

# 1984 Annual Meeting Preliminary Program

August 12-16, 1984 • University of Guelph

In the program, locations are room numbers in buildings at the University of Guelph.

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, August 10

1:00-5:00 pm APS Financial Advisory Committee. H. R. Cameron presiding. U. Centre 334

## Saturday, August 11

7:15-8:45 am APS Executive Committee. President R. J. Cook presiding. College Motor Inn (breakfast)

9:00 am-5:00 pm APS Council. President R. J. Cook presiding. U. Centre 334

9:00 am-5:00 pm Vegetable Disease Tour  
9:00 am-5:00 pm Forest Pathology Field Tour

## Sunday, August 12

8:30 am-12:00 noon APS Council. President R. J. Cook presiding. U. Centre 334

10:00 am-5:00 pm CPS Council. President Claude Aubé presiding. U. Centre 332

1:00-5:00 pm NE-87 Postharvest Pathology. J. M. Ogawa presiding. U. Centre 441

1:30-5:00 pm and 7:00-9:00 pm Teach-In: Diagnosis of Abiotic Plant Stresses. R. Wukasch and L. Kress, organizers. Crop Science 121. *NOTE:* Participation by prior reservation only

1:30-3:30 pm APS Department Chairpersons. G. R. Hooper presiding. U. Centre 441

3:30-4:30 pm Orientation of APS Committee Chairpersons. Senior Councilor-at-Large D. E. Mather presiding. U. Centre 103

4:30-6:30 pm CPS Committee Meetings. MacKinnon 2nd and 3rd floors (rooms will be signposted)

Teaching. R. A. A. Morrall presiding  
Physiology of Parasitism. R. Hall presiding

4:30-6:30 pm APS Committee Meetings. MacKinnon 2nd and 3rd floors (rooms will be signposted)

Archives. C. L. Campbell presiding  
Awards and Honors. P. H. Williams presiding

Book Publications. G. Agrios presiding  
Compendium. B. Teviotdale presiding

Illustrations of Plant Pathogens and Diseases. G. Simone presiding

Membership. A. R. Weinhold presiding  
Monographs and Reviews. C. H. Beckman presiding

Phytopathological Classics. R. S. Dickey presiding

Placement. G. J. Weidemann presiding

Public Responsibilities. J. F. Fulkerson presiding

Sustaining Associates. C. M. Martinson presiding

Women in Plant Pathology. S. Hearon presiding

Ad Hoc Committee on Cassette Series Feasibility. G. R. Hooper presiding

Ad Hoc Committee on Feasibility of Publishing Reports of Non-Chemical Controls. J. R. Hartman presiding.

Special Committee on Development of a Plant Doctor Degree. W. Merrill presiding

Special Committee on Affiliations. Past President R. E. Ford presiding

Special Committee on Sustained Yield Agroecosystems Research. B. Douppnik, Jr. presiding

4:30-6:30 pm 1985 APS Program Committee. Vice-President L. Sequeira presiding, Vice-President-Elect assisting. U. Centre 103

5:00-7:00 pm Diagnosticians Supper. U. Centre 442

5:00-7:00 pm Environmental Quality and Plant Health Committee Supper. W. J. Manning presiding. U. Centre 430

6:30-8:30 pm APS Committee Meetings. MacKinnon 2nd and 3rd floors (rooms will be signposted)

Bacteriology. S. Lindow presiding  
Biological Control. C. E. Windels presiding

Chemical Control. L. V. Edgington presiding  
Disease and Pathogen Physiology. R. C. Staples presiding

Diseases of Ornamental Plants and Turf Grasses. J. L. Sherald presiding

Epidemiology. L. Madden presiding  
Genetics. W. Pederson presiding

Industry. H. V. Morton presiding  
International Cooperation. J. Amador presiding

Mycology. M. O. Garraway presiding  
Mycorrhizae. G. R. Safrir presiding

Post-Harvest Pathology and Mycotoxicology. C. L. Burton

Public Relations. P. C. Pecknold presiding  
Regulatory Work and Foreign Plant Diseases. E. G. Jordan presiding

Seed Pathology. R. L. Gabrielson presiding  
Tropical Plant Pathology. R. H. Fulton presiding

Virology. D. Gonsalves presiding  
Special Committee on Long-Range Research Goals. D. P. Maxwell presiding

