansing
- 0905-0940 **A26.** Phytoalexins: past, present and future. H. D. VanEtten, Cornell Univ, Ithaca
- 0940-1015 **A27.** Role of plant surfaces in disease. W. K. Wynn, Univ Georgia, Athens
- 1015-1035 **Break**

- 1935-1110 **A28.** Role of extracellular enzymes in disease. A. Collmer, Univ Maryland, College Park
- 1110-1145 **A29.** Tumorigenesis. T. Kosuge, Univ Calif, Davis
- 0830-1200 **Symposium: Current Topics in Nematology.** J. N. Sasser, presiding. Benton Auditorium
- 0830-0855 **S1.** Significant events and future challenges in nematology. W. F. Mai, Cornell Univ, Ithaca
- 0855-0920 **S2.** Trends in nematode systematics. V. R. Ferris, Purdue Univ, West Lafayette
- 0920-0945 **S3.** Interrelationships of nematodes and symbionts of plants. R. S. Hussey, Univ Georgia, Athens
- 0945-1015 **Break**
- 1015-1040 **S4.** Survival mechanisms in nematodes. D. W. Freckman, Univ Calif, Riverside
- 1040-1105 **S5.** Soil environment and nematode damage to plants. M. V. McKenry, Univ Calif, Parlier
- 1105-1130 **S6.** The need for more effective use of resistance in nematode control. D. T. Kaplan, USDA, Orlando
- 1130-1200 **Discussion.** J. N. Sasser, North Carolina State Univ, Raleigh
- 0830-1200 **Discussion: Biological Control of Pathogens of Ornamental Plants.** D. M. Benson, presiding. Rm. 220, 230, 240
- 0830-0850 **A30.** Perspectives of biological control. K. F. Baker, USDA, Ore State Univ, Corvallis
- 0850-0920 **A31.** Biological control—useful approaches for ornamental plant diseases. R. G. Linderman, USDA, Ore State Univ, Corvallis
- 0920-0950 **A32.** Pathogen-suppressive container media. H. A. J. Hoitink, OARDC, Wooster
- 0950-1005 **Break**
- 1005-1035 **A33.** Pathogen-suppressive soils. Ralph Baker, Colo State Univ, Fort Collins
- 1035-1105 **A34.** Curative strains of fungal pathogens for biological control of tree diseases. Sandra Anagnostakis, Conn Agric Exp Sta, New Haven
- 1105-1200 **Panel Discussion**
- 0830-1200 **Discussion: Role and Importance of Microbial and Subcellular Germ Plasm Collections.** W. M. Dowler, presiding. Rm. 260, 262
- 0830-0900 **A35.** Concept of a national network of microbial collections of importance to agriculture. K. D. Fisher, Fed Am Soc Exp Biol, Bethesda, MD
- 0900-0930 **A36.** Individual scientists: the cornerstone of national collections. R. E. Stevenson, ATCC, Rockville
- 0930-1000 **A37.** Examples of resource collections. T. A. Toussoun, Penn State Univ, Univ Park
- 1000-1020 **Break**
- 1020-1135 **A38.** Role of and issues facing working collections: Bacteria. Arthur Kelman, Univ Wisc, Madison
- A39.** Role of and issues facing working collections—Fungi. George A. Zentmyer, Univ Calif, Riverside
- A40.** Plant virus working collections, present and future. R. O. Hampton, USDA, Ore State Univ, Corvallis
- A41.** Role of and issues facing working collections: Nucleic acids and genes. Sue A. Tolin, VPI, Blacksburg
- A42.** Role of and issues facing working collections: Nematodes. A. M. Golden, USDA, Beltsville, MD
- 1135-1200 **General discussion, conclusions and recommendations**
- 1000-1200 **Authors available at posters A272-A303 and M30-M39.** Coliseum
- 1200-1300 **Emeritus Luncheon.** Oak Room, Memorial Union
- 1200-1300 **SON Program Committee with 25th Silver Jubilee Committee.** Rm. 150, 154
- 1200-1300 **University of Georgia Luncheon.** Pine Room, Memorial Union
- 1300-1500 **Authors available at posters A304-A338, S16-S23, and M65-M73.** Coliseum
- 1300-1700 **MSA Contributed Papers. Taxonomy.** M. B. Saffo, presiding. Rm. 204
- 1300 **M40.** J. F. Ammirati and G. Keller. Chemotaxonomic significance of Anthraquinone derivatives in North American species of *Cortinarius* in the subgenus *Dermocybe*, section *Sanguinei*. Univ Wash, Seattle
- 1315 **M41.** A. Alizadeh and P. H. Tsao. *Phytophthora capsici* and '*P. palmivora*' MF4: Are they the same? Univ Calif, Riverside
- 1335 **M42.** J. W. Taylor, G. May and D. O. Natuig. Homology among mitochondrial plasmids of *Neurospora tetrasperma* and *Neurospora intermedia*. Univ Calif, Berkeley
- 1350 **M43.** A. L. Welden. Fungi, flagella, and phylogeny. Tulane Univ, New Orleans
- 1405 **M44.** J. H. Haines and K. P. Dumont. Tropical Lachnisms: A lesson in taxonomy. New York State Museum, Albany, NY
- 1420 **M45.** D. P. Mahoney and D. Malloch. New species of the Sporormiaceae. Calif State Univ, Los Angeles
- 1440 **M46.** C. B. Wolfe, Jr. A numerical taxonomic analysis of *Tylophilus* subgenus *Porphyrellus*. The Pennsylvania State Univ, Mont Alto, PA
- 1455-1515 **Recess**
- 1515 **M47.** J. Punter, J. Reid and A. Hopkin. Basidiomycete affinities of the rice pathogen *Sclerotium hydrophilum* based on septal ultrastructure. Univ Manitoba, Winnipeg, Manitoba, Canada
- 1530 **M48.** T. I. Capiello. Type studies of *Strossmayeria* (Helotiales), and cultural studies proving its connection to *Pseudospirospora* (Hyphomycetes). Cornell Univ, Ithaca
- 1545 **M49.** L. J. Spielman. Taxonomic criteria in the genera *Valsa* and *Leucostoma*. Univ Toronto, Toronto, Ontario
- 1600 **M50.** S. L. Miller and O. K. Miller. A systematic survey of the genus *Zelleroomyces*. VPI, Blacksburg
- 1615 **M51.** S. Gage and H. C. Whisler. Observations on new isolates of *Blastocladiella*. Univ Wash, Seattle
- 1630 **M52.** B. E. Tucker. The morphology and taxonomic placement of the nematophagous fungus, *Macrobotrophthora vermicola* (Entomophthorales). Univ Wash, Seattle
- 1300-1700 **MSA Contributed papers: Ecology.** H. C. Whisler, presiding. Rm. 275
- 1300 **M53.** T. R. Gottwald and W. L. Tedders. Suppression of pecan weevil populations with entomopathogenic fungi. USDA-ARS-SEA, Byron, GA
- 1320 **M54.** N. C. Schenck and M. Van Nuffelen. Spore germination, root penetration, and colonization by six species of vesicular-arbuscular (VA) mycorrhizal fungi on soybean. Univ Florida, Gainesville
- 1325 **M55.** P. D. Stahl and W. K. Smith. Effects of different geographic isolates of *Glomus* on the water relations of *Agropyron smithii*. Univ Wyoming, Laramie
- 1355 **M56.** S. A. Rehner. Agarics of south-central Washington: taxonomic profile and community structure. Univ Wash, Seattle
- 1410 **M57.** G. G. Bills, G. I. Holtzman and O. K. Miller. Comparison of fruiting patterns of ectomycorrhizal basidiomycetes between red spruce and northern hardwood forests in West Virginia. VPI, Blacksburg
- 1430 **M58.** D. H. Yocom. The hidden cost of mycorrhizal infection. Univ Nebraska, Lincoln
- 1450-1510 **Recess**
- 1510 **M59.** C. S. Yang and H. E. Wilcox. *Cheilymenia* sp. as an E-strain ectomycorrhizal fungus. SUNY-CESF, Syracuse, NY
- 1525 **M60.** D. H. Griffin, P. D. Manion and L. Gustavson. Variation in virulence of *Hypoxyton mamatum* for its host, *Populus tremuloides* as measured by canker development and toxin bioassay. College of Environ Sci and For, Syracuse, NY
- 1540 **M61.** J. M. Kiernan, J. W. Hendrix, D. M. Maronek and L. P. Stoltz. Production of strawberry plants colonized with specific endogoneaceous fungi for field planting. Univ Kentucky, Lexington
- 1555 **M62.** A. C. McGraw and J. W. Hendrix. Use of the 'Most Probable Number' (MPN) technique for evaluating effects of soil fumigation and cropping on endogoneaceous fungi. Univ Kentucky, Lexington
- 1610 **M63.** J. W. Hendrix, Hakam S. Modjo and A. C. McGraw. Mycorrhizal fungi in tobacco production. Univ Kentucky, Lexington
- 1625 **M64.** M. F. Allen, J. A. MacMahon and N. J. Warner. Patterns of vegetation establishment on Mount St. Helens and a Wyoming stripmine: Comparative significance of animal-mycorrhizal fungal interactions. Utah State Univ, Logan
- 1330-1700 **Symposium: Losses from Plant Disease (II).** C. E. Main, presiding. Fisher Theater
- 1330-1405 **A43.** Postharvest losses—How big is the problem? J. M. Ogawa, Univ Calif, Davis
- 1405-1440 **A44.** Poor root health as a factor in the yield plateau for major food crops. S. D. Van Gundy and L. N. Stolzy, Univ Calif, Riverside
- 1440-1515 **A45.** Impact of air pollutants on crop productivity. J. Troiano, J. A. Laurence and R. J. Oshima, Boyce Thompson, Ithaca
- 1515-1535 **Break**
- 1535-1610 **A46.** Pest-provoked yield compensation in crops. L. P. Hart, Mich State Univ, East Lansing
- 1610-1645 **A47.** A national crop loss assessment system. J. F. Fulkerson, USDA, Wash DC
- 1330-1700 **Symposium: Plant Protoplasts and Cell Cultures as Physiological Tools for Modifications of Germplasm.** F. Hammerschlag, presiding. Benton Auditorium
- 1330-1415 **A48.** Role of protoplasts and cell cultures in studying host-parasitic interactions. Elizabeth Earle, Cornell Univ, Ithaca
- 1415-1440 **A49.** The role of cell cultures in studying disease resistance. J. P. Helgeson, Univ Wisc, Madison
- 1440-1505 **A50.** Variations in plants regenerated from protoplasts. G. A. Secor, North Dakota State Univ, Fargo
- 1505-1530 **Break**
- 1530-1555 **A51.** Selection using host-specific and nonspecific toxins. C. Meredith, Univ Calif, Davis
- 1555-1620 **A52.** Protoplasts in the study of virus-host interactions. H. H. Murakishi, M. S. Lesney, and P. S. Carlson, Mich State Univ, East Lansing
- 1620-1700 **Panel discussion**
- 1300-1700 **Symposium: Trends in the Development of New Chemicals for Disease Control.** D. L. Coyier, presiding; M. A. Ellis, assisting. Rm. 250, 252
- 1330-1405 **A53.** New fungicide groups and their

- mode of action. Hugh D. Sisler, Univ Maryland, College Park
- 1405-1440 A54.** The role of industry in dealing with fungicide resistance. T. Staub, CIBA-GEIGY, Basel, Switz
- 1440-1515 A55.** The role of sterol-inhibiting fungicides in integrated pest management programs. A. L. Jones, Mich State Univ, East Lansing
- 1515-1535 Break**
- 1535-1610 A56.** Future chemical control measures for phytoparasitic nematodes. R. H. Brown, Victorian Dept. Agric, Burley, Vic, Austr
- 1610-1645 A57.** Strategies for development of compounds with promise for virus control. W. O. Dawson, Univ Calif, Riverside
- 1330-1700 Symposium: Pathology's Impact on Sustained Yield Forestry.** J. H. Hart, presiding, assisting. Rm. 220, 230, 240
- 1330-1400 A58.** Managing a healthy forest. John Gordon, Ore State Univ, Corvallis
- 1400-1430 A59.** Disease impact on natural forests. F. W. Cobb, Jr., Univ Calif, Berkeley
- 1430-1500 A60.** Disease impact on forest plantations. S. A. Alexander, VPI, Blacksburg
- 1500-1520 Break**
- 1520-1550 A61.** Successes and failures in forest pathology. D. W. French, Univ Minn, St. Paul
- 1550-1620 A62.** Teaching forest pathology: The past 75 years. W. Merrill, Penn State Univ, Univ Park
- 1620-1650 A63.** The future of forest pathology. T. Miller, USDA, Univ Florida, Gainesville
- 1330-1700 Discussion: Biological Control of Weeds.** D. O. TeBeest, presiding. Rm. 260, 262
- 1330-1340 A64.** Introductory remarks on biological control of weeds. David TeBeest, Univ Ark, Fayetteville
- 1340-1410 A65.** Biological control of weeds with mycoherbicides. George Templeton, Univ Ark, Fayetteville
- 1410-1440 A66.** Integration of biologicals and chemicals in pest management programs for U.S. rice production. Roy Smith, Jr., USDA, Stuttgart
- 1440-1500 Break**
- 1500-1530 A67.** Commercialization of microbial agents in an agriculture based on chemicals. Donald S. Kenney, Abbott Labs, Long Grove, IL
- 1530-1600 A68.** Biological control of aquatic weeds. R. Charudattan, Univ Fla, Gainesville
- 1600-1700 General Discussion**
- 1500-1700 Authors available at posters A339-A382.** Coliseum
- 1700-1830 Cereal Workers Social.** Memorial Union, Regency Room
- 1700-1900 Michigan State Alumni Social.** Campanille Room, Memorial Union
- 1700-1900 North Dakota State Univ, South Dakota State Univ, and Univ of Nebraska Social.** Cardinal Room, Memorial Union
- 1700-1900 Oregon State Alumni Social.** Pioneer Room, Memorial Union
- 1700-1900 Univ of Calif, Berkeley, Davis, and Riverside Social.** Sun Room, Memorial Union
- 1700-1900 Univ of Kentucky Social.** Oak Room, Memorial Union
- 1700-1900 VPI Social.** Memorial Union, Gold Room
- 1700-1915 SON Awards and Reception.** Gateway Center Motel

**1930-2200 Banquet.** R. E. Ford, presiding. Coliseum

**0800-1700 Posters.** Coliseum

**0815-1200 MSA contributed papers: Physiology, Cytology.** P. A. Horgen, presiding. Rm. 275

---

### Wednesday, June 29

---

**0630-0800 USDA Workers' Breakfast.** Cardinal Room, Memorial Union

**0700-1000 Set up posters A383-A625, S24-S53, and M99-M109.** Coliseum

**0800-1600 Commerical exhibits open,** Rm. 166, 175, 179, 182

**0800-1700 Registration.** Scheman

**0815 M74.** H. L. Warren and S. K. Onken. Effect of sucrose concentration on growth and sporulation of *Diplodia maydis* and *Diplodia macrospora*. USDA-ARS, West Lafayette, IN

**0830 M75.** R. E. Gain, F. L. Binder and J. J. Barquet. Fatty acid profiles of the mycoparasite *Tieghemiomyces parasiticus* and its host *Mucor hiemalis* and their relation to the host-parasite interaction. Marshall Univ, Huntington, WV

**0845 M76.** F. M. Latterell and A. E. Rossi. Longevity of *Pyricularia oryzae* in storage. USDA Plant Disease Research Lab, Frederick, MD



- 0900 **M77. J. Seshardri, I. H. Demsar, D. A. Cotter and J. E. Hamer.** Effects of ultraviolet light on *Polysphondylium pallidum* microcyst germination. Univ Windsor, Windsor, Ontario, Canada
- 0920 **M78. M. L. Graves and D. A. Cotter.** Environmental parameters influencing *Dictyostelium discoideum* SGI spore germination. Univ Windsor, Ontario, Canada
- 0940 **M79. Z. K. Punja and S. F. Jenkins.** Influence of medium composition and the isolate on oxalic acid production by *Athelia (Sclerotium) rolfsii*. North Carolina State Univ, Raleigh
- 0955-1010 **Recess**
- 1010 **M80. M. Gunasekaran.** Properties of Phenylalanine ammonia-lyase purified from *Pyrenochaeta lycopersici*. Fisk Univ, Nashville
- 1025 **M81. D. McMeekin.** Factors influencing the growth of *Peronospora parasitica* (downy mildew) in crucifers. Mich State Univ, East Lansing
- 1040 **M82. E. R. Badham and D. T. Kincaid.** Quantitative analysis of anemotopism in the mushroom *Psilocybe cubensis*. Lehman College, CUNY, Bronx, NY
- 1055 **M83. H. Stempen, R. C. Evans, K. Santore and D. Myers.** Studies on structure and antigenic components of the hypha sheath in *Bipolaris maydis* race T. Rutgers Univ, Camden, NJ
- 1110 **M84. H. C. Whisler and L. Marek.** Reproduction in the Monoblepharidales. Univ Wash, Seattle
- 1120 **M85. G. N. Bistis.** The serpentine growth phase and chemotropism in *Neurospora crassa*. Drew Univ, Madison, NJ
- 0815-1200 **MSA contributed papers: Ultrastructure, Morphology.** I. Charval, presiding. Rm. 204, 208
- 0815 **M86. M. J. Dykstra and D. Porter.** A new species of *Diplophrys*, a labyrinthula-like protist. Univ Georgia, Athens
- 0830 **M87. W. E. Barstow and W. L. Lingle.** Localization of DAB Reaction products during minicycle zoosporegenesis in *Allomyces macrogynus*. Univ Georgia, Athens
- 0845 **M88. J. A. Dowsett and J. Reid.** Light and electron microscopical studies on the predaceous hyphomycete *Dactylella cionopaga* Drechs. Univ Winnipeg, Winnipeg, Manitoba, Canada
- 0900 **M89. R. L. Blanton and M. S. Fuller.** The development of the discharge apparatus of a multi-pored species of *Rhizophydium*. Univ Georgia, Athens
- 0915 **M90. K. J. Curry and J. W. Kimbrough.** Septal structures in apothecial tissues of the Pezizaceae (Pezizales, Ascomycetes). Univ Florida, Gainesville
- 0930 **M91. J. W. Kimbrough and K. J. Curry.** Septal structure in the Ascomycetes. Univ Florida, Gainesville
- 0945 **M92. D. M. Hinton and C. W. Bacon.** Ultrastructure of endophytic fungi in prairie wedgegrass and tall fescue. USDA-ARS, Russell Research, Athens, GA
- 1000-1015 **Recess**
- 1015 **M93. K. J. Curry.** Ascosporegenesis in *Dipodascopsis tothii* (Hemiascomycetes). Natural History Museum, Los Angeles
- 1030 **M94. D. M. Rykard.** Conidiogenesis and variability in conidiomata of the *Ephelis* state of the Balansiae. Univ Georgia, Athens
- 1045 **M95. E. S. Luttrell.** Morphology in *Daldinia* and *Hypoxyton* Sect. *Hypoxyton*. Univ Georgia, Athens
- 1100 **M96. J. D. Jensen.** The development of *Diaporthe phaseolorum* var. *sojae* in culture. Wash State Univ, Pullman
- 1115 **M97. S. L. F. Meyer.** Ascocarp development of *Pseudopeziza medicaginis*. Univ Georgia, Athens
- 1130 **M98. D. P. Dylewski and C. E. Miller.** Cruciform nuclear division in *Woronina pythii* (Plasmodiophoromycetes). State Univ, Blacksburg, VA
- 0830-1200 **Symposium: Impact of Current Technology on the Future of Virology.** L. C. Lane, presiding. Stephens
- 0830-0905 **A69.** Viruses of green algae. James L. Van Etten and Russel N. Meints, Univ Nebraska, Lincoln
- 0905-0940 **A70.** RNA viruses as cloning vehicles. A. Siegel, Wayne State Univ, Detroit
- 0940-1015 **A71.** Plant viroid RNA replication and pathogenesis. H. Robertson and Andrea D. Branch, Rockefeller Univ, New York
- 1015-1035 **Break**
- 1035-1110 **A72.** Genetics and evolution of influenza viruses. Peter Palese, Mt Sinai School Med, New York
- 1110-1145 **A73.** Evolutionary origin of plant viruses. D. Zimmern, Cambridge Univ, England
- 0830-1200 **Symposium: Ecology of Fastidious Prokaryotes.** J. Fletcher, presiding. Benton Auditorium
- 0830-0900 **A74.** Phytopathogenic spiroplasmas. George N. Oldfield, Univ Calif, Riverside
- 0900-0930 **A75.** The yellows agents. R. E. McCoy, Univ Florida Agric Res Center, Ft Lauderdale
- 0930-1000 **A76.** Non-phytopathogenic mycoplasmas in the plant environment. R. E. Davis, USDA, Beltsville
- 1000-1020 **Break**
- 1020-1050 **A77.** Nutrition of spiroplasmas. Tseh An Chen, Rutgers Univ, New Brunswick
- 1050-1120 **A78.** Xylem-inhabiting bacteria. D. L. Hopkins, Univ Florida, Leesburg
- 1120-1150 **A79.** Nutrition of xylem-inhabiting bacteria. M. J. Davis, Univ Florida, Fort Lauderdale
- 0830-1200 **Discussion: Biological Control of Soilborne Plant Pathogens.** Thor Kommedahl, presiding. Fisher Theater
- 0830-0840 **A80.** Biological control of soilborne plant pathogens: Introduction. Thor Kommedahl, Univ Minn, St. Paul
- 0840-0925 **A81.** Aspects of research in biological control of soilborne plant pathogens in Japan. Hajimu Komada, Tsukuba, Japan
- 0930-1000 **A82.** Effectiveness of fungal antagonists for biocontrol of disease. R. D. Lumsden, USDA, Beltsville
- 1000-1030 **Break**
- 1030-1115 **A83.** Biological control of nematodes. Brian Kerry, Rothamsted Exp Sta, England
- 1115-1145 **A84.** Relation of bacterization to crop yield and disease control. T. V. Suslow, Advanced Genetic Sciences, Berkeley
- 0830-1200 **Discussion: Transition from integrated pest management (IPM) to Integrated Crop Management (ICM).** M. Eversmeyer, presiding; J. R. James, assisting. Rm. 220, 230, 240
- 0830 **A85.** IPM: An overview. Ivan J. Thomason, Univ Calif, Riverside
- 0915 **A86.** Teaching. Blanche C. Haning, North Carolina State Univ, Raleigh
- 0940 **A87.** Research. D. R. MacKenzie, Penn State Univ, Univ Park
- 1005 **Break**
- 1025 **A88.** Extension. Barry J. Jacobsen, Univ Ill, Urbana
- 1050 **A89.** Industry. H. V. Morton, CIBA-GEIGY, Greensboro
- 1115 **A90.** Consulting. Earle S. Raun, L. N. Leininger and Daryl Monasmith
- 0830-1200 **Discussion: Management of the Turfgrass Ecosystem.** W. C. Stienstra, presiding. Rm. 260, 262
- 0830-0900 **A91.** Biological disease management of the turfgrass ecosystem. P. F. Colbaugh, Texas A&M, Res Ext Center, Dallas
- 0900-0930 **A92.** Herbicidal side effects on disease development. C. F. Hodges, Iowa State Univ, Ames
- 0930-1000 **A93.** Multi-disease resistance in St. Augustine-grass. R. W. Toler and M. P. Grisham, Texas A&M, College Sta
- 1000-1020 **Break**
- 1020-1110 **A94.** Forecasting disease development through the use of computer prediction models. T. K. Danneberger and J. M. Vargas, Jr., Mich State Univ, East Lansing
- 1110-1200 **General Discussion**
- 0830-1200 **Forum: Challenges for APS in International Cooperation.** J. Amador, presiding. Rm. 250, 252
- 0830-0845 **A95.** Challenges for APS in international cooperation: Introduction. Jose Amador, Texas Agric Ext, Weslaco, TX
- 0845-0905 **A96.** Challenges in global programs. Raoul A. Robinson, Simon Fraser Univ, Burnaby, BC
- 0905-0925 **A97.** Endowed foundations as a model. E. J. Wellhausen, Rockefeller Foundation, Londres, Mexico
- 0925-0945 **A98.** The international agricultural centre as a model. Albert H. Haak, Wageningen, The Netherlands
- 0945-1005 **Break**
- 1005-1025 **A99.** Challenges for the universities in international cooperation. David E. Schlegel, Univ Calif, Berkeley
- 1025-1100 **A100.** Challenges for student programs. J. B. Sinclair, Univ Ill, Urbana
- 1100-1130 **Critiques of speakers by speakers.** All speakers
- 1130-1200 **Discussion.** Audience
- 1000-1200 **Authors available at Posters A383-A426, S24-S32, and M99-M109.**
- 1300-1400 **MSA Invited Address.** Stephens
- 1300-1500 **SON Business Meeting.** President J. M. Webster, presiding; all members welcome. Benton Auditorium
- 1400-1530 **APS Business Meeting.** Stephens
- 1430-1615 **MSA contributed papers. Medical Mycology, Biochemistry, Genetics.** D. H. Griffin, presiding. Rm. 230, 240
- 1430 **M110. M. Thibaut and M. Ansel.** Laser microanalysis in fungal tissue research. Laboratoire de Parasitologie, Paris
- 1445 **M111. A. J. Jaworski and P. S. Stumhofer.** *Blastocladiella emersonii* zoospore mRNA has completed the initiation steps of protein synthesis. Univ Georgia, Athens
- 1500 **M112. P. A. Horgen, A. L. Franklin, J. B. Anderson and W. G. Filion.** Newly released motile spores from resistant sporangia of *Blastocladiella emersonii* are haploid. Univ Toronto, Mississauga, Ontario
- 1515 **M113. J. S. Horton and P. A. Horgen.** Steroidal regulation of proteins during sexual morphogenesis of *Achlya*. Univ Toronto, Mississauga, Ontario
- 1530 **M114. W. E. Hintz and P. A. Horgen.** Developmental changes in *Achlya ambisexualis* during female sexual morphogenesis. Univ Toronto, Mississauga, Ontario
- 1545 **M115. R. Vilgalys.** Cultural characteristics and sexuality of several members of the Tricholomataceae. VPI, Blacksburg
- 1600 **M116. M. D. McGuinness and E. F. Haskins.** Genetical studies on a species of *Comatricha*. Univ Wash, Seattle
- 1430-1615 **MSA contributed papers. Ecology.** M. Christensen, presiding. Rm. 204, 208
- 1430 **M117. T. D. Bruns.** Host mediated stimulation of the *Sepedonium* stage in

- the bolete parasite *Hypomyces chrysospermus*. Univ Mich, Ann Arbor
- 1445 M118.** D. M. Huber, T. S. Abney and D. N. Mbürü. Interactions of cultural practices with mineral nutrition and take-all of winter wheat. Purdue Univ, West Lafayette, IN
- 1500 M119.** R. J. Meyer. The movement of *Allomyces zoospores* in an artificial soil environment. Univ Georgia, Athens
- 1515 M120.** C. W. Hesselstine, R. F. Rogers and O. L. Shotwell. Occurrence of fungi associated with scabby wheat. USDA-ARS, Northern Reg Res Center, Peoria, IL
- 1530 M121.** R. K. Antibus. Acid phosphatase activities in field-collected Douglas fir mycorrhizae. Univ Montana, Missoula
- 1545 M122.** R. E. Koske. Distribution of vesicular-arbuscular mycorrhizal fungi in mid-Atlantic coastal sand dunes. Univ Rhode Island, Kingston
- 1600 M123.** R. W. Kerrigan. Basidiospore number, size and other features as functions of carophore maturity and collecting technique in species of *Agaricus* (preliminary observations). San Francisco State Univ
- 1500-1700** Authors available at posters A426-A517 and S33-S37
- 1530-1700** Department Head Meetings. G. Hooper, presiding. Rm. 220
- 1530-1700** 1984 APS Program Committee. Rm. 250, 252
- 1500-1700** Discussion: Verticillium in Alfalfa. D. C. Army, presiding. Fisher
- 1500-1700** Discussion: Standardization of Nematode Counts. D. P. Schmitt and H. Ferris, presiding. Rm. 260, 262
- 1500-1700** Discussion: Status and Future of Nematode Cultures in Nematological Research. R. M. Riedel, presiding. Rm. 275
- 1530-1730** APS Council Meeting. President R. E. Ford, presiding. Rm. 150, 154
- 1700-2300** Extension-Industry Social. Pioneer Hi-Bred International, Johnston, IA
- 1700** Bus leaves for tour of Pioneer field station and Social
- 1745** Bus leaves for Social (no tour)
- 2000-2300** MSA Wine and Cheese Social. Lounge, Upper Lobby
- 2000-2300** APS Graduate Student Social. Sun Room, Memorial Union
- 
- Thursday, June 30**
- 
- 0800-1200** Registration. Scheman
- 0800-1000** Authors available at posters A518-A554 and S38-S39. Coliseum.
- 0830-1200** APS Council (old). President R. E. Ford, presiding. Members welcome. Rm. 150, 154
- 0830-1200** MSA Breakfast and Business Meeting. Great Hall Student Union. Presidential Address—H. Thiers. The Sectioid Syndrome
- 0830-1200** Symposium: Genetics of Pathogenicity. D. Mills, presiding. Fisher Theater
- 0830-0910** A102. Genetics of viruses. Louis van Vloten-Doting, Leiden, The Netherlands
- 0910-0950** A103. Genetics of phytopathogenic bacteria. A. K. Chatterjee and T. C. Currier, Kans State Univ, Manhattan
- 0950-1010** Break
- 1010-1050** A104. Genetics of nematode parasites of plants. A. C. Triantaphyllou, North Carolina State Univ, Raleigh
- 1050-1130** A105. Genetics of parasitism in plant pathogenic fungi. Neil A. Anderson, Univ of Minn, St. Paul
- 1130-1200** Discussion
- 0830-1200** Symposium: Improving the Quality of Epidemiological Data. P. Teng, presiding. Rm. 220, 230, 240
- 0830-0840** Introduction
- 0840-0910** A106. Describing and quantifying host properties. D. I. Rouse, Univ Wisc, Madison
- 0910-0940** A107. Describing and quantifying foliar pathogens. R. D. Shrum, USDA, Frederick, MD
- 0940-1010** A108. Describing and quantifying soilborne pathogens. K. R. Barker, North Carolina State Univ, Raleigh
- 1010-1030** Break
- 1030-1100** A109. Describing and quantifying disease properties. R. D. Berger, Univ Fla, Gainesville
- 1100-1130** A110. Describing and quantifying environmental properties. Stella M. Coakley, National Center for Atmospheric Res, Boulder, CO
- 1130-1200** A111. Handling disease data. J. C. Zadoks, Wageningen, The Netherlands
- 0830-1200** Symposium: Plant Health Constraints from the Abiotic Environment. S. D. Lyda, presiding; D. S. Lang, assisting. Benton Auditorium
- 0830-0840** A112. Abiotic constraints to plant health: Introduction. R. J. Cook, USDA, Wash State Univ, Pullman
- 0840-0915** A113. Soil compaction, pH, and soil water dynamics infiltration in relation to root disease health. R. Allmaras, J. M. Kraft, D. E. Miller, and D. W. Burke, USDA, Pendleton, Ore and Prosser, Wash
- 0915-0950** A114. Nutrient imbalances and plant health. Andre Lauchli, Univ Calif, Davis
- 0950-1010** Break
- 1010-1045** A115. Physical and biological accumulation of trace elements by vegetation. Robert W. Elias, Triangle Park, NC
- 1045-1120** A116. Chilling anaerobiosis and pH stress effect on root solute loss and disease incidence. M. N. Christiansen, USDA, Beltsville, MD
- 1120-1155** A117. Assessing disease and weather effects in large area crop production forecasting. D. A. Holt, Univ of Ill, Urbana
- 0830-1200** Discussion: Getting Plant Health Information to the User. R. P. Mulrooney, presiding. Rm. 250, 252
- 0830-0850** A118. Development of extension education systems in plant pathology. Malcolm C. Shurtleff, Univ Ill, Urbana
- 0850-0900** A119. Implementation of successful integrated pest management programs. G. W. Bird, Mich State Univ, East Lansing
- 0930-1000** A120. Backyard farmer. D. Wysong, Univ Nebraska, Lincoln
- 1000-1020** Break
- 1020-1050** A121. Pesticide education training program. J. Wilson, North Carolina State Univ, Raleigh
- 1050-1120** A122. County plant clinics in Florida and North Carolina. G. W. Simone and C. W. Averre, Univ Florida, Gainesville and North Carolina State Univ, Raleigh
- 1120-1150** A123. Future outlook for extension plant pathology. C. Wendell Horne, Texas A&M, College Station
- 0830-1200** Discussion: Potential Disease Problems for U.S. Agriculture. A. P. Roelfs, presiding. Rm. 260, 262
- 0830-0850** A124. Soybean rust. W. M. Dowler and K. R. Bromfield, USDA, Frederick, MD
- 0850-0910** A125. Karnal bunt of wheat. J. A. Hoffmann, USDA, Utah State Univ, Logan
- 0910-0930** A126. Late wilt of maize. H. L. Warren, Purdue Univ, Lafayette
- 0930-0950** A127. Citrus bacterial canker disease. E. L. Civerolo, USDA, Beltsville, MD
- 0950-1010** Break
- 1010-1030** A128. Sugarcane rust and smut. L. H. Purdy and A. T. Trese, Plant Pathology Dept., Univ Florida, Gainesville
- 1030-1050** A129. Sorghum downy mildew. Richard A. Frederiksen, Texas A&M, College Station
- 1050-1110** A130. New exotic virus and viruslike diseases of U.S. maize. D. T. Gordon, OARDC, Wooster
- 1110-1130** A131. Golden nematode of potato. B. B. Brodie, USDA, Cornell Univ, Ithaca
- 1130-1200** Discussion
- 1000-1200** Authors available at posters A555-A592. Coliseum
- 1300-1500** Authors available at posters A593-A625 and S40-S53. Coliseum.
- 1300-1700** Symposium: Plant Disease Control by Recombinant DNA Technology. C. Kado, presiding. Benton Auditorium
- 1330-1405** A132. Recombinant DNA technology for fungal pathogens. O. C. Yoder, Cornell Univ, Ithaca
- 1405-1440** A133. Pseudomonas. Dallice Mills, Ore State Univ, Corvallis
- 1440-1515** A134. Virus modification. Robert J. Shepherd, Univ Calif, Davis
- 1515-1535** A135. Microbial systems and vector design. C. I. Kado, Univ Calif, Davis
- 1535-1610** A136. Genetically engineered agents for crown gall field control. S. K. Farrand, J. E. Slota, J.-S. Shim, and A. Kerr, Univ Chicago, Maywood
- 1330-1700** Symposium: Detection and Significance of Seedborne Pathogens. D. McGee, presiding. Fisher Theater
- 1330-1405** A137. Establishing the practical significance of seedborne pathogens. R. H. Morrison, Northrup King, Woodland, CA
- 1405-1425** A138. Future trends in detection methodology for seedborne pathogens: Fungi. W. J. Rennie, Edinburgh, Scotland
- 1425-1445** A139. Future trends in detection methodology for seedborne pathogens: Bacteria. N. W. Schaad, Univ Idaho, Moscow
- 1545-1505** A140. Future trends in detection methodology for seedborne pathogens: Viruses. Thomas W. Carroll, Montana State Univ, Bozeman
- 1505-1525** Break
- 1525-1600** A141. Detection of meaningful threshold levels of seedborne pathogens. J. Jørgensen, Lyngby, Denmark
- 1600-1635** A142. Impact of seedborne pathogens on intra-natural and international movement of seeds. Hasib S. Humaydan, Harris Seed Co, Rochester, NY
- 1330-1700** Symposium: Development of Disease Management Models. L. Madden, presiding. Rm. 260, 262
- 1330-1340** Introduction
- 1340-1410** A143. Purpose and types of models. F. G. W. Jones, Rothamsted Exp Sta, England
- 1410-1440** A144. Modeling spatial relationships. H. Ferris, Univ Calif, Riverside
- 1440-1510** A145. Modeling disease components. C. Lee Campbell, North Carolina State Univ, Raleigh
- 1510-1530** Break
- 1530-1600** A146. Modeling disease as a function of environment. G. Shaner, Purdue Univ, Lafayette
- 1600-1630** A147. Modeling vector/pathogen

relationships and resulting plant disease epidemics. L. V. Madden, Penn State Univ, Univ Park