Fusarium Workers-Formae specialis. J. M. Kraft presiding

7:00-9:00 pm Teach-In: Diagnosis of Abiotic Plant Stress. R. Wukasch and L. Kress, organizers. Crop Science 121. *NOTE:* Participation by prior registration only

8:30-10:30 pm Reception for all registrants (sponsored by the Federal Government of Canada and the Provincial Government of Ontario). U. Centre, P. Clark Hall

## Monday, August 13

### Meetings and Special Events

6:30-8:00 am NE-87 Breakfast. U. Centre 441

6:30-8:15 am Extension Plant Pathologists Breakfast. Lennox-Addington Cafeteria

8:15 am-5:00 pm Teaching Slide Salon. U. Centre 004  
Diseases caused by fastidious prokaryotic plant pathogens. M. J. Davis, ed., Univ. of Florida, Gainesville

Biological control of weeds with plant pathogens. C. G. Van Dyke, ed., North Carolina State Univ., Raleigh

Biological control of plant diseases. H. W. Spurr, Jr., ed., USDA, Oxford, NC

Plant Disease (1983) slide set. L. E. Trevathan, ed., Mississippi State Univ., Mississippi State

10:00 am-noon (also 1:30-5:30 pm and 7:00-9:00 pm) Exhibit: Florida Agricultural Information Retrieval System: Computerized database for pest control and crop production for Florida fresh market tomatoes. G. Simone, coordinator. U. Centre, Commercial Exhibit Area

10:00 am-5:00 pm CPS Council. President Claude Aubé presiding. U. Centre 332

12:00 noon-1:15 pm APS Past Presidents' Luncheon. U. Centre 430

1:00-2:00 pm Authors present at Posters P1-P61. U. Centre 126 and 130

4:00-5:00 pm APS Northeast Division Business Meeting. A. R. Gotlieb presiding. U. Centre 442

5:00-6:00 pm Authors present at Posters P1-P61. U. Centre 126 and 130

6:00-7:45 pm CPS Committee Meetings. MacKinnon 2nd and 3rd floors (rooms will be signposted)

Biological Control. W. R. Jarvis presiding  
Chemical Control. L. V. Edgington presiding

Soilborne Pathogens. L. L. Burpee presiding  
6:00-7:45 pm APS Committee Meetings. MacKinnon 2nd and 3rd floors (rooms will be signposted)

Collections and Germ Plasm. S. Anagnostakis presiding

Extension. J. Riesselman presiding  
Forest Pathology. J. H. Hart presiding

Integrated Pest Management. R. M. Loria presiding

Nematology. R. G. Noel presiding  
New Fungicide-Nematicide Data. P. M. Phipps presiding

Phytopathology News. A. H. Epstein presiding  
Private Practice. B. G. Zoller presiding

Plant Disease Detection. R. E. Hite presiding  
Plant Disease Losses. F. F. Hendrix presiding

Soil Microbiology and Root Diseases. J. Altman presiding

Standardization of Common Names of Plant Diseases. J. D. Hansen presiding

Teaching. B. C. Haning presiding  
Ad Hoc Committee on Youth Programs. W. Miller presiding

Ad Hoc Phytopathology Study Committee. J. F. Schafer presiding

6:00-7:45 pm Plant Disease Editorial Board. W. H. Horne presiding. U. Centre 441

6:00-7:45 pm Phytopathology Editorial Board. K. Leonard presiding

6:30-7:45 pm Women in Plant Pathology Social. U. Centre 103

7:00-9:00 pm Exhibit: Florida Agricultural Information Retrieval System: Computerized database for pest control and crop production for Florida fresh market tomatoes. G. Simone, coordinator. U. Centre, Commercial Exhibit Area

8:00-9:15 pm APS/CPS Awards Ceremony. APS President R. J. Cook, CPS President C. Aubé, NED-APS President A. R. Gotlieb. Athletics

Centre  
9:30-11:00 pm APS/CPS Awards Reception. U. Centre, P. Clark Hall (admission by APS or CPS name badge only)

## Monday Morning Sessions

8:15-10:00 **Opening Plenary Session.** L. V. Edgington presiding

**Welcome and Introductions.** B. C. Matthews, President, University of Guelph; F. L. McEwan, Dean, College of Agriculture, Johnston Green (southwest of dining halls)

**Address:** Plant Pathology at the Crossroads. Arthur Kelman, L. R. Jones Distinguished Professor of Plant Pathology, University of Wisconsin, Madison