1535-1700 Discussion

1330-1700 Discussion: Disease Detection in Large Populations of Plants. B. P. Singh, presiding. Rm. 250, 252

1330-1350 Introduction. B. P. Singh, USDA, Westhampton Beach, NY

1350-1420 A148. Survey methods for diseases of field crops. P. S. Teng, Univ Minn, St. Paul

1420-1440 A149. Survey methods for diseases of vegetable crops. Claude E. Thomas, USDA, Charleston, SC

1440-1500 A150. Disease survey methods for nursery crops. D. M. Benson, and A. M. French, North Carolina State Univ, Raleigh and Div Plant Ind, Sacramento, CA

1500-1520 Break

1520-1540 A151. Survey methods for diseases of fruit crops. Calvin L. Schoulties, Florida Dept Agric, Gainesville

1540-1600 A152. Survey methods for diseases of forest trees. Robert Lewis, Jr., USDA, Stoneville

1600-1700 Summary and open discussion

1300-1700 Workshop: "You, too, can improve your teaching." D. C. Rousch, Academic Vice-President, New Mexico State Univ. G. R. Hooper and B. Haning, presiding. Rm. 220, 230

1300-1700 APS Council (new). President R. J. Cook, presiding. Members welcome. Rm. 150, 154

1300-1700 SON Executive Board. President D. W. Freckman, presiding. Gateway Center

1600 Dismantle posters

Friday, July 1

0800-1200 Workshop: "You, too, can improve your teaching." D. C. Rousch, Academic Vice-President, New Mexico State Univ. G. R. Hooper and B. Haning, presiding. Rm. 220, 230

Posters

Posters A153-A382, S7-S23, M30-M39, and M65-M73 will be set up 1300-1700 on Sunday and taken down after the banquet on Tuesday or 0700-1000 on Wednesday. Posters A383-A625, S24-S53, and M99-M109 will be set up 0700-1000 Wednesday and taken down 1300-1500 on Thursday. Authors need to be present at their posters only during the times indicated in the program.

Monday, June 27

1300-1500 APS Posters: Vegetable plant diseases.

A153 S. C. Alderman. Influence of water potential and temperature on growth of *Botrytis allii* on agar and on dried onion leaves. Michigan State University, East Lansing

A154 S. H. Antonius and D. J. Hagedorn. An integrated screening procedure for breeding beans resistant to bacterial brown spot (*Pseudomonas syringae*). University of

Wisconsin-Madison, Madison

A155 P. D. Dukes, R. L. Fery, Alfred Jones and M. G. Hamilton. Evaluating peppers, cowpeas, sweet potatoes and tomatoes for resistance to southern blight incited by *Sclerotium rolfsii* Sacc. U.S. Vegetable Laboratory, Charleston

A156 W. H. Elmer and M. L. Lacy. Evaluation of celery cultivars and lines for Fusarium yellows resistance in Michigan. Michigan State University, East Lansing

A157 John Paul Jones and S. S. Woltz. Cultural control of race 3 Fusarium wilt of tomato. University of Florida, IFAS, Bradenton

A158 T. A. Melton, B. J. Jacobsen, and G. R. Noel. Screening snap beans for resistance to soybean cyst nematode. University of Illinois, Urbana

A159 V. G. Vartanian and R. M. Endo. Factors affecting survival of *Phytophthora infestans* in seeds extracted from infected tomato fruits. University of California, Riverside

1300-1500 APS Posters: IPM

A160 John J. Cho and W. C. Mitchell. Development of disease management systems for IPM of lettuce and cabbage in Hawaii. University of Hawaii, Honolulu

A161 R. Loria, S. Galaini, and D. W. Roberts. Survival of inoculum of the entomopathogenic fungus *Beauveria bassiana*, as influenced by fungicides. Cornell University, Riverhead

A162 R. L. Nicholson, F. P. DeGennaro, and G. B. Bergeson. Influence of *Pratylenchus hexincisus* and *Colletotrichum graminicola* on growth and disease severity in maize. Purdue University, West Lafayette

A163 J. Keith Waldron and Larry E. Gholson. Alfalfa IPM in Wyoming. University of Wyoming, Laramie

1300-1500 APS Posters: Virology and virus diseases

A164 T. Atcham, B. Lockhart and E. Bantari. Identification and characterization of a virus in sweet potato found in Southeast Zaire, Central Africa. University of Minnesota, St. Paul

A165 D. C. Bays and S. A. Tolin. Aphid transmissibility of five strains of peanut mottle virus. Virginia Polytechnic Institute and State University, Blacksburg

A166 P. H. Berger, R. W. Toler, and K. F. Harris. Evidence for two modes of retention of maize dwarf mosaic virus by *Schizaphis graminum*. Texas A&M University, College Station

A167 S. E. Bouillet, J. D. Shoknecht, and R. F. Bozarth. Cell wall and mitochondrial lesions in P2 sensitive *Ustilago maydis* strain produced by toxin from the virus-containing *Ustilago maydis* strain P4. Indiana State University, Terre Haute

A168 J. K. Brown, G. D. Butler, Jr., and M. R. Nelson. Occurrence of cotton leaf crumple associated with severe whitefly infestations in Arizona. University of Arizona, Tucson

A169 J. C. Carrington, T. J. Morris, and W. O. Dawson. Comparisons of cucumoviruses and their satellites. University of California, Berkeley

A170 A. M. Childress-Roberts, D. C. Ramsdell, and D. Lusch. Potential use of remote sensing in delimiting areas of virus infection in vineyards and blueberry fields in Michigan. Michigan State University, East Lansing

A171 Vernon D. Damsteegt and J. M. Snapp. Factors affecting transmission of soybean dwarf virus and development of disease in Wayne soybean. USDA-ARS, Plant Research Laboratory, Frederick, MD

A172 R. Diaco, R. M. Lister, D. P. Durand, and J. H. Hill. Production of monoclonal antibodies against three isolates of barley yellow dwarf virus. Iowa State University, Ames

A173 M. M. Ellsbury, R. G. Baer and M. R. McLaughlin. Virus incidence and aphid trapping in arrowleaf clover. USDA-ARS, Crop Science Research Laboratory, Mississippi State

A174 B. W. Falk and J. H. Tsai. Characterization

of a Florida isolate of maize mosaic virus.

A175 University of Florida, Ft. Lauderdale  
C. L. Fei and E. E. Bantari. Mild strains of potato virus Y in seed potatoes. University of Minnesota, St. Paul

A176 E. N. Fernandez-Northcote. Reaction of potato clones 'immune' to potato virus Y, to potato viruses A, X, and to a wide range of potato virus Y strains from the Andean region. Universidad Nacional Agraria La Molina, Lima, Peru

A177 Robert L. Forster and W. F. Rochow. Barley yellow dwarf viruses in Idaho wheat and corn. University of Idaho, Kimberly

A178 Wayne S. Gardner. Ultrastructure of *Triticum durum* vascular bundles of leaves infected with American wheat striate mosaic virus. South Dakota State University, Brookings

A179 Wayne S. Gardner. Perinuclear assembly of American wheat striate mosaic virus in *Triticum durum*.

A180 J. J. Goodell and R. O. Hampton. Interactions of Pisum genes sbm and mo with pea seedborne mosaic virus (PSBMV): symptom expression and immunity to three variant strains. Oregon State University, Corvallis

A181 A. Hadidi, D. E. Cress, and T. O. Diener. Subcellular location of potato spindle tuber viroid and its related RNA species in infected cells. USDA, Plant Virology Laboratory, Beltsville, Maryland

A182 Edward L. Halk and Judy Franke. Identification of serological types of apple mosaic, prunus necrotic ringspot and tobacco streak viruses with monoclonal antibodies. American Type Culture Collection, Rockville, MD

A183 A. C. Hartung, T. A. Evans, and C. T. Stephens. Occurrence of asparagus virus II in Michigan asparagus fields. Michigan State University, East Lansing

A184 K. Z. Haufler and D. W. Fulbright. Rapid detection and purification of wheat spindle streak mosaic virus (WSSMV). Michigan State University, East Lansing

A185 S. S. Hearon. Comparison of two viral isolates from *Kalanchoe blossfeldiana*. USDA-ARS, Beltsville, MD

A186 Adrianna D. Hewings and Cleora J. D'Arcy. Characterization of two luteoviruses. University of Illinois, Urbana

A187 H. A. Hobbs, C. W. Kuhn, and B. B. Brantley. Resistance to southern bean mosaic virus in cowpea plant introduction 186465. University of Georgia, Athens

A188 Lynn L. Hoefert. Ultrastructure of *Cucurbita* spp. infected with whitefly-transmitted squash leaf curl virus. USDA, ARS-WR, Salinas, CA

A189 W. J. Hooker and L. F. Salazar. Indigenous wild hosts of the solanum apical leaf curling virus (SALCV) infecting potato in the Peruvian jungle. International Potato Center, Lima, Peru

A190 Margaret S. Houk and Lynn L. Hoefert. Ultrastructure of *Chenopodium* leaves infected by lettuce infectious yellows virus. USDA, ARS-WR, Salinas, CA

A191 H. T. Hsu, J. Aebig, W. F. Rochow and R. H. Lawson. Isolations of hybridomas secreting antibodies reactive to RPV and MAV isolates of barley yellow dwarf virus and carnation etched ring virus. American Type Culture Collection, Rockville, MD

A192 Yau-Heiu Hsu and M. K. Brakke. Translation of soilborne wheat mosaic virus RNAs in rabbit reticulocyte lysate. University of Nebraska, Lincoln

A193 Yau-Heiu Hsu and M. K. Brakke. Investigation of soilborne wheat mosaic virus in Nebraska. University of Nebraska, Lincoln

1300-1500 SON Posters: Best student posters

S7 B. Ownley Gintis, G. Morgan-Jones and R. Rodriguez-Kabana. Fungi associated with females and young cysts of *Heterodera glycines* in Alabama soil. Auburn University, Auburn

S8 J. M. Halbrendt and V. H. Dropkin. Reproduction of *Heterodera glycines* on detached soybean root systems. University of Missouri, Columbia

S9 Paul Muchena and G. W. Bird. The role of



0800-1000 APS Posters: Fungus diseases

- phenamiphos as a nemastat for *Heterodera schachtii* control in cabbage production. Michigan State University, East Lansing
- S10 S. D. Mobbs and E. C. Bernard. Effects of soybean-wheat cropping and tillage regimes on nematode population dynamics. University of Tennessee, Knoxville
- S11 J. D. Mueller, G. R. Noel, and J. B. Sinclair. Yield components of field-grown, aldicarb-treated soybean cultivars resistant and susceptible to *Heterodera glycines*. University of Illinois, Urbana
- S12 J. W. Noling and H. Ferris. Developing damage functions for *M. hapla* in alfalfa. University of California, Riverside
- S13 J. N. Pinkerton and H. J. Jensen. Development of economic thresholds for managing *Pratylenchus penetrans* in peppermint. Oregon State University, Corvallis
- S14 A. D. Radice, R. F. Myers, and P. M. Halisky. The grass cyst nematode in New Jersey. Rutgers University, New Brunswick, NJ
- S15 S. M. Schneider and H. Ferris. Parameters of a distributed development model of *Paratrichodorus minor*. University of California, Riverside
- 1500-1700 APS Posters: Virology and virus diseases
- A194 D. Clement, R. M. Lister and J. E. Foster. Occurrence and spread of barley yellow dwarf virus in Indiana. Purdue University, West Lafayette
- A195 S. G. Jensen and B. Long Davidson. Proteins in MDMV infected sorghum. University of Nebraska, Lincoln
- A196 Ramon L. Jordan, James A. Heick, J. Allan Dodds and Howard D. Ohr. Rapid detection of sunblotch viroid RNA and virus-like double-stranded RNA in multiple avocado samples. University of California, Riverside
- A197 R. D. Kelley and H. R. Cameron. Location of prune dwarf and Prunus necrotic ringspot viruses in sweet cherry pollen and fruit. Oregon State University, Corvallis
- A198 E. W. Kitajima, K. S. Kim and J. P. Fulton. Comparison of the cytopathic effects induced by different isolates of the cowpea severe mosaic virus in monarch cowpea. University of Arkansas, Fayetteville
- A199 W. Kosiratana, L. G. Weathers, and D. J. Gumpf. Dasheen mosaic virus in Chinese evergreen plants in California. University of California, Riverside
- A200 Leslie C. Lane and Rose Skopp. The coat protein of wheat streak mosaic virus. University of Nebraska, Lincoln
- A201 Lii-Jang Liu, Evelyn Rosa Márquez, M. Licha and María L. Biascochea. Isolation and culture of callus and protoplasts of taniers (*Xanthosomas* spp.) in Puerto Rico. University of Puerto Rico, Mayaguez, P.R.
- A202 S. A. Lommel and T. J. Morris. A viroid-like RNA associated with a stunt syndrome in carnations. University of California, Berkeley
- A203 R. R. Martin and R. Stace-Smith. Production and characterization of monoclonal antibodies specific to potato leaf roll virus. Agriculture Canada, Research Station, Vancouver, B. C.
- A204 J. J. Mataka, Cleora J. D'Arcy, and R. M. Goodman. Mechanisms of soybean mosaic virus transmission through soybean seed. University of Illinois, Urbana
- A205 M. R. McLaughlin. Viruses of forage legumes in the southeastern United States. USDA-ARS, Mississippi State
- A206 M. A. Mikel, Cleora J. D'Arcy, A. M. Rhodes and R. E. Ford. Inheritance of resistance to maize dwarf mosaic virus. University of Illinois, Urbana
- A207 R. V. Miller, T. W. Carroll, and D. C. Sands. Anti-viral chemotherapy of the seed-borne virus, barley stripe mosaic virus. North Carolina State University, Raleigh
- A208 Amitava Mitra and Meyer Chessin. Effects of ultraviolet irradiation on tobacco mosaic virus (TMV)-induced Green Islands in systemic tobacco. University of Montana, Missoula
- A209 K. M. Morimoto and C. C. Ramsdell. Seasonal differences in populations of viruliferous *Illinoia pepperi*, the aphid vector of blueberry shoestring virus. Michigan State University, East Lansing
- A210 T. J. Morris. Isolation of viroid and viroid-like RNA from plant tissue. University of California, Berkeley
- A211 S. T. Nameth, J. A. Dodds, A. O. Paulus and A. Kishaba. A new potyvirus associated with a severe disease of cantaloupe (*Cucumis melo*) in Southern California. University of California, Riverside
- A212 M. F. Ouf and H. A. Scott. Relationship of a watermelon mosaic virus from Egypt (WMV-E) to WMV-1 and WMV-2. University of Arkansas, Fayetteville
- A213 A. Rosner, Irit Ginzburg and M. Bar Joseph. Molecular cloning of complementary DNA sequences of citrus tristeza virus (CTV) RNA. Virology Laboratory, Volcani Center, Bet Dagan, Israel
- A214 D. A. Samac, S. E. Nelson, L. S. Loesch-Fries. Alfalfa mosaic virus protein synthesis in infected alfalfa protoplasts. Agrigenetics Advanced Research Laboratory, Madison
- A215 O. P. Sehgal, K. G. Murti and C. H. Hsu. Electron microscopy of virion RNAs of Southern bean mosaic virus. University of Missouri, Columbia
- A216 J. L. Sherwood. The association of b-proteins with viral induced necrosis in *Nicotiana sylvestris*. Oklahoma State University, Stillwater
- A217 M. Skaria, R. M. Lister, J. E. Foster and G. E. Shaner. Barley yellow dwarf virus content as an index of symptomatic resistance in cereals. Purdue University, West Lafayette
- A218 J. R. Stavelly, R. W. HARRIX, and C. A. Thomas. Effect of within-row plant density on incidence of three aphid transmitted viruses and yield of snap beans. USDA, ARS, BARC-W, Beltsville
- A219 D. C. Stenger, R. D. Raabe, and T. J. Morris. Spread of Carnation mottle virus in carnations. University of California, Berkeley
- A220 J. H. Tremaine and W. P. Ronald. Serological studies of sobemovirus antigens. Research Station, Agriculture Canada, Vancouver, B. C.
- A221 L. Yang, B. Reddick, and S. A. Slack. Results of experiments on the purification of potato virus Y. University of Wisconsin, Madison
- A222 Shyi-Dong Yeh and Dennis Gonsalves. Cross protection as a possible means for control of papaya ringspot virus. Cornell University, Geneva, NY
- A223 Allan Zipf and Meyer Chessin. Biological activity of a preformed plant virus inhibitor from *Datura stramonium* L. University of Montana, Missoula
- 1500-1700 APS Posters: Disease losses
- A224 J. P. Hoffmann, K. M. Kutchera, J. A. Colman, and J. H. Andrews. A culture system for pathological studies of submerged aquatic plants. University of Wisconsin, Madison
- A225 Clint L. Kohls and James A. Percich. Wild rice yield reductions associated with four fungal brown spot epidemics. University of Minnesota, St. Paul
- A226 J. P. Noe and K. R. Barker. Overestimation of yield loss due to patchy field distribution of *Meloidogyne incognita*. North Carolina State University, Raleigh
- A228 E. W. Park and S. M. Lim. Effects of bacterial blight on soybean yield. University of Illinois, Urbana
- A229 J. K. Pataky and M. K. Beute. A yield loss model for *Cylindrocladium* black rot of peanuts. North Carolina State University, Raleigh
- A230 Scott A. Sebastian and Cecil D. Nickell. The relationship between yield and brown stem rot in soybeans. University of Illinois, Urbana
- A230A M. G. Anderson. Effect of winter wheat powdery mildew on yield. Agriculture Canada Research Station, Kentville, N.S., Canada
- A231 Colette M. S. Beaupre and J. E. Dimitman. Deuteromycetes associated with foliar and pod spot diseases of cardamom in Guatemala. South Dakota State University, Brookings
- A232 M. K. Bhalla, C. Nozzolillo, and E. F. Schneider. Organisms associated with root rot of lentils. University of Ottawa, Ontario, Canada
- A233 H. A. Bolkan and W. R. C. Ribeiro. Anastomosis groups and pathogenicity of isolates of *Rhizoctonia solani* from Brazil. Universidade de Brasilia, Brasilia, Brazil
- A234 M. R. Bonde, G. L. Peterson and N. B. Duck. Comparison of *Peronosclerospora sorghi* from different areas of the world. USDA-ARS, Frederick, MD
- A235 Molly Niedbalski Cline, J. L. Crane and S. D. Cline. The teleomorph of *Cristulariella moricola*. University of Illinois, Urbana
- A236 W. Gade and R. Brambl. Association of lectin binding to fungal cell walls and resulting morphological effects. University of Minnesota, St. Paul
- A237 R. H. Garber, A. H. Hyer and E. C. Jorgenson. Differential disease reaction of cotton cultivars to the Fusarium wilt fungus-root-knot nematode complex. USDA, ARS, Shafter, CA
- A238 P. S. Gunnell and R. K. Webster. Sheath blight of rice in California. University of California, Davis
- A239 P. M. Higley and H. Tachibana. A study of a possible interaction between *Diaporthe phaseolorum* var. *caulivora* and *Phytophthora megasperma* var. *glycinea*. Iowa State University, Ames
- A240 W. J. Janisiewicz and R. P. Covey. Relation of vegetative bud development and some chemical constituents of apple rootstocks to *Phytophthora cactorum* susceptibility. Washington State University Tree Fruit Research Center, Wenatchee
- A241 Lii-Jang Liu. Sugarcane rust: The components of the epidemic and their usefulness in disease forecasting in Puerto Rico. University of Puerto Rico, Mayaguez, Puerto Rico
- A242 Lii Jang Liu, Evelyn Rosa Márquez, and María L. Biascochea. Variation in degree of rust resistance among plantlets derived from callus cultures of sugarcane in Puerto Rico. University of Puerto Rico, Mayaguez, Puerto Rico
- A243 S. S. Martin, E. G. Ruppel, and M. P. Steinkamp. Evidence for a photoconvertible precursor to the pathotoxin Cercosporin. Colorado State University, Fort Collins
- A244 John M. McPartland. Fungal pathogens of *Cannabis sativa* in central Illinois. University of Illinois, Urbana
- A245 J. A. Micales and R. J. Stipes. The differentiation of *Endothia parasitica* from *E. gyrosa* by polyacrylamide vertical slab gel electrophoresis. Virginia Polytechnic Institute and State University, Blacksburg
- A246 M. R. Miles and R. D. Wilcoxson. Influence of local environmental conditions on kernel discoloration of barley. University of Minnesota, St. Paul
- A247 H. E. Moline and Joseph Kuti. Comparative studies with two *Mucor* species causing postharvest decay of tomato fruit. USDA, ARS, Beltsville, MD
- A248 R. C. Pearson and W. Gärtel. Occurrence of hyphae of *Ucinula necator* in buds of grapevine. Cornell University, Geneva
- A249 James W. Perry. Potato root tips lapse into maturity when infected by *Verticillium dahliae*. University of Wisconsin, Madison
- A250 James A. Quinn. A mathematical model of growth and reproduction of *Oidium begoniae*. Rohm and Haas Co., Research Labs, Spring House, PA
- A251 C. C. Reilly and W. R. Okie. Peach tree pruning times in relation to susceptibility and spread of *Botryosphaeria dothidea*. Southeastern Fruit and Tree Nut Research Laboratory, Byron, GA
- A252 K. G. Rohrbach and G. Taniguchi. Infection of pineapple inflorescences by

- Penicillium funiculosum* and *Fusarium moniliforme* under controlled environmental conditions. University of Hawaii, Honolulu
- A253 D. J. Vakalounakis and C. Christias. Mycochrome system and conidiogenesis in *Alternaria cichorii*. Nuclear Research Center, Attikis, Greece
- A254 B. L. Watters, L. J. Herr, and P. E. Lipps. A new stem canker disease of sunflower. The Ohio State University, Wooster
- A255 Ronald E. Welty. Blue lupine is a host for *Collectotrichum trifolii* and *C. fragariae*. Oregon State University, Corvallis
- A256 D. H. Young and H. Kauss. Displacement of calcium from suspension-cultured *Glycine max* cells in relation to the effect of Chitosan on membrane permeability. University of Wisconsin, Madison

#### 0800-1000 APS Posters:

##### Fungicides and plant disease control

- A257 L. P. Berkett, K. D. Hickey, and H. Cole, Jr. Efficacy of a sterol-inhibiting fungicide in relation to time of application against apple powdery mildew. The Pennsylvania State University, University Park
- A258 V. S. Bisht and R. S. Singh. Population dynamics of soil microflora affected by soil application of fungicides and insecticides. G. B. Pant University of Agriculture and Technology, Pantnagar, U. P., India
- A259 W. W. Bockus. Effect of lime application to acid soil on incidence of *Cephalosporium* stripe in winter wheat. Kansas State University, Manhattan
- A260 G. W. Buchenau and M. D. Yahnke. Effect of temperature on control of seedling disease on spring wheat grown from scabby seed. South Dakota State University, Brookings
- A261 E. J. Butterfield and J. Troiano. Effects of acidic rain on the retention of fungicides on leaf surfaces. Boyce Thompson Institute at Cornell University, Ithaca
- A262 Lori M. Carris and P. R. Bristow. Distribution of <sup>14</sup>C-metalaxyl in plants following uptake by roots. Western Washington Research and Extension Center, Puyallup
- A263 Janice Clark, Jenny Butters and D. W. Hollomon. Sensitivity of barley powdery mildew to triadimenol in the U.K. Rothamsted Experimental Station, Harpenden, Herts, U.K.
- A264 W. S. Conway and C. E. Sams. Effect of calcium on cell wall integrity and decay of 'Golden Delicious' apples. Crops Quality Lab, USDA, Beltsville, MD
- A265 M. A. Cubeta and J. B. Sinclair. Effect of *Bacillus subtilis* on fungi associated with soybeans. University of Illinois, Urbana
- A266 Robert Daines, Darrell Weber, Eileen Bunderson, and Teryl Roper. Control of powdery mildew (*Podosphaera leucotricha* [Ell. et. ev.] Salm) of apple on fruit, foliage and terminal buds. Brigham Young University, Provo
- A267 Joseph E. Elson and William L. Biehn. Pesticide registrations for "minor" uses. Rutgers University, New Brunswick
- A268 A. W. Engelhard, S. E. Snowden, W. E. Wheeler, G. D. Stratton, and R. N. Hackler. Dermal exposure to captan and protection afforded by two types of spray suits while hand spraying a chrysanthemum flower crop. University of Florida, Gainesville
- A269 A. R. Entwistle. Changes in the effectiveness of Iprodione for the control of *Allium* white rot. National Vegetable Research Station, Wellesbourne, Warwick, U.K.
- A270 A. R. Entwistle. Effect of Meclizolin and Vinclozolin on *Allium* white rot. National Vegetable Research Station, Wellesbourne, Warwick, U.K.
- A271 T. A. Kucharek, R. P. Cromwell and J. Riabov. Effect of spray volume and spray pressure with Mancozeb fungicide on peanut leafspot and yields. University of Florida, Gainesville

#### 1000-1200 APS Posters:

##### Fungicides and plant disease control

- A272 M. W. Ferguson, C. L. Lay, P. D. Evenson.

- Effects of chemical control of pasmo disease (*Mycosphaerella linorum*) of flax (*Linum usitatissimum*) on flowering and yield components. South Dakota State University, Brookings
- A273 W. E. MacHardy. Bio-Y: A new, simplified one-hour fungicide bioassay useful for calibrating sprayers. University of New Hampshire, Durham
- A274 J. S. Mignucci, M. Santiago and J. Green. Integrated control of yam tuber decay in Puerto Rico. University of Puerto Rico, Mayaguez, Puerto Rico
- A275 J. D. Mihail and S. M. Alcorn. Soil solarization in Arizona. University of Arizona, Tucson
- A276 D. F. Myers. Fungicides applied singly and in combination for control of early blight of celery in Florida. University of Florida, Belle Glade
- A277 W. T. Nishijima and J. T. Nagata. Field control of postharvest body and stem-end rots of papaya. University of Hawaii, Hilo
- A278 P. M. Phipps. Control of Sclerotinia blight of peanut with fungicides. Tidewater Research and Continuing Education Center, Suffolk, VA
- A279 G. K. Podila and M. C. Rush. Screening seed-protectant fungicides for control of seedling diseases in rice. Louisiana State University, Baton Rouge
- A280 R. D. Raabe. Effect of some fungicidal drenches on *Pythium* inoculum levels in a soil mix in containers. University of California, Berkeley
- A281 A. F. Schmitthenner. Relative efficacy of metalaxyl seed and soil treatments for control of Phytophthora root rot of soybean. The Ohio State University, Wooster
- A282 B. B. Shew and M. K. Beute. Effect of chemical control and use of partial resistance on stem rot caused by *Sclerotium rolfsii* on peanut. North Carolina State University, Raleigh
- A283 J. L. Smilanick and J. W. Eckert. Cultural characteristics and competitive ability of citrus green mold (*Penicillium digitatum* Sacc.) resistant to the fungicide Sec-Butylamine. University of California, Riverside
- A284 Demetrios J. Vakalounakis. Endodan shows promise for the control of tomato early blight (*Alternaria solani*). Plant Protection Institute, Heraklion, Crete, Greece
- A285 P. R. Verma and F. S. Sedun. Effect of Baytan, Imazalil and Nuarimol seed treatment on common root rot (*Cichlobolus sativus*), suberose internode length, and Coleoptile-node-tillering in spring wheat. Research Station, Agriculture Canada, Saskatchewan, Canada
- A286 F. E. Wright, J. W. Verser, and R. D. Gipson. Selective control of various foliar pathogens in wheat using fungicides. Agricultural Research, State University, AR

#### 1000-1200 APS Posters: Epidemiology

- A287 G. C. Adams, Jr. and C. M. Leach. Electrostatic forces and the mechanism of active spore discharge in Basidiomycetes. Oregon State University, Corvallis
- A288 S. C. Alderman and M. L. Lacy. Influence of interrupted dew period on lesion production in onion by *Botrytis squamosa*. Michigan State University, East Lansing
- A289 B. J. Christ and C. O. Person. Correlation of germination rates of *Ustilago hordei* teliospores with disease incidence. University of British Columbia, Vancouver, B. C.
- A290 J. Craig and R. A. Frederiksen. Effect of light on the reaction of sorghum to *Peronosclerospora sorghi*. Texas A&M University, College Station
- A291 Claudia A. Jasalavich and Luis Sequeira. Comparison of two methods of estimating populations of plant pathogenic bacteria on leaves. University of Wisconsin, Madison
- A292 D. A. Johnson. Sporulation of *Pseudo-peronospora humuli* in hop yards. Agriculture Research and Extension Center, Prosser, WA
- A293 T. J. Michalides and J. M. Ogawa.

- Survival of *Mucor piriformis* in soil. University of California, Davis
- A294 P. C. Nicot, D. I. Rouse. Spatial statistics as a tool to compare the distribution of *Verticillium dahliae* in the soil to that of diseased plants in a commercial potato field. University of Wisconsin, Madison
- A295 F. W. Nutter, Jr. and V. D. Pederson. Yield-loss determination in the barley-spot blotch system using visual and remotely sensed disease assessment schemes. North Dakota State University, Fargo
- A296 D. J. O'Leary and P. B. Shoemaker. Components of resistance for tomato early blight. North Carolina State University, Raleigh
- A297 J. A. Percich and M. W. Hotchkiss. Geographical distribution of benomyl resistant strains of *Cercospora beticola* Sacc. in Minnesota and North Dakota. University of Minnesota, St. Paul
- A298 J. W. Pscheidt and W. R. Stevenson. Forecasting and control of potato early blight, caused by *Alternaria solani*, in Wisconsin. University of Wisconsin, Madison
- A299 W. F. S. Schwabe and A. L. Jones. Wetting and temperature requirements for scab infection of apple fruit at different stages of development. Michigan State University, East Lansing
- A300 W. W. Shane and P. S. Teng. Computerized system for early warning of *Cercospora* leaf spot of sugar beet in Minnesota and North Dakota. University of Minnesota, St. Paul
- A301 W. Thal and C. Lee Campbell. Sampling for alfalfa leaf spot diseases. North Carolina State University, Raleigh
- A302 D. C. Thompson and S. F. Jenkins. Influence of moisture, temperature, harvest time and wind on the spread and incidence of cucumber anthracnose. North Carolina State University, Raleigh
- A303 M. van Nuffelen and R. D. Berger. Rust of alfalfa as a model pathosystem to examine sequential epidemics. University of Florida, Gainesville

#### 1000-1200 MSA Posters: Physiology, Ecology

- M30 I. Charvat, E. Loesch, and W. Lilly. Specific activities of B-N-acetylglucosaminidase in homokaryotic and dikaryotic colonies of *Schizophyllum commune* grown under phosphate stress. Southeast Missouri State University, Cape Girardeau
- M31 J. B. Sutherland. Utilization of *Pycnoporus cinnabarinus* for the biodegradation of cotton-gin-trash lignocellulose. Texas Tech University, Lubbock
- M32 R. Michael Miller. Survival dynamics of v-a mycorrhiza propagules in stock-piled topsoils. Argonne National Laboratory, Argonne, IL
- M33 D. T. Wicklow, B. W. Horn and W. R. Burg. Sclerotium dispersal of *Aspergillus flavus* and *Eupenicillium ochrosalmoneum* from corn during harvest. USDA, ARS, University of Cincinnati Medical Center, Cincinnati
- M34 D. C. Prusso and R. W. Rust. Fungi associated with the beetle *Aegialia hardyi*. University of Nevada, Reno
- M35 D. C. Janson and M. F. Allen. Impact of disturbance on shrub steppe ecosystems: Loss of spatial structure among soils, mycorrhizae and shrubs. Utah State University, Logan
- M36 P. H. Dunn, W. G. Wells II, S. Barro, and P. Wohlgenuth. Heat shock fungi inoculation to reduce rain splash erosion. Pacific Southwest Forest and Range Experiment Station, Forest Service, USDA, Riverside, CA
- M37 H. Zare-Maivan and R. V. Gessner. English oak ectomycorrhizal distribution. Western Illinois University, Macomb
- M38 M. A. Klich. Autecological studies of *Aspergillus flavus* in cottonseed. USDA, ARS, Southern Regional Research Center, New Orleans
- M39 R. C. Anderson, A. E. Liberta, L. A. Dickman and A. J. Katz. A technique for determining spatial variation in VAM spore density and its application to field sampling. Illinois State University, Normal