8:15 am-9:00 pm **Contributed Poster Sessions 1-4.** (Authors will be present at posters from 1:00-2:00 pm and 5:00-6:00 pm)

Session 1P. **Virology.** Posters P1-P27. University Centre 126

Session 2P. **Virus Diseases.** Posters P28-P32. University Centre 126

Session 3P. **Biological Control.** Posters P33-P55. University Centre 130

Session 4P. **Vegetable Diseases.** Posters P56-P61. University Centre 130

10:00-10:15 **Break**

10:15-noon **Discussion: Effects of Minimum and No-Till Practices on Soilborne Pathogens.** L. L. Singleton presiding, R. D. Tinline assisting. Botany-Genetics-Zoology 100

Increase in wheat diseases associated with reduced tillage. W. W. Bockus, Kansas State Univ., Manhattan

Benefits, including decreases in soilborne diseases, with conservation tillage. R. D. Tinline, Agriculture Canada Research Station, Saskatoon, Saskatchewan

### Break

Use of conservation tillage in vegetable production. D. R. Sumner, Univ. of Georgia, Tifton

Disease distribution and decline in turfgrasses and pastures. R. W. Smiley, Cornell Univ., Ithaca, NY

10:15-noon **Colloquium: Interdependence of Collections of Plants and Collections of Pathogens in Research.** Claude E. Thomas, moderator. Botany-Genetics-Zoology 200

Introduction. Claude E. Thomas, USDA-ARS, U.S. Vegetable Lab., Charleston, SC

C1. The interrelationships of host- and parasite-germplasm collections in the study of cereal rusts. L. E. Browder, USDA, Kansas State Univ., Manhattan

C2. The use of bean rust and wheat stem rust collections in characterizing pathogen diversity. J. V. Groth and A. P. Roelfs, Univ. of Minnesota, St. Paul

C3. Use of differential cultivars of *Lactuca sativa* to detect, isolate, culture, and study diverse pathogenic genotypes of *Bremia lactucae* in New York. J. W. Lorbeer, D. P. LoParco and J. E. Yuen, Cornell Univ., Ithaca, NY

C4. Pathogen and host germplasm collections for assessing weed and crop vulnerability to pathogens. M. R. Bonde and W. M. Dowler, USDA, Frederick, MD

C5. The interdependence of *Sphaerotheca pannosa* and its various hosts. D. L. Coyier, USDA, Corvallis, OR

C6. Interdependence of collections of *Ipomoea batatas* and collections of soil-borne pathogens in developing resistance in sweet potato against root, stem, and vascular diseases. P. D. Dukes and A. Jones, USDA, Charleston, SC

C7. Three resistant systems to bacterial

spot of pepper in a plant introduction line. A. H. Hibberd, R. E. Stall, and M. J. Bassett, Univ. of Florida, Gainesville Summation and Discussion

10:15-12:00 **Contributed Paper Sessions 1-7**

**Session 1. Epidemiology.** Physical Science 105

10:15 1. *D. E. Aylor* and F. J. Ferrandino. Contribution of inertial impaction to spore dispersal gradients. The Connecticut Agricultural Experiment Station, New Haven

10:30 2. *R. D. Burger* and J. W. Jones. A general model for disease progress in changing host growth with a sub-model for variable latency. University of Florida, Gainesville

10:45 3. *E. W. Park* and S. M. Lim. Improvement in modeling disease progress. University of Illinois, Urbana

11:00 4. *C. C. Mundt* and K. J. Leonard. A modified version of Gregory's dispersal model for use in computer simulation of epidemic development. North Carolina State University, Raleigh

11:15 5. *J. Rupe* and R. S. Ferriss. A simple model for predicting infection of vegetative soybean tissue by *Phomopsis* sp. University of Kentucky, Lexington

11:30 6. *N. Lalancette, Jr.* and K. D. Hickey. Disease progression as a function of plant growth. The Pennsylvania State University Fruit Research Laboratory, Biglerville

11:45 7. *N. Lalancette, Jr.* and K. D. Hickey. An apple powdery mildew model based on plant growth, primary inoculum, and fungicide concentration. The Pennsylvania State University Fruit Research Laboratory, Biglerville

**Session 2. Field Crop Diseases.** Physical Science 113.

10:15 8. *F. E. Wright.* Effects of fungicide treatments on the yield of various cultivars of wheat (*Triticum aestivum* L.). Agricultural Research, State University, AR