**1300-1500 APS Posters: Seed pathology**

- A304** V. S. Bisht and J. B. Sinclair. Effect of *Cercospora sojina* and *Phomopsis* spp. on soybean seed quality and yield. University of Illinois, Urbana
- A305** O. H. Calvert, A. S. Foudin, H. C. Minor, and G. F. Krause. Environmental interaction of internal incidence of fungi in corn kernels. University of Missouri-Columbia
- A306** T. R. Gordon and R. K. Webster. A comparison of methods for detection of *Drechslera graminea* in barley seed. University of California, Davis
- A307** L. K. Lahman and N. W. Schaad. Reliability of 'dome' test as an assay for bean blight pathogens. University of Idaho, Moscow
- A308** D. E. Legard and H. F. Schwartz. Field and laboratory effects upon internal epiphytic contamination and detection in dry bean seed. Colorado State University, Fort Collins
- A309** T. R. Schultz and R. L. Gabrielson. Treatments for control of seed-borne *Xanthomonas campestris* pv. *Campestris* in *Brassica oleracea*. Western Washington Research and Extension Center, Puyallup
- A310** S. Lee, H. Kaplan, and J. Petrie. Factors influencing the uptake of diphenylamine (DPA) in apples. Deco-Tiltbelt Div., Pennwalt Corp, Monrovia
- A311** Grover Sowell, Jr. Fungi causing reduced germination of sorghum PIs in Georgia. USDA, ARS, Experiment, GA
- A312** R. W. Stack, M. P. McMullen, J. D. Miller, and V. L. Youngs. Pink seed in Durum wheat. North Dakota State University, Fargo
- A313** P. N. Thapliyal, T. M. Zinnen and J. B. Sinclair. Long-term storage of soybean seeds in oil. University of Illinois, Urbana
- A314** F. E. Wright. Seed-borne microflora in wheat as affected by foliar fungicide application. Arkansas State University, State University, AR

**1300-1500 APS Posters: Bacterial diseases**

- A315** J. D. Apple and M. L. Powelson. Potato blackleg in progeny plantings from diseased and symptomless parent plants. Oregon State University, Corvallis
- A316** J. A. Bartz and A. Kelman. Chemical control of bacterial soft rot of potatoes. University of Florida, Gainesville
- A317** J. J. Bradshaw-Rouse, E. Barlow, and L. Sequeira. Sugar composition and serological properties of the lipopolysaccharide (LPS) of *Pseudomonas solanacearum*. University of Wisconsin, Madison
- A318** W. M. Bugbee. Infection and movement of endophytic bacteria in sugarbeet plants. North Dakota State University, Fargo
- A319** C. J. Chang and N. W. Schaad. Serological identification of several xylem-limited bacteria (XLB). University of Georgia, Experiment
- A320** C. J. Chang, N. W. Schaad, P. F. Bertrand, and T. R. Gottwald. Transmission of pecan bunch agent from pecan to periwinkle by dodder. University of Georgia, Experiment
- A321** C. J. Chang and J. T. Walker. Isolation of bacteria from oak trees showing leaf scorch symptoms. University of Georgia, Experiment
- A322** Y. S. Cody, D. C. Gross, E. L. Proebsting, Jr., and R. A. Spotts. Approaches to biological control of ice nucleation-active bacteria on deciduous fruit trees. Washington State University, Pullman
- A323** M. C. Deasey and A. G. Matthyse. Attachment of wild-type and cellulose-minus strains of *Agrobacterium tumefaciens* to tobacco mesophyll and tissue culture cells. University of North Carolina, Chapel Hill
- A324** Sharon M. Douglas and Saul Rich. Production of naturally infected, rooted, peach cuttings for studying X-Disease. Connecticut Agricultural Experiment Station, New Haven
- A325** J. M. Dunleavy. Prevention of soybean bacterial tan spot by cupric hydroxide. Iowa State University, Ames
- A326** J. Fletcher, J. A. Leath, and S. A. Slack.

Serological detection of *Spiroplasma citri* by the latex agglutination test. University of Wisconsin, Madison

- A327** K. M. Franklin and H. J. Wilson. Transmission electron microscope observations of virus-like particles from a horseradish isolate of *Spiroplasma citri*. University of Alabama, Huntsville
- A328** R. D. Gitaitis, S. M. McCarter, and E. L. Styer. Hypersensitivity in cowpea induced by different strains of *Xanthomonas campestris* pv. *Vignicola*. University of Georgia, Athens
- A329** R. W. Goth, K. V. Peter and R. E. Webb. Bacterial wilt, *Pseudomonas solanacearum* resistance in pepper and eggplant lines. USDA, ARS, Beltsville, MD
- A330** D. C. Gross and E. L. Proebsting, Jr. Effects of ice nucleation-active bacteria on supercooling and frost resistance of deciduous fruit tree floral buds. Agricultural Research Center, Prosser, WA
- A331** D. E. Groth and E. J. Braun. Dispersal of *Xanthomonas phaseoli* var. *sojensis* in a soybean canopy. Iowa State University, Ames
- A332** D. M. Haefele and S. E. Lindow. The influence of motility on epiphytic survival and ice nucleus production by *Pseudomonas syringae*. University of California, Berkeley
- A333** Valerie N. Hall, D. C. Sands, and E. H. Abbott. Bacterial description by nuclear magnetic resonance spectroscopy. Montana State University, Bozeman
- A334** C. A. Hendrick, W. Sweet and L. Sequeira. Enzymatic degradation of *Pseudomonas solanacearum* lipopolysaccharide by bacteriophages TE-1 and SE-1. University of Nebraska, Lincoln
- A335** B. W. Kennedy and R. Denny. Bacterial stem blight of Adzuki beans. University of Minnesota, St. Paul
- A336** B. W. Kennedy, J. D. Froyd, and R. L. Bowden. Bacterial blight of *Philadelphus* spp. University of Minnesota, St. Paul
- A337** M. J. Klopmeier and S. M. Ries. Motility of *Erwinia herbicola*. University of Illinois, Urbana
- A338** S. E. Lindow. Kinetics of changes in ice nucleation activity of *Pseudomonas syringae* following temperature shifts. University of California, Berkeley

**1300-1500 SON Posters: Nematode ecology**

- S16** R. V. Anderson. Nematode associations with aquatic macrophyte beds, Mississippi River. Western Illinois University, Macomb
- S17** G. W. Bird and L. S. O. Graney. Distribution of *Meloidogyne nataliei* in Southwestern Michigan. Michigan State University, East Lansing
- S18** P. A. Donald and J. R. Venette. Plant parasitic nematodes associated with sunflower in Southeastern North Dakota. North Dakota State University, Fargo
- S19** P. B. Goodell, H. Ferris, and N. C. Goodell. Overwintering population dynamics on *Meloidogyne incognita* in cotton. USDA Cotton Research Station, Shafter, CA
- S20** I. K. A. Ibrahim and M. A. El-Saedy. Development of root-knot nematodes on soybeans in Egypt. Alexandria University, Alexandria, Egypt
- S21** Russell E. Ingham and James K. Detling. Separate and combined effects of shoot clipping and nematode feeding on growth and photosynthesis in *Bouteloua curtipendula*. Colorado State University, Ft. Collins
- S22** J. P. Noe and K. R. Barker. Edaphic variables related to the field distribution and over-winter survival of *Meloidogyne* spp. North Carolina State University, Raleigh
- S23** N. Vovlas and R. N. Inerra. The biology of *Heterodera mediterranea*. Instituto Nematologia Agraria, Italy

**1300-1500 MSA Posters:**

**Ultrastructure, medical mycology, cytology, morphology**

- M65** D. Tetrake and H. C. Aldrich. Ultra-

structure of fungi within the cell walls of two tropical green marine algae. University of Florida, Gainesville

- M66** K. J. Curry and J. W. Kimbrough. A preliminary survey of septal ultrastructure in Pezizales. University of Florida, Gainesville
- M67** J. T. Ellzey, M. Oaxaca and S. L. Anagnostakis. Ultrastructure of virulent and hypovirulent strains of *Endothia parasitica*. University of Texas, El Paso
- M68** T. E. Stasz and D. E. Hemmes. Ultrastructure of dormant, converted, and germinating oospores of *Pythium ultimum*. University of Hawaii, Hilo
- M69** T. M. Bourett and D. J. McLaughlin. Mitosis in the basidiomycete *Helicobasidium mompa*. University of Minnesota, St. Paul
- M70** D. A. Samuelson, T. L. Andresen, and R. M. Gwin. Fungal flora of conjunctival sacs in domestic animals. University of Florida, Gainesville
- M71** W. L. Lingle, W. E. Barstow, and H. C. Aldrich. Differentiation of polyphosphate granules from gamma particles in Blastocladiacean zoospores using an energy dispersive x-ray spectrometer. University of Florida, Gainesville
- M72** Richard J. Howard. Cytoplasmic transport in hyphae of *Gilbertella*. DuPont Experiment Station, Wilmington, DE
- M73** J. W. McCain and J. F. Hennen. Protosorus and sorus structure in the orange coffee rust fungus, *Hemileia vastatrix*. Purdue University, West Lafayette

**1500-1700 APS Posters: Bacterial diseases**

- A339** J. L. Maas, M. M. Finney, and E. L. Civerolo. A strain of *Xanthomonas campestris* pathogenic to apple in tissue culture. USDA, Beltsville, MD
- A340** R. E. McCoy and P. G. Markham. Multiplication of *Phytomonas davidi* in the leafhopper *Euscelidius variegatus*. University of Florida, Fort Lauderdale
- A341** James L. McEvoy and Arun K. Chatterjee. Cell surface hydrophobicity of mucoid and non-mucoid strains of *Pseudomonas solanacearum*. Kansas State University, Manhattan
- A342** R. G. McGuire and A. Kelman. Susceptibility of potato cultivars to Erwinia soft rot. University of Wisconsin, Madison
- A343** J. D. Mihail and S. M. Alcorn. Bacterial antagonism towards three fungi producing Sclerotia. University of Arizona, Tucson
- A344** A. Morgham, P. Richardson, and M. Essenberg. Effect of continuous dark on ultrastructural interactions of *Xanthomonas campestris* pv. *malvacearum* with bacterial blight-immune IM 216 and -susceptible AC 44 cotton lines (grown in dark as compared with a light-dark cycle). Oklahoma State University, Stillwater
- A345** J. M. Mullen and G. S. Cobb. A new bacterial leaf spot disease of southern magnolia in Alabama. Auburn University, Alabama
- A346** E. W. Park and S. M. Lim. Field survival of *Pseudomonas syringae* pv. *glycinea*. University of Illinois, Urbana
- A347** M. Pierce, E. C. Cover and M. Essenberg. Comparison of phytoalexin concentrations near sites of bacterial infection in leaves of resistant and immune cotton. Oklahoma State University, Stillwater
- A348** P. S. Randhawa and N. W. Schaad. A direct seedling test for selecting antagonistic bacteria. University of Idaho, Moscow
- A349** D. L. Roberts, J. M. Vargas, Jr., D. W. Fulbright, and K. K. Baker. Characterization of the bacterium causing bacterial wilt of Toronto creeping bentgrass. Michigan State University, East Lansing
- A350** M. A. Roy and M. Sasser. A medium selective for *Agrobacterium tumefaciens* biotype 3. University of Delaware, Newark
- A351** Mary Smidt, Bharati Joshi, Carol A. Hendrick, and Anne K. Vidaver. Strain variation of *Corynebacterium michiganense* subspecies *nebraskense* within one field. University of Nebraska, Lincoln
- A352** N. Thaveechai and N. W. Schaad. Serological comparison of four antigens

for identification of *Xanthomonas campestris* pv. *campestris*. University of Idaho, Moscow

- A353 Robert R. Webb. Variations in response of 24 papaya varieties infected with bacterial canker. College of the Virgin Islands, St. Croix U.S.V.I.

#### 1500-1700 APS Posters:

##### Soil microbiology and root diseases

- A354 G. L. Andersen and O. C. Huisman. Changes in cotton root density and fungal colonization of cotton roots by modifying the soil microflora with selective fungicides. University of California, Berkeley
- A355 Cynthia Baretta and Jack Altman. Measurement of Trifluralin effects on a pinto bean-Fusarium disease syndrome. Colorado State University, Ft. Collins
- A356 C. H. Canaday and A. F. Schmitthenner. Effect of potassium fertilization and chloride ion on Phytophthora rot of soybeans. The Ohio State University, Wooster
- A357 R. B. Carroll and S. Leath. Effect of tillage practices on Fusarium blight of soybean. University of Delaware, Newark
- A358 C. Chamsawang and R. J. Cook. *Pythium* spp. pathogenic to Pacific Northwest wheat and the influence of tillage practices on their populations. Washington State University, Pullman
- A359 H. El-Nashaar and R. W. Stack. Effect of long-term continuous cropping of spring wheat on pathogenicity of *Helminthosporium sativum*. North Dakota State University, Fargo
- A360 K. L. Everts and H. F. Schwartz. Epidemiology and management of Fusarium basal rot and pink root of onions. Colorado State University, Fort Collins
- A361 D. M. Ferrin and D. J. Mitchell. Spatial pattern of *Phytophthora parasitica* var. *nicotianae* in infested tobacco field soil. University of Florida, Gainesville
- A362 R. S. Ferriss, R. E. Stuckey, and M. R. Siegel. Effects of soil source, soil moisture, seed quality and seed treatment on soybean emergence in the greenhouse. University of Kentucky, Lexington
- A363 J. S. Gerik, S. A. Lommel and O. C. Huisman. Detection of *Verticillium dahliae* in host tissue by use of an indirect enzyme-linked immunohistochemical assay. University of California, Berkeley
- A364 R. L. Gilbertson, E. G. Ruppel and W. M. Brown. Ecology of *Fusarium moniliforme* and other Fusaria in cultivated field soils in Colorado. Colorado State University, Fort Collins
- A365 R. C. Holley and B. Nelson. Sclerotinia wilt of sunflower: The effect of inoculum density on disease incidence. North Dakota State University, Fargo
- A366 S. F. Hwang, R. J. Cook, and W. A. Haglund. More intense microbial competition for ephemeral carbon sources may operate in Fusarium-suppressive soils. Washington State University, Pullman
- A367 R. S. Kinsbursky and A. R. Weinhold. Influence of soil on population-disease relationships of *Rhizoctonia solani*. University of California, Berkeley
- A368 Curt Leben. *Pseudomonas syringae* pv. *lachrymans* survival with cucumber roots. The Ohio State University, Wooster
- A369 F. N. Martin and J. G. Hancock. Effects of Cl- on the colonization of crop residues by *Pythium ultimum*. University of California, Berkeley
- A370 M. E. Matheron and S. M. Mircetich. Relative resistance of four different English walnut rootstocks to *Phytophthora citricola*. University of California, Davis
- A371 M. E. Matheron and S. M. Mircetich. Effects of various lengths of soil saturation on severity of crown rot in three English walnut rootstocks caused by *Phytophthora citricola*. University of California, Davis
- A372 P. C. Nicot and D. I. Rouse. Evaluation of methods for assessing the inoculum density of *Verticillium dahliae* in field soil. University of Wisconsin, Madison
- A373 R. C. Ploetz and D. J. Mitchell. Rapid identification of isolates of *Rhizoctonia*

spp. from a field multicropped with rye and soybean under reduced-tillage. University of Florida, Gainesville

- A374 R. C. Ploetz, D. J. Mitchell, and R. N. Gallaher. Pathogenicity to rye and soybean by *Rhizoctonia* spp. isolates from a field multicropped under reduced-tillage. University of Florida, Gainesville
- A375 S. R. Rimmer and J. G. Menzies. Influence of host seedling exudates on germination of *Sclerotinia sclerotiorum*. University of Manitoba, Winnipeg, Manitoba, Canada
- A376 F. M. Scher, J. S. Ziegler and J. W. Klopper. A method for assessing the root-colonizing capacity of bacteria. Advanced Genetic Sciences, Manhattan, KS
- A377 R. W. Schneider. Suppression of Fusarium yellows of celery by competitive nonpathogenic strains of *Fusarium oxysporum*. University of California, Berkeley
- A378 S. R. Shafer, R. I. Bruck, and A. S. Heagle. Inhibitory effect of simulated acidic rain on root infection and Sporangium production by *Phytophthora cinnamomi*. North Carolina State University, Raleigh
- A379 H. D. Shew. Effect of fungicides in *Phytophthora* selective media on germination and colony formation by zoospores of *Phytophthora parasitica* var. *nicotianae*. North Carolina State University, Raleigh
- A380 J. J. Stapleton, J. E. DeVay, J. Quick, H. Van Rijkevorsel, and G. J. DeBoer. Increased soluble mineral nutrients in soils as related to increased plant growth response following soil solarization. University of California, Davis
- A381 J. G. White. Variability in cabbage seedling emergence. National Vegetable Research Station, Warwick, U.K.
- A382 T. D. Wylie and S. B. McKelvey. Factors affecting populations of *Macrophomina phaseolina* in Missouri soils. University of Missouri-Columbia

#### Wednesday, June 29

##### 1000-1200 APS Posters: Fungus physiology

- A383 T. W. Bischoff and M. O. Garraway. Effect of glucose levels on ammonium production from L-asparagine in cultures of *Bipolaris maydis* race T. The Ohio State University, Columbus and Wooster
- A384 W. L. Casale and L. P. Hart. Evidence for a diffusible endogenous inhibitor of carpogenic germination in sclerotia of *Sclerotinia sclerotiorum*. Michigan State University, East Lansing
- A385 M. O. Garraway and D. F. Edwards. Casein hydrolyzate enhances rhizomorph production and polyphenoloxidase activity in *Armillaria mellea*. The Ohio State University, Columbus
- A386 C. M. Leach. Leaf surface electrostatics in the natural environment. Oregon State University, Corvallis
- A387 J. E. Partridge. Electrophoresis of ribosomal proteins as an aid in the identification of *Fusarium* species. University of Nebraska, Lincoln
- A388 R. C. Staples and H. C. Hoch. Potassium ion stimulates a rise in cAMP levels and starts DNA synthesis in bean rust germlings. Boyce Thompson Institute, Ithaca, NY
- A389 R. C. Staples, H. C. Hoch and W. K. Wynn. Contact stimuli induce wheat stem rust Uredospore germlings to differentiate appressoria but not vesicles. Boyce Thompson Institute, Ithaca, NY
- A390 Y. Zhang and D. A. Smith. Simultaneous metabolism of three isoflavonoid phytoalexins by *Fusarium*. University of Kentucky, Lexington

##### 1000-1200 APS Posters: Disease resistance

- A391 S. N. Acharya, J. Dueck, P. R. Verma and R. K. Downey. Screening canola lines for resistance to damping-off caused by *Rhizoctonia* species. Research Station,

Agriculture Canada, Saskatchewan, Canada

- A392 K. L. Adlakha and S. P. Raychaudhuri. Resistance of wheat to *Bipolaris sorokiniana*. Indian Agricultural Research Institute, New Delhi, India
- A393 Paul W. Bosland and Paul H. Williams. Evaluation of sauerkraut cabbage for resistance to *Xanthomonas campestris* pv. *campestris* and *Fusarium oxysporum* f. sp. *conglutinans*, race 1. University of Wisconsin-Madison
- A394 L. E. Browder and M. G. Eversmeyer. Influence of low temperature on the expression of some *Puccinia recondita*: *tritium* corresponding gene pairs. Kansas State University, Manhattan
- A395 Kan Fa Chang and Roland F. Line. Urediospore germination and growth of *Puccinia recondita* in leaves of resistant and susceptible wheat cultivars. Washington State University, Pullman
- A396 Lorne J. Duzcek. Comparison of the reaction of spring barley to common root rot between Northwestern Alberta and Central Saskatchewan. Agriculture Canada Research Station, Saskatchewan, Canada
- A398 A. H. Epstein, J. D. Hatfield, and H. Tachibana. Control of brown stem rot (caused by *Phialophora gregata*) with concomitant increase in yield by continuous cropping of resistant soybean. USDA-ARS, Iowa State University, Ames
- A399 William Fett. Accumulation of soybean isoflavonoids and isoflavone glucosides in leaves inoculated with a virulent or an avirulent strain of *Xanthomonas campestris* pv. *glycines*. USDA-ARS, Philadelphia
- A400 M. J. Havey and D. P. Maxwell. Resistance to *Phytophthora megasperma* f. sp. *medicaginis* in the diploid alfalfa, *Medicago falcata* L. University of Wisconsin, Madison
- A401 Curtis B. Hill and Paul H. Williams. Evaluation of rapid-cycling crucifers for resistance to selected pathogens. University of Wisconsin, Madison
- A402 John M. McPartland and Donald F. Schoeneweiss. Histology of *Botryosphaeria dothidea* hyphae in the xylem of drought-stressed vs. nonstressed *Betula alba* stems. Natural History Survey, Champaign, IL
- A403 Sally A. Miller and David A. Evans. Sensitivity of tobacco protoplasts and cells to culture filtrates of *Phytophthora parasitica* var. *nicotianae*. DNA Plant Technology Corporation, Cinnaminson, NJ
- A404 Gene Milus and Roland F. Line. Inheritance of adult-plant, temperature-sensitive resistance to stripe rust in Pacific Northwest wheats. Washington State University, Pullman
- A405 R. R. Nelson. The use of sub-lethal dosages of systemic fungicides to evaluate host genotypes for rate-reducing resistance. The Pennsylvania State University, University Park
- A406 D. V. Phillips. Development of frogeye leafspot lesions on soybean leaves. Georgia Experiment Station, Experiment, GA
- A407 G. S. Pullman and L. Rappaport. Tissue culture-induced variation in celery for Fusarium yellows. University of California, Davis
- A408 R. E. Rand, W. F. Pfender, and D. J. Hagedorn. Resistance in red kidney beans to Wisconsin's bean root rot complex. University of Wisconsin-Madison
- A409 W. J. Raupp, L. E. Browder, and B. S. Gill. Leaf rust resistance in *Aegilops squarrosa*, its transfer and expression in common wheat (*Triticum aestivum* L.). Kansas State University, Manhattan
- A410 P. W. Reeser, D. J. Hagedorn and D. I. Rouse. Detection of resistance to powdery mildew (*Erysiphe pisi*) in *Pisum sativum* isolines. University of Wisconsin-Madison
- A411 F. J. Regulski, Jr. and J. L. Peterson. Verticillium growth on xylem sap from environmentally stressed maple trees. Rutgers University, New Brunswick, NJ
- A412 M. Reinhold, E. L. Sharp and H. E. Bockelman. A recurrent selection population for leaf rust resistance in barley. Montana State University, Bozeman
- A413 B. A. Stermer and R. Hammerschmidt.

- Heat shock enhances peroxidase activity in cucumbers and induces resistance to *Cladosporium cucumerinum*. Michigan State University, East Lansing
- A414** J. R. Tomerlin, E. A. El-Morshidy, and J. G. Moseman. Resistance to *Erysiphe graminis tritici*, *Puccinia recondita tritici*, and *Septoria nodorum* in wild *Triticum* spp. USDA, ARS, Beltsville, MD
- A415** S. Tuzun, O. Yegen, and S. Iren. Determination of the resistance to root-rot disease (*Phytophthora capsici*) on some pepper varieties commonly grown in Turkey. University of Kentucky, Lexington, and University of Ankara, Ankara, Turkey
- A416** R. K. Webster and M. A. Saghaimarouf. Association of resistance to *Rhynchosporium secalis*, *Pyrenophora teres* and *Erysiphe graminis* in barley composite cross II. University of California, Davis
- A417** Anna J. Wyszogrodzka and Paul H. Williams. Multiple inoculation of cucumber (*Cucumis sativus* L.) cotyledons. University of Wisconsin-Madison
- A418** Z. K. Xu and S. J. Sheen. Effect of virus infection on the activity of proteases in tobacco leaves. University of Kentucky, Lexington
- 1000-1200 APS Posters: Pollution damage to plants**
- A419** A. L. Granett, L. J. Ross, and E. C. Smith. Response of plants to acidic mist or fog. University of California, Riverside
- A420** J. L. Hess, L. D. Moore and B. I. Chevone. Impact of ozone fumigation on metabolite levels in cultivars of soybean with differing tolerance to ozone. Virginia Polytechnic Institute and State University, Blacksburg
- A421** Keith F. Jensen. Effects of light, water and pollutant stresses on growth of yellow poplar seedlings. USDA Forest Service, Delaware, OH
- A422** Charles R. Krause, Alden M. Townsend and L. S. Dochinger. Ozone and NaCl spray induce epidermal changes in pine needles. USDA, ARS Nursery Crops Research Laboratory, Delaware, OH
- A423** L. W. Kress and J. E. Miller. Impact of ozone on grain yield of winter wheat and sorghum. Argonne National Laboratory, Argonne, IL
- A424** P. R. Miller, K. W. Stolte and O. C. Taylor. Sensitivity of Ponderosa pine, Jeffrey pine and Giant Sequoia seedlings to ozone and sulfur dioxide mixtures. USDA Forest Service, Riverside, CA
- A425** Roy L. Patton and Michael O. Garraway. Cell wall and protoplast peroxidase activities in leaves of two hybrid poplar clones that differ in susceptibility to ozone injury. The Ohio State University, Columbus
- A426** Y. S. Yang and B. I. Chevone. Effects of sequential O<sub>3</sub> and SO<sub>2</sub> exposure on net photosynthesis and stomatal conductance in soybean. Virginia Polytechnic Institute and State University, Blacksburg
- 1000-1200 SON Posters: Diseases caused by nematodes**
- S24** E. Cohn, D. T. Kaplan and R. P. Esser. Host-parasite relationships of some sedentary plant nematodes indigenous to Florida. USDA, ARS, Orlando, FL, and Division of Plant Industry, Gainesville, FL
- S25** A. S. Carpenter and F. H. Smith. Effects of ethylene dibromide and aldicarb on several plant-parasitic nematodes on four selected soybean cultivars. Clemson University, Clemson, SC
- S26** J. D. Eisenback. Loss of resistance in tobacco cultivar 'NC95' by infection of *Meloidogyne arenaria* or *M. hapla*. North Carolina State University, Raleigh
- S27** Sahag Garabedian and S. D. Van Gundy. Effect of nematicides applied through low pressure drip irrigation system for the control of *Meloidogyne incognita* on tomato. University of California, Riverside
- S28** Saad L. Hafez and John J. Gallian. Sugar beet cyst nematode control with combinations of systemic nematicide-insecticides. University of Idaho, Twin Falls
- S29** P. S. Lehman and J. B. MacGowan. Infection of inflorescences and leaves of *Palisota barteri* by *Meloidogyne javanica*. Florida Dept. of Agriculture and Consumer Services, Gainesville
- S30** Harold W. Lembright. Telone™II soil fumigant: Potential replacement for DBCP in post plant treatment of grapevines in California. Dow Chemical USA, Walnut Creek, CA
- S31** I. H. Mian, R. Rodriguez-Kabana, and P. S. King. Organic amendments with high tannin and phenolic contents for control of *Meloidogyne arenaria* in infested soil. Auburn University, Auburn, AL
- S32** S. H. Thomas and M. Cardenas. A large plot method for assessing nematicide efficacy and nematode related crop loss. New Mexico State University, Las Cruces
- 1000-1200 MSA Posters: Taxonomy, Genetics**
- M99** R. L. Gilbertson and M. Blackwell. Fungi which decay bark of living live oak trees. University of Arizona, Tucson
- M100** M. Blackwell and R. L. Gilbertson. Cultural studies of wood-rotting Basidiomycetes from the Sonoran Desert. University of Arizona, Tucson
- M101** C. A. Shearer. Freshwater Ascomycetes. University of Illinois, Urbana
- M102** Henry C. Aldrich and Gregory W. Erdos. Microcomputers in mycology, or computing on a shoestring. University of Florida, Gainesville
- M103** Christopher Walker. *Glomus fasciculatum*: A taxon misunderstood! Edinburgh, Scotland
- M104** J. W. McCain and J. F. Hennen. The 100th anniversary of the J. C. Arthur Herbarium of Rust Fungi (1883-1983). Purdue University, West Lafayette, IN
- M105** Nancy L. Nickerson. *Exobasidium* on *Chamaedaphne calyculata* in Canada. Research Station, Agriculture Canada, Kentville, Nova Scotia
- M106** R. T. Hanlin and O. Tortolero. An unusual tropical powdery mildew. Universidad Centro Occidental Lisandro Alvarado, Barquisimeto, Venezuela
- M107** A. Roy, A. Pal and A. Das. Monokaryotization of polypores by alcohol. Visva Bharati University, Bengal, India, and Bose Institute, Calcutta, India
- M108** Zang Mu. Some probable mycorrhizal associations in the Hengduan Mountains, China. Kunming Institute of Botany, Kunming, Yunnan, China
- M109** F. Federici. Extracellular pectolytic activity of *Cryptococcus albidus* var. *albidus*. University of Perugia, Perugia, Italy
- 1500-1700 APS Posters: Biological control**
- A427** C. L. Biles and J. P. Hill. The effect of *Trichoderma hamatum* on the sporulation capacity of *Cochliobolus sativus* lesions excised from winter wheat seedling leaves. Colorado State University, Fort Collins
- A428** S. D. Cohen, J. A. Lewis, G. C. Papavizas, and G. A. Bean. Chlamydospore formation by *Trichoderma* spp. in organic matter-amended soil. USDA, ARS, Beltsville, MD and University of Maryland, College Park
- A429** Kenneth E. Conway. Viability of *Trichoderma harzianum* stored in fluid drilling gels at four temperatures. Oklahoma State University, Stillwater
- A430** D. Cullen and J. H. Andrews. Use of antibiotic resistant mutants for tracking apple phyloplane microbes *in situ*. University of Wisconsin, Madison
- A431** D. Cullen, J. H. Andrews, and F. M. Berbee. Antagonism of *Venturia inaequalis* (*Spilocaea pomi*) by *Chaetomium globosum*. University of Wisconsin, Madison
- A432** Jane Cummings Zarnstorff and John G. Berbee. Effects of soil solarization and of amending soil with soybean meal on populations of three soil-borne fungi. University of Wisconsin, Madison
- A433** R. A. Dean and J. Kuć. The level of induced systemic resistance in cucumber cultivars is revealed by increasing concentrations of challenge inoculum. University of Kentucky, Lexington
- A434** Michael T. Dunn and R. D. Lumsden. Ordination analysis of the fungi decomposing sclerotia of *Sclerotinia minor*. University of Maryland, College Park
- A435** A. B. Filonow and J. L. Lockwood. Decreased *Phytophthora* root rot of soybeans from seed treated with *Actinoplanes missouriensis* or *A. utahensis*. Michigan State University, East Lansing
- A436** A. B. Filonow, J. L. Lockwood and C. L. Schneider. Evaluation of microbial agents for the control of black root of sugarbeets. Michigan State University, East Lansing
- A437** D. R. Fravel, G. C. Papavizas, and J. J. Marois. Survival of ascospores and conidia of *Talaromyces flavus* in field soil and Pyrax®. University of Maryland, College Park
- A438** D. W. Gabriel. *Bacillus licheniformis* produces an inducible, water-soluble antibiotic(s) against tan spot of wheat. Oklahoma State University, Stillwater
- A439** G. J. Griffin, F. V. Hebard, R. W. Wendt and J. R. Elkins. Survival of American chestnut trees: Evaluation of blight resistance and virulence in *Endothia parasitica*. Virginia Polytechnic Institute and State University, Blacksburg
- A440** W. J. Howie and R. J. Cook. Effect of soil matric potential on colonization of wheat roots by a *Pseudomonas* sp. suppressive to take-all. Washington State University, Pullman
- A441** W. J. Janisiewicz and R. P. Covey. Biological control of collar rot caused by *Phytophthora cactorum*. Washington State University Tree Fruit Research Center, Wenatchee
- A442** C. L. Massion and S. E. Lindow. Effect of *Sphaelotheca holci* infection on morphology and competitiveness of *Sorghum halepense*. University of California, Berkeley
- A443** D. L. McLaren, S. R. Rimmer and H. C. Huang. Biological control of Sclerotinia wilt of sunflower by *Talaromyces flavus*. University of Manitoba, Winnipeg, Canada
- A444** E. B. Nelson, G. A. Kuter and H. A. J. Hoitink. Effect of compost maturity on the induction of suppression to Rhizoctonia damping-off of radish by *Trichoderma harzianum*. The Ohio State University, Wooster
- A445** D. J. Politis and W. L. Bruckart. *Puccinia carduorum*, a potential biocontrol agent of musk thistle. USDA-ARS, Frederick, MD
- A446** P. Lawrence Pusey and Charles L. Wilson. Control of brown rot with a *Bacillus* bacterium. USDA-ARS, Kearneysville, WV
- A447** Steven D. Savage. Peach bark fungal microflora in western Colorado. Colorado State University, Grand Junction
- A448** H. Tachibana, J. D. Hatfield, and P. M. Higley. *Phytophthora megasperma* var. *glycinea* suppressive soil of soybean. Iowa State University, Ames
- A449** S. Tuzun and J. Kuć. A new technique which immunizes against blue mold (*Peronospora hyoscyami* f. sp. *tabacina*) and increases growth of tobacco. University of Kentucky, Lexington
- A450** R. S. Utkhede. Biotic agents for control of apple crown rot. Agriculture Canada, Research Station, Summerland, B.C.
- A451** C. G. Van Dyke and B. C. Haning. Pathology and histology of *Alternaria cassiae* in biocontrol of sicklepod in North Carolina soybeans. North Carolina State University, Raleigh
- A452** Su-May Yu and G. E. Templeton. The relationship of Trifluralin to collar rot of Texas gourd caused by *Fusarium solani* f. sp. *cucurbitae*. University of Arkansas, Fayetteville
- 1500-1700 APS Posters: Mycotoxicology**
- A453** M. Babadoost, K. Tyczkowska, W. M. Hagler, Jr., D. S. Bowman, and W. E. Huff. Zearalenone in sorghum fractionated by density segregation. North Carolina State University, Raleigh, and USDA-ARS, Georgetown, DE
- A454** E. H. Gendloff, J. J. Pestka, and L. P. Hart. Elisa detection of Trichothecenes in spiked and *Fusarium* infected corn



extracts. Michigan State University, East Lansing

- A455 S. F. Marsh and G. A. Payne. Colonization of maize ears by *Aspergillus flavus*. North Carolina State University, Raleigh
- A456 T. H. Sanders, R. J. Cole, P. D. Blankenship, and R. A. Hill. Relation of drought soil temperatures to invasion and aflatoxin production in preharvest peanuts by the *Aspergillus flavus* group. National Peanut Research Laboratory, Dawson, GA, and University of Georgia, Tifton