10:30 9. *M. R. Miles* and R. D. Wilcoxson. Microflora associated with discolored barley kernels. University of Minnesota, St. Paul

10:45 10. *M. K. Roane* and C. W. Roane. New hosts of fungi found on small grains, corn and perennial forage grasses. Virginia Polytechnic Institute and State University, Blacksburg

11:00 11. *Q. B. Kubicek* and R. G. Kenneth. *Peronosclerospora globosa*, a new downy mildew of Gramineae, attacking cupgrass in Texas. Texas A&M University, College Station

11:15 12. *W. L. Seaman* and E. F. Schneider. *Typhula phacorrhiza* on winter wheat in Ontario. Ottawa Research Station, Agriculture Canada, Ottawa, Ontario

11:30 13. *E. F. Schneider* and W. L. Seaman. Development of snow mold diseases of winter wheat. Ottawa Research Station, Agriculture Canada, Ottawa, Ontario

11:45 14. *C. W. Roane.* Atypical symptoms in rye caused by *Pseudomonas syringae* pv. *coronafaciens*. Virginia Polytechnic Institute and State University, Blacksburg

**Session 3. Mycotoxicology.** Physical Science 101

10:15 15. *P. C. Lyons* and C. W. Bacon. Ergot alkaloids in tall fescue infected with *Sphaelia typhina*. University of Georgia and R. B. Russell Agricultural Research Center, Athens

10:30 16. *J. R. Wallin.* Heat and drought stress and aflatoxin production in preharvest maize. University of Missouri, Columbia

10:45 17. *M. C. Johnson*, M. R. Siegel and L. P. Bush. Preferential feeding by two aphid species on endophyte-free versus endophyte-infected tall fescue. University of Kentucky, Lexington

11:00 18. *H. K. Abbas*, C. J. Mirocha and W. T. Shier. Toxicity of fungi isolated from foodstuffs and soil: comparison of toxicity in fibroblasts and rat feeding

11:15 19. *R. A. A. Morrall.* A preliminary toxicologic study of lentil seed infested with *Ascochyta lentis*. University of Saskatchewan, Saskatoon

11:30 20. *J. C. Young* and J. D. Miller. Metabolite levels as indicators of fungal biomass. Agriculture Canada, Ottawa, Ontario

**Session 4. Postharvest Pathology and Physiology.** Chemistry-Microbiology 160

10:15 21. *B. D. Bruton.* Effects of IPM on postharvest quality of Texas onion. USDA-ARS, Weslaco, TX

10:30 22. *J. M. Harvey*, C. M. Harris and J. S. Tebbets. Phytotoxicity in deciduous tree fruits fumigated with methyl bromide to control the Mediterranean fruit fly. USDA-ARS Protection and Quarantine Research Unit, Fresno, CA

10:45 23. *L. G. Houck*, J. S. Tebbets, J. F. Jenner and P. L. Hartsell. Phytotoxic responses of citrus fruit fumigated with ethylene dibromide. USDA-ARS Protection and Quarantine Research Unit, Fresno, CA

11:00 24. *J. A. Bartz* and M. Sherman. Effect of hydrostatic pressure and chlorine level in flume and dump tank water on control of postharvest decays in tomato fruit. University of Florida, Gainesville

11:15 25. *J. W. Eckert*, M. Ratnayake and Y. Gutter. Volatiles from wounded citrus fruits stimulate germination of *Penicillium digitatum* conidia. University of California, Riverside

11:30 26. *J. R. Dunlap* and *B. D. Bruton.* Substrate specificity for red pigment production by cantaloupe isolates of *Macrophomina phaseolina*. USDA-ARS, Weslaco, TX

**Session 5. Genetics.** University Centre, Clark Hall

10:15 27. *J. A. Kolmer* and K. J. Leonard. Selection for virulence in *Cochliobolus heterostrophus*. North Carolina State University, Raleigh

10:30 28. *J. A. Kolmer* and K. J. Leonard. Variation and selection for fertility in *Cochliobolus heterostrophus*. North Carolina State University, Raleigh

10:45 29. *G. Milus* and R. F. Line. Heritability of durable, adult-plant, temperature-sensitive resistance to *Puccinia striiformis* in Pacific Northwest wheats. Washington State University, Pullman

11:00 30. *B. J. Christ* and C. O. Person. Tetrad analysis used to examine polygenic inheritance of virulence in *Ustilago hordei*. University of British Columbia, Vancouver