#### 1500-1700 APS Posters: Genetics

- A457 Aruna K. Alahari and Anne K. Vidaver. Plasmid transfer from *Rhizobium japonicum* to *Pseudomonas syringae* pv. *syringae*. University of Nebraska, Lincoln
- A458 Helen Miller Alexander, J. V. Groth, and A. P. Roelfs. Estimation of levels of heterozygosity for virulence genes in populations of bean rust, *Uromyces phaseoli* var. *typica*. University of Minnesota, St. Paul
- A459 Dirk Anderson and Dallice Mills. Tn5 transposon mutagenesis of two phytopathogenic *Pseudomonas syringae* pathovars. Oregon State University, Corvallis
- A460 S. H. Antonius and D. J. Hagedorn. Genotype assay: Number of effective factors (genes) controlling reaction to *Pseudomonas syringae* on snap beans. University of Wisconsin, Madison
- A461 C. L. Bender and D. L. Coyier. Heterothallism in *Sphaerotheca pannosa* var. *rosae*. Oregon State University, Corvallis
- A462 L. Beraha and E. Garber. Relative heterothallism and production of hybrid perithecia by auxotrophic mutants of *Glomerella cingulata* from apple. University of Chicago
- A463 L. E. Browder and M. G. Eversmeyer. The probable occurrence of two *Lr* genes in Maris Fundin wheat and their expression at different temperature. Kansas State University, Manhattan
- A464 Randall R. Carlson, Wallace G. Buchholz, and Michael F. Thomashow. Homology detected between DNA sequences in the genomes of uninfected *Nicotiana* spp. and the Ti Plasmid of *Agrobacterium tumefaciens* Ag63. Washington State University, Pullman
- A465 B. J. Christ and C. O. Person. Changes in allele frequencies in *Ustilago hordei* populations after selection on two barley cultivars. University of British Columbia, Vancouver, B. C.
- A466 D. B. Cooper and L. E. Browder. Effect of *Lp10/Lr10* on mycelial and haustorial development of *Puccinia recondita* in wheat. Kansas State University, Manhattan
- A467 Robert G. Fjellstrom and Paul H. Williams. Genetics of turnip mosaic virus resistance using rapid-cycling *Brassica campestris*. University of Wisconsin, Madison
- A468 H. C. Kistler and H. D. VanEtten. Pisatin metabolism by *Nectria haematococca*: Genetics of regulation and implication for virulence. Cornell University, Ithaca
- A469 D. K. Lakshman, D. Gonsalves, and R. W. Fulton. Changes in pathogenicity of cucumber mosaic virus by passage through a specific host. Cornell University, Geneva, NY, and University of Wisconsin, Madison
- A470 Hei Leung, Paul H. Williams, and Deane C. Arny. The nature of pathogenic variability in *Pycularia oryzae*. University of Wisconsin, Madison
- A471 J. E. Loper, C. S. Orser, N. J. Panopoulos, M. N. Schroth, and S. E. Lindow. Cosmid cloning of fluorescent siderophore genes from *Pseudomonas syringae*. University of California, Berkeley
- A472 V. M. Morales and L. Sequeira. Cryptic plasmids in *Pseudomonas solanacearum*. University of Wisconsin, Madison
- A473 A. R. Poplawsky and D. Mills. Conjugal transfer and incompatibility properties of a plasmid from a plant pathogenic pseudomonad. Oregon State University, Corvallis
- A474 G. S. Sidhu. Genetics of *Gibberella fujikuroi* 3. Allelism at the mating locus. University of Nebraska, Lincoln
- A475 D. Z. Skinner and D. L. Stuteville.

Genetics of alfalfa resistance to *Peronospora trifoliorum*. Kansas State University, Manhattan

- A476 L. J. Szabo and D. Mills. Repetitive sequences involved in genetic recombination in *Pseudomonas*. Oregon State University, Corvallis
- A477 K. K. Thurn, D. J. Tyrell, and A. K. Chatterjee. Isolation of Tn5 insertion mutants of *Erwinia chrysanthemi* deficient in Oligogalacturonate lyase (OGL). Kansas State University, Manhattan
- A478 P. W. Tooley and W. E. Fry. Genetic variation in *Phytophthora infestans* identified through isozyme analysis. Cornell University, Ithaca
- A479 D. J. Tyrell, K. K. Thurn, and A. K. Chatterjee. Hyperinduction by diuronides of pectate lyase (PL) and oligogalacturonate lyase (OGL) in *Erwinia chrysanthemi* strains with mutational blocks in the Deoxyketouronate pathway. Kansas State University, Manhattan
- A480 R. P. Wise and A. H. Ellingboe. Genetic fine structure of the *M1-a* locus in barley. Michigan State University, East Lansing

#### 1500-1700 APS Posters: Physiology of diseased plants

- A482 S. S. Adams and R. S. Loomis. Explanatory simulation of sugar beet yield losses from powdery mildew using coupled models of host and pathogen. University of California, Davis
- A483 C. Jacyn Baker and Stanley A. Ostazeski. Correlation of ethanol-soluble products and induced resistance in alfalfa in response to *Colletotrichum trifolii*. USDA, ARS, Beltsville, MD
- A484 Paula A. Barton-Willis, Noel T. Keen, and M. C. Wang. Compositional and structural analysis of O-chain polysaccharides of *Pseudomonas syringae* pv. *glycinea*. University of California, Riverside
- A485 Robert G. Birch and Suresh S. Patil. Blocked chloroplast differentiation in sugarcane leaf scald disease. University of Hawaii, Honolulu
- A486 C. B. Bloch and J. Kuć. Elicitation of phytoalexins by arachidonic and eicosapentaenoic acids: a host survey. University of Kentucky, Lexington
- A487 W. R. Bushnell and Colleen Curran. Effects of monovalent cations on infection of barley epidermis by *Erysiphe graminis* f. sp. *hordei*. University of Minnesota, St. Paul
- A488 T. E. Cleveland, Y. Zhang and D. A. Smith. Levels of kievitone hydratase, a phytoalexin-detoxifying enzyme, in *Fusarium*-infected bean hypocotyls. University of Kentucky, Lexington
- A489 Alan Collmer. Role of microbial extracellular enzymes in plant disease development. University of Maryland, College Park
- A490 J. L. Corriveau and R. B. Carroll. Comparison of nodulation and nitrogen fixation of till and no-till soybeans infected with *Fusarium oxysporum*. University of Delaware, Newark
- A491 S. J. Danko, Y. Kono, S. Kim, J. M. Daly, and H. W. Knoche. Purification of *Phyllosticta maydis* toxin. University of Nebraska, Lincoln
- A492 S. J. Danko, K. J. Tegtmeier, and J. M. Daly. Effects of light on the responses of corn tissues to *Helminthosporium maydis* race T toxin and metabolic inhibitors. University of Nebraska, Lincoln
- A493 T. P. Denny and H. D. VanEtten. Nondegradative tolerance of *Nectria haematococca* mp VI to the Phytoalexin pisatin. Cornell University, Ithaca
- A494 A. E. Desjardins, D. E. Matthews, and H. D. VanEtten. Solubilization of pisatin demethylase from *Nectria haematococca*. Cornell University, Ithaca
- A495 J. Duveck, J. M. Daly, Z. Kratky, V. Macko, W. Acklin and D. Arigoni. Inhibition of dark CO<sub>2</sub> fixation in sugarcane leaf slices by *Helminthosporium sacchari* (HS) toxin isomers and related compounds. University of Nebraska, Lincoln
- A496 J. R. Elkins, D. Weyand, K. Porterfield,

and A. Davis. Evaluation of a role for oxalic acid in the pathogenesis of *Endothia parasitica* in chestnut blight. Concord College, Athens, WV

- A497 K. A. Frantzen and J. M. Daly. Comparison of the biological activity and specificity of native T-toxin and borohydride reduced synthetic analogs. University of Nebraska, Lincoln
- A498 L. A. Hadwiger, Wendy Wagoner, David Kendra and Felix Mauch. Further characterization of responses in pea-*Fusarium solani* interactions associated with resistance and susceptibility. Washington State University, Pullman
- A499 R. Hammerschmidt, A. M. Bonnen and G. C. Bergstrom. Association of lignification with non-host resistance of cucurbits. Michigan State University, East Lansing
- A500 C. Hartman-Mitchell, T. R. Knous, and T. J. McCoy. University of Nevada, Reno
- A501 Martha C. Hawes. Use of isolated plant cells in a quantitative assay for pathotoxins. University of Florida, Gainesville
- A502 Jeng-sheng Huang and K. R. Barker. Influence of *Heterodera glycines* on glutamine synthetase activity and leghemoglobins in soybean nodules. North Carolina State University, Raleigh
- A503 N. T. Keen, S. Midland and J. J. Sims. Purification of victorin. University of California, Riverside
- A505 R. S. Livingston and R. P. Scheffer. Biological activities of *Helminthosporium sacchari* toxins and related compounds. Michigan State University, East Lansing
- A506 H. A. Melouk, D. J. Banks, and G. R. Waller. Effect of a toxin from *Cercospora rodmannii* on peanut. Oklahoma State University, Stillwater
- A507 W. R. Okie and C. C. Reilly. Effect of *Criconebella xenoplax* on ninyhydrin positive compounds in 'Lovell' and 'Nemaguard' peach rootstocks. USDA, Southeastern Fruit and Tree Nut Research Laboratory, Byron, GA
- A508 J. E. Partridge, C. A. Wozniak, and Sally Schroeter. Regeneration of sorghum plants from nodal plate derived callus. University of Nebraska, Lincoln
- A509 Sergio F. Pascholati, R. L. Nicholson, and L. G. Butler. Phenylalanine ammonia-lyase activity in maize mesocotyls after wounding or inoculation with *Helminthosporium maydis* and *H. carbonum*. Purdue University, West Lafayette, IN
- A510 R. C. Peet, J. G. Hancock, and Z. R. Sung. Enzyme mediated oxalic acid degradation by carrot cells. University of California, Berkeley
- A511 C. Preisig and J. Kuć. Regulation of the sesquiterpenoid-eliciting activity of C-20 fatty acids in potato by carbohydrate isolated from *Phytophthora infestans*. University of Kentucky, Lexington
- A512 C. C. Reilly and W. R. Okie. The effect of ring nematode, *Criconebella xenoplax*, on amygdalin levels in 'Lovell' and 'Nemaguard' peach rootstocks. USDA-ARS, Byron, GA
- A513 R. Riggelman, B. Fristensky, T. Okita, and L. Hadwiger. cDNA cloning of mRNA transcripts induced by the host-parasite interaction. Washington State University, Pullman
- A514 J. C. Stutz. Effect of plant age on the development of *Verticillium dahliae* isolates in roots of guayule. Arizona State University, Tempe
- A515 J. P. Tewari. Cellular alterations in the blackspot of rapeseed caused by *Alternaria brassicae*. University of Alberta, Edmonton, Canada
- A516 D. D. Tzeng and J. E. DeVay. *In vitro* ethylene production by *Verticillium dahliae* in liquid culture in relation to verticillium wilt development in cotton. University of California, Davis
- A517 E. A. Wietor, D. A. Smith, P. A. Orlandi, and R. A. Laine. Metabolic detoxification of the phytoalexin, phaseollinisolflavan, by *Fusarium*. University of Kentucky, Lexington

#### 1500-1700 SON Posters: Nematode physiology

- S33 D. J. Chitwood and J. A. Svoboda.

Inhibition of the sterol dealkylation pathway in *Caenorhabditis elegans* by 25-azacoprostanone. USDA-ARS, Beltsville, MD

- S34 M. P. Ko, K. R. Barker, and J. S. Huang. The influence of *Heterodera glycines* on the development of soybean nodules. North Carolina State University, Raleigh
- S35 Haddish Melakberhan, John M. Webster, and Robert C. Brooke. Time related effects of *Meloidogyne incognita* on *Phaseolus vulgaris*. Simon Fraser University, Vancouver, B. C., Canada
- S36 Ronald F. Myers. Comparative pathology of conifers infected with *Bursaphelenchus xylophilus*. Rutgers University, New Brunswick, NJ
- S37 A. F. Robinson, C. C. Orr, and C. E. Heintz. Factors affecting survival of desiccation by *Orrina phyllobia*. Texas Tech University, Lubbock

## Thursday, June 30

### 0800-1000 APS Posters: Diseases caused by nematodes

- A518 Wray Birchfield. A new method for reniform nematode control on sweet potatoes. USDA-ARS, Baton Rouge, LA
- A519 A. S. Carpenter, R. W. Miller, N. G. Conrad, R. H. Baum, and M. M. Zugza. Population dynamics and relationships to tree vigor of *Pratylenchus penetrans* and *Xiphinema* spp. on apple. Clemson University, Clemson, SC
- A521 J. R. Davis, S. L. Hafez, L. H. Sorensen, D. L. Corsini, and J. J. Pavk. Reductions of *Pratylenchus neglectus* with the cropping of 'Butte' potato and relationships with *Verticillium* wilt. University of Idaho Research and Extension Center, Aberdeen and Parma
- A522 R. M. Davis. Distribution of the citrus nematode in a Texas grapefruit orchard. Texas A&I University Citrus Center, Weslaco
- A523 A. P. Elliott, D. E. Babineau and P. M. Phipps. Effects of nematicides and application methods on the soybean cyst nematode and on soybean yield. Virginia Polytechnic Institute and State University, Blacksburg
- A524 A. P. Elliott, D. E. Babineau, P. M. Phipps, S. A. Meredith and C. Harris. Ecological relationships among concomitant populations of plant parasitic nematodes associated with soybean cultivars. Virginia Polytechnic Institute and State University, Blacksburg
- A525 S. Garber, A. P. Elliott, S. A. Tolin, N. K. Rogers and C. R. Drake. Plant parasitic nematodes associated with strawberry cultivars under different management practices. Virginia Polytechnic Institute and State University, Blacksburg
- A527 J. P. Hollis, Jr. Nematode structure and the mammalian brainstem. Louisiana State University Agricultural Center, Baton Rouge
- A528 J. P. Hollis, Jr. Nematode nerve ring and mammalian reticular activating systems. Louisiana State University Agricultural Center, Baton Rouge
- A529 Sabine M. Huhndorf and Thomas L. Green. Pinewood nematode sampling methods used at the Morton Arboretum. The Morton Arboretum, Lisle, IL
- A531 D. A. Lawn and G. R. Noel. Field interactions between *Heterodera glycines* and *Pratylenchus scribneri* on soybean. University of Illinois, Urbana
- A533 J. E. O'Laughlin and D. H. MacDonald. Morphological variation among subpopulations of *Heterodera glycines* (Race 3). University of Minnesota, St. Paul
- A534 J. A. Thies and D. H. MacDonald. Effects of *Verticillium albo-atrum*, organic matter and moisture regimes on relationship of *Meloidogyne hapla* and *V. albo-atrum* in wilt of potato. University of Minnesota, St. Paul

### 0800-1000 APS Posters: Forest pathology

- A535 Vernon D. Ammon and Dallas L. Seifers. Mode of parasitism by *Gnomonia platani* on *Platanus occidentalis*. Mississippi State University, Mississippi
- A536 N. A. Anderson and M. E. Ostry. Galleries of *Saperda inornata* as infection courts of *Hypoxyton mammatum* on trembling aspen. University of Minnesota, St. Paul
- A537 D. N. Appel, T. Fox, and C. Frost Drees. The occurrence of oak wilt in Texas. Texas A&M University, College Station
- A538 E. N. Bassett and P. Fenn. Latency of *Hypoxyton atropunctatum* in oaks and canker incidence on black and white oaks. University of Arkansas, Fayetteville
- A539 P. J. Bedker and R. A. Blanchette. *Nectria cinnabarina* cankers of honey locust: factors influencing development and control. University of Minnesota, St. Paul
- A540 Robert O. Blanchard. The shigometer: How it detects growth rate in Balsam fir. University of New Hampshire, Durham
- A541 Robert A. Blanchette and Lewis Otjen. Variation in delignification capacity by *Ischnoderma resinotum* and *Ganoderma applanatum*. University of Minnesota, St. Paul
- A542 Robert I. Bruck. Effects of thiabendazole on pitch canker of loblolly pine. North Carolina State University, Raleigh
- A543 T. A. Burnes, M. J. Wingfield, F. A. Baker, and D. W. French. The pine wood nematode in dwarf mistletoe infested jack pine in Manitoba. University of Minnesota, St. Paul
- A544 Oscar J. Dooling. Impact and distribution of dwarf mistletoes in Montana. USDA Forest Service, Missoula, MT
- A545 L. D. Dwinell and Jane Barrows-Broadus. Pine wilt of Virginia pine in southern seed orchards. Forestry Sciences Laboratory, Athens, GA
- A546 L. David Dwinell and Jane Barrows-Broadus. Infection of fusiform rust galls on slash pine by the pitch canker fungus hastens seedling mortality. Forestry Sciences Laboratory, Athens, GA
- A547 S. W. Garrod, C. P. Paul and D. W. Fulbright. The spread of *Endothia parasitica* in an American chestnut grove and the characterization of dsRNA in Michigan hypovirulent isolates. Michigan State University, East Lansing
- A548 J. H. Hart, R. Baughan and N. E. Jennings. Economic impact of decay on black walnut. Michigan State University, East Lansing
- A549 T. L. Highley, L. Murmanis and J. G. Palmer. Cellulose degradation by white-rot wood decay fungi: Electron microscopy study. Forest Products Laboratory, Madison, WI
- A550 Y. Hiratsuka and P. J. Maruyama. Resistant reactions of two Asian pines to western gall rust, *Endocronartium harknessii*. Northern Forest Research Centre, Edmonton, Alberta, Canada
- A551 R. Holland and P. Fenn. Relationship of stromatal development of *Hypoxyton atropunctatum* to sapwood decay in oaks. University of Arkansas, Fayetteville
- A552 W. E. Horner and S. A. Alexander. *Verticicladiella procera* in pine seed orchards in the South. Virginia Polytechnic Institute and State University, Blacksburg
- A553 K. J. Kessler, Jr. Similarity of annual anthracnose epidemics in young *Juglans nigra* plantations during 1978-1982. Forestry Sciences Laboratory, Carbondale, IL
- A554 M. C. Klapproth and R. A. Schmidt. Relationship of aeciospore inoculum density to uredial and telial production of *Cronartium quercuum* f. sp. *fusiforme* on water oak. University of Florida, Gainesville

### 0800-1000 SON Posters: Nematode systematics

- S38 G. M. Cliff and H. Hirschmann. Morphological variability of *Meloidogyne arenaria*, a taxonomic evaluation. North Carolina State University, Raleigh
- S39 B. A. Stanger and G. R. Noel. Scanning

electron microscopic observations of juveniles of *Heterodera glycines* races. University of Illinois, Urbana

### 1000-1200 APS Posters: Forest pathology

- A555 S. J. Kostka and T. A. Tattar. Recovery protocol for *Pseudomonas syringae* pv. *syringae* from inoculated American elms. University of Massachusetts, Amherst
- A556 B. R. Kropp, C. M. Sexton, and M. E. Corden. *Pachnocybe ferruginea* in Douglas-fir utility poles. Oregon State University, Corvallis
- A557 E. G. Kuhlman. Comparing techniques for hypovirulence conversion with conidial or mycelial suspensions. USDA Forestry Services, Research Triangle Park, NC
- A558 P. D. Manion, D. H. Griffin, and L. Gustavson. Comparison of *Hypoxyton mammatum* natural infection, artificial inoculation, and culture filtrate toxin bioassay of nine clones of *Populus tremuloides*. SUNY College of Environmental Science and Forestry, Syracuse, NY
- A559 Harold S. McNabb, Jr. and Elwood R. Hart. A century of forest pathology instruction at Iowa State University. Iowa State University, Ames
- A560 D. L. Nelson, W. M. Hess, and D. L. Sturges. Morphology and ultrastructure of a sagebrush (*Artemisia tridentata*) snow-mold fungus. USDA Forest Service, Provo, UT
- A561 Thomas H. Nicholls and Frank G. Hawksworth. Animal vectors of lodgepole pine dwarf mistletoe. USDA Forest Service, St. Paul
- A562 J. G. O'Brien and R. A. Blanchette. *Streptomyces* spp. as biological control agents of Dutch elm disease. University of Minnesota, St. Paul
- A563 M. E. Ostry, P. E. Gerstenberger and H. S. McNabb, Jr. Control of *Septoria* canker in hybrid *Populus* nurseries. North Central Forest Experiment Station, St. Paul
- A564 Lewis Otjen and Robert A. Blanchette. Decay of *Quercus* spp. by *Xylobolus frustulatus*: progressive stages of white pocket formation. University of Minnesota, St. Paul
- A565 V. D. Pederson. Microcomputer-controlled environmental chamber for studies of foliar disease development in cereals. North Dakota State University, Fargo
- A566 John S. Russin and Louis Shain. Insects as carriers of virulent and hypovirulent isolates of *Endothia parasitica*. University of Kentucky, Lexington
- A567 E. L. Schmidt, M. G. Dietz, and F. E. Hartmann. *Geotrichum* pink stain of pentachlorophenolate-treated red oak. University of Minnesota, St. Paul
- A568 K. T. Smith. Indexing fir and spruce trees for decay susceptibility. University of New Hampshire, Durham
- A569 R. W. Stack and M. Ostry. Leaf rust on hybrid poplars in the North Central Region. North Dakota State University, Fargo
- A570 F. H. Tainter and J. D. Benson. Effect of climate on growth, decline, and death of red oaks in western North Carolina. Clemson University, Clemson, SC
- A571 F. H. Tainter and L. P. Copeland. SEM of *Ceratocystis fagacearum* grown at high temperature. Clemson University, Clemson, SC
- A572 C. S. Thomas and J. H. Hart. Severity of *Endocronartium harknessii* on *Pinus ponderosa*. Michigan State University, East Lansing
- A573 J. A. Walla. Rot fungi on green ash in North Dakota windbreaks resurveyed. North Dakota State University, Fargo
- A574 Philip M. Wargo. The interaction of *Armillaria mellea* with phenolic compounds in the bark of roots of black oak. Northeastern Forest Experiment Station, Hamden, CT
- A575 P. G. Webb. A modified cohort life table for *Cronartium quercuum* f. sp. *fusiforme* sporulation on *Quercus rubra*. University of Florida, Gainesville
- A576 R. S. Webb. A cohort life table analysis for Fusiform rust development among young

- slash pine plantations in North West Florida. University of Florida, Gainesville
- A577 *M. J. Wingfield*. Pathogenicity of *Verticillium dactylophorum* and *Leptographium terrebrantis* in greenhouse and field inoculations. University of Minnesota, St. Paul
- A578 *M. J. Wingfield* and R. A. Blanchette. Transmission of the pine wood nematode, *Bursaphelenchus xylophilus* during oviposition of *Monochamus carolinensis*, *M. scutellatus* and *M. mutator*. University of Minnesota, St. Paul

#### 1000-1200 APS Posters: Turf diseases

- A579 *T. Abernethy* and P. O. Larsen. Characteristics of *Rhizoctonia* isolates causing cool season disease on *Poa pratensis*. The Ohio State University, Columbus
- A580 *F. M. Ashbaugh* and P. O. Larsen. Effect of systemic activity of propamocarb on the control of Pythium blight on *Festuca rubra*. The Ohio State University, Columbus
- A581 *C. L. Brown*, J. M. Vargas, and D. L. Roberts. The occurrence of yellow patch on turf in Michigan. Michigan State University, East Lansing
- A582 *M. P. Grisham*. Identification and pathogenicity of *Rhizoctonia solani* associated with brown patch of warm-season turfgrasses. Texas A&M University, College Station
- A583 John C. Pair, *Frederick J. Crowe*, and William G. Willis. Transmission of spring dead spot disease of bermudagrass by turf/soil cores. Kansas State University, Manhattan
- A584 *Gayle L. Worf*, Kristen J. Brown, and Roseann V. Kachadoorian. Survey of "Necrotic ring spot" disease in Wisconsin lawns. University of Wisconsin, Madison

#### 1000-1200 APS Posters: Diseases of ornamental plants

- A585 *R. A. Atilano*. Increase of Alternaria blight in two ornamental foliage plant species treated with benomyl. University of Florida, Fort Lauderdale
- A586 *K. K. Baker*, S. K. Perry and T. M. Mowry. Association of a mycoplasma-like organism with a disease of annual statice in Michigan. Michigan State University, East Lansing
- A587 *H. L. Dooley*. Temperature effects on *Melampsorium betulinum* uredospore germination and disease development. USDA-ARS, Corvallis, OR
- A588 *R. L. Doudrick* and D. F. Millikan. Some etiological and symptomological aspects of Rose rosette. University of Missouri, Columbia
- A589 *C. H. Gilliam*, J. M. Mullen and R. L. Shumack. Spray program for leaf spot control on *Photinia fraseri*. Auburn University, AL
- A590 *J. B. Jones* and A. W. Engelhard. A bacterial crown rot of statice. University of Florida, Bradenton, FL
- A591 *J. B. Jones*, B. C. Raju and A. W. Engelhard. The effects of temperature and high humidity on development of bacterial spot of geranium and chrysanthemum. University of Florida, Bradenton
- A592 *W. T. Nishijima*, R. Y. Iwata, D. K. Fujiyama and D. M. Sato. Symptomatology and suspected cause of the Anthurium bleaching problem. University of Hawaii, Hilo

#### 1300-1500 APS Posters: Mycorrhizae

- A593 *R. N. Ames*, C. P. P. Reid, L. K. Porter, and C. Cambardella. Nitrogen-15 uptake and transport by hyphae of a vesicular-arbuscular mycorrhizal fungus. Colorado State University, Fort Collins
- A594 *G. A. Bean*, G. Pavanavasivan, B. Jarvis and T. Fernando. The isolation and identification of trichothecene mycotoxins from a pathogenic strain of *Myrothecium rostratum*. University of Maryland, College Park
- A595 *H. H. Edwards* and R. V. Gessner. T.E.M. of English oak ectomycorrhizae. Western

Illinois University, Macomb

- A596 *Ann B. Gould* and James W. Hendrix. Endomycorrhizal fungus activity in relation to time since reclamation of abandoned stripmine land. University of Kentucky, Lexington
- A597 *Suha H. Jabaji-Hare*. Distribution of Vam infection in *Allium porrum*. University of Waterloo, Ontario, Canada
- A598 *H. J. Larsen*, J. R. Ellis, M. G. Boosalis and C. R. Fenster. Fallow tillage, winter wheat, and vesicular-arbuscular mycorrhizae in western Nebraska. USDA-ARS, Lincoln, NE
- A599 *K. Mayo* and R. E. Davis. Germination of *Glomus epigaeum* spores in mixed and axenic culture. University of Maryland, College Park
- A600 *J. B. Morion* and A. Rizzo. Mycorrhizal associations with *Populus grandidentata* at four coal spoils in West Virginia. West Virginia University, Morgantown
- A601 *C. E. Nelsen* and T. C. Maiti. The effects of drought stress, mycorrhizal inoculation, and soil nutrition on wheat yield. International Plant Research Institute, San Carlos, CA
- A602 *S. Nemecek*. Effect of storage temperature and moisture on two species of *Glomus* and their subsequent infection in citrus seedlings. USDA, ARS, Orlando, FL
- A603 *T. C. Paulitz* and J. A. Menge. *Phyllostictium* sp.—a pathogen or saprophyte of mycorrhizal spores? University of California, Riverside
- A604 *H. Zare-Maivan* and R. V. Gessner. Healthy and declining English oak ectomycorrhizal and root distribution. Western Illinois University, Macomb

#### 1300-1500 APS Posters: Field crop diseases

- A605 *Charla Rae Armitage* and J. P. Hill. A method to quantitatively assess wheat seedling crown and root infection by *Fusarium acuminatum*. Colorado State University, Fort Collins
- A606 *G. C. Bergstrom*, B. S. Croskey, and R. I. Carruthers. Synergism between *Colletotrichum graminicola* and European corn borer in stalk rot of corn in New York. Cornell University, Ithaca, NY
- A607 *C. D. Boyette*, H. L. Walker, and G. L. Sciumbato. Production of floating inocula of *Rhizoctonia solani* and *R. oryzae*. Delta State University, Cleveland, MS
- A608 *R. F. Cerkauskas*, P. R. Verma, and D. L. McKenzie. Effects of herbicides on growth and carpogenic germination of *Sclerotinia sclerotiorum*. Vineland Research Station, Ontario, Canada
- A609 *L. E. Datnoff* and J. B. Sinclair. Field interaction between *Rhizoctonia solani* and *Fusarium oxysporum* on soybeans. University of Illinois, Urbana
- A610 *T. J. Gulya*. Influence of photosynthate sink size on sunflower response to Sclerotinia stalk rot. USDA-ARS, North Dakota State University, Fargo
- A611 *G. L. Hartman*, R. P. McClary, J. B. Sinclair, and J. W. Hummel. Effect of tillage systems on corn stalk rot. University of Illinois, Urbana
- A612 *J. P. Hill*. Cultivar reaction to infection of wheat seedling leaf wounds by *Fusarium acuminatum*. Colorado State University, Fort Collins
- A613 *H. Jedlinski*. Predisposition of winter rye (*Secale cereale* L.) to ergot (*Claviceps purpurea* (Fr.) Tul.) by barley yellow dwarf virus infection. USDA-ARS, University of Illinois, Urbana
- A614 *J. L. Maas*. Pathogenicity and gel electrophoretic protein pattern comparisons among strawberry anthracnose fungi. USDA, Beltsville, MD
- A615 *J. B. Manandhar* and S. Joshi. Soybean rust in Nepal. Dept. of Agriculture, Khumaltar, Lalitpur.
- A616 *J. A. Percich*, R. L. Bowden, M. K. Kardin and E. S. Hotchkiss. Anthracnose of wild rice caused by a *Colletotrichum* sp. University of Minnesota, St. Paul
- A618 *P. J. Raymond* and W. W. Bockus. Effect of seeding date of winter wheat on incidence, severity, and yield loss due to Cephalosporium stripe. Kansas State

University, Manhattan

- A619 *J. P. Ross*. Compensatory yield response in soybean: a subtle but important expression of disease resistance. USDA, North Carolina State University, Raleigh
- A620 *Gail E. Ruhl*. Plant diagnostic clinics. Purdue University, W. Lafayette, IN
- A621 *W. C. Stienstra*, T. Kommedahl, C. A. Matyac, C. E. Windels, and J. L. Geadelmann. Corn head smut control by hybrid selection and chemical seed treatment. University of Minnesota, St. Paul
- A622 *H. Tachibana* and A. Van Diest. Association of Phytophthora root rot of soybean with conservation tillage. USDA-ARS, Iowa State University, Ames
- A623 *T. W. Taylor*, A. Scharen, D. Sands, and G. Sharp. Radiometric classification of cereal disease severity. Montana State University, Bozeman
- A624 *S. L. Van Wert* and D. W. Fulbright. Bioassays to evaluate wheat lines for resistance to Cephalosporium leaf stripe. Michigan State University, East Lansing
- A625 *S. M. Yang* and R. W. Berry. Bract necrosis, a non-parasitic disease of sunflower. USDA-ARS, Texas Agricultural Extension Service, Lubbock

#### 1300-1500 SON Posters: IPM

- S40 *C. H. Baldwin, Jr.* and J. A. Wrather. Effect of crop rotation on *Heterodera glycines* race 4 and other plant parasitic nematodes. Diamond Shamrock, Painesville, OH
- S41 *C. Bonsi*, R. F. Stouffer and R. Shaffer. Influence of different grass cover crops on population dynamics of *Xiphinema* species. Penn State University Fruit Research Lab., Biglerville, PA
- S42 *J. R. Davis*, S. L. Hafez, L. H. Sorensen, D. L. Corsini, and J. J. Pavsek. Reductions of *Pratylenchus neglectus* with the cropping of 'Butte' potato and relationships with Verticillium wilt. University of Idaho Research and Extension Center, Aberdeen
- S43 *L. W. Duncan* and H. Ferris. Maximizing profits in *Meloidogyne incognita*-stressed cotton-cowpea production systems. University of California, Riverside
- S44 *H. Ferris* and S. M. Schneider. Variety-specific parameters for a distributed development and fecundity model of root-knot nematode (*Meloidogyne arenaria*). University of California, Riverside
- S45 *Sahag Garabedian* and S. D. Van Gundy. The relationship of citrus nematode, *Tylenchulus semipenetrans* to root growth. University of California, Riverside
- S46 *P. S. King*, R. Rodriguez-Kabana, J. C. Williams, and R. A. Shelby. Assessment of peanut yield losses caused by *Meloidogyne arenaria*. Auburn University, Auburn, AL
- A47 *A. E. MacGuidwin* and G. W. Bird. Within-generation dynamics of *Meloidogyne hapla* associated with *Allium cepa*. Michigan State University, East Lansing
- S48 *A. P. Nyczcepr*, R. N. Insearra, J. H. O'Bannon, and G. S. Santo. Effect of *Meloidogyne chitwoodi* and *M. hapla* on growth of wheat. USDA-ARS, S.E. Fruit and Tree Nut Research Lab, Byron, GA
- S49 *C. C. Orr*. Cotton losses to nematodes on the Texas southern high plains. USDA-ARS, Lubbock, TX
- S50 *P. A. Roberts*. Influence of carrot planting date on *Meloidogyne incognita* infection and damage. University of California, Riverside
- S51 *R. Shaffer*, *C. Bonsi* and R. Stouffer. Effect of different initial population densities ( $P_0$ ) of *Xiphinema americanum* and *Xiphinema rivesi* on growth of apple and peach seedlings. Penn State Fruit Research Lab, Biglerville, PA
- S52 *A. E. Steele*, H. Toxopeus and W. Heijbroek. Resistance in *Beta* spp. and interspecific hybrids of *Beta* to *Heterodera schachtii* and *H. trifolii*. USDA-ARS-WR, Salinas, CA
- S53 *F. S. Wartman*, V. D. Luadders, and V. H. Dropkin. Reproduction of selected inbred populations of soybean cyst nematodes on soybeans. USDA, Univ. of Missouri, Columbia