11:15 31. *H. M. Alexander*, J. V. Groth and A. P. Roelfs. Pathogenicity changes in *Uromyces appendiculatus* after five asexual generations on a bean cultivar. University of Minnesota, St. Paul

11:30 32. *G. D. Statler.* Mutations affecting virulence in *Puccinia recondita*. North Dakota State University, Fargo

11:45 33. *M. P. Grisham.* Cross inoculation of *Rhizoctonia solani* anastomosis group 2 type 2 from carrot, sugarbeet, corn and St. Augustinegrass. Texas A&M University, College Station

**Session 6. Virus Diseases.** Chemistry-Microbiology 200

10:15 34. *J. G. McDonald.* Viruses associated with mosaic symptoms in Russet Burbank potato. Agriculture Canada Research Station, Charlottetown, Prince Edward Island

10:30 35. *K. Z. Hausler* and D. W. Fulbright. Resistance in Michigan winter wheat to wheat spindle streak mosaic virus (WSSMV). Michigan State University, East Lansing

10:45 36. *S. T. Nameth*, J. A. Dodds and A. O. Paulus. Zucchini yellow mosaic virus associated with a severe disease of cantaloupe and squash in California. University of California, Riverside

11:00 37. *J. D. Alexander*, R. W. Toler and L.

M. Giorda. Correlation of yield reductions with severities of disease symptoms in grain sorghum (*Sorghum bicolor* (L.) Moench) infected with sugarcane mosaic or maize dwarf mosaic viruses. Texas A&M University, College Station

11:15 38. S. R. Vann, R. W. Toler and F. R. Miller. Reactions of sudangrass accessions to strain A of maize dwarf mosaic virus. Texas A&M University, College Station

11:30 39. G. R. Johnstone, H.-Y. Liu and J. E. Duffus. First report of a subterranean clover red leaf-like virus in the Western hemisphere. USDA-ARS Agricultural Research Station, Salinas, CA

11:45 40. R. C. Larsen, J. E. Duffus and H.-Y. Liu. Tomato necrotic dwarf—a new type of whitefly-transmitted virus. USDA-ARS Agricultural Research Station, Salinas, CA

#### Session 7. Seed Pathology. University Centre 103

10:15 41. M. L. Gleason and R. S. Ferriss. Performance of *Phomopsis*-infected soybean seedlots: influence of soil water potential. University of Kentucky, Lexington

10:30 42. I. Kunwar, T. Singh and J. B. Sinclair. Histopathology of mixed infections by *Colletotrichum truncatum* and *Phomopsis* spp. in soybean seeds. University of Illinois, Urbana

10:45 43. T. Singh and J. B. Sinclair. Distribution of *Cercospora kikuchii*, *Cercospora sojina* and *Phomopsis* spp. in soybean seeds. University of Illinois, Urbana

11:00 44. J. E. Bowman, G. L. Hartman, R. D. McClary, J. B. Sinclair, J. W. Hummel and L. M. Wax. Effect of crop history, tillage, row-spacing and herbicide on soybean seed quality. University of Illinois, Urbana

11:15 45. N. W. Schaad. Inoculum thresholds for seedborne bacteria. University of Idaho, Moscow

11:30 46. H.-R. Huang and M. R. Hanna. Seed-borne *Verticillium albo-atrum* in alfalfa. Agriculture Canada Research Station, Lethbridge, Alberta

11:45 47. T.-L. Kuan, G. V. Minsavage and R. L. Gabrielson. Detection of *Xanthomonas campestris* pv. *carotae* in carrot seed. Asgrow Seed Company, San Juan Bautista, CA, and Western Washington Extension and Research Center, Puyallup

### Monday Afternoon Sessions

1:15-3:00 **Colloquium: New Tactics in Nematode Control.** G. S. Abawi presiding. Botany-Genetics-Zoology 100  
The potential for exploiting nematode behavior for management purposes. D. Dusenbery, Georgia Inst. Technology, Atlanta  
Recent developments in biocontrol for nematode management. R. Rodriguez-Kabana, Auburn University, Auburn, AL  
Management of nematode populations and crop responses with old and new nematicides. A. W. Johnson, USDA, Coastal Plain Experiment Station, Tifton, GA

1:15-3:00 **Discussion: Problems in Expressing Dosage Recommendations for Foliar Pesticides.** M. A. Ellis presiding, P. C. Pecknold assisting. Botany-Genetics-Zoology 200  
The perspective from industry. D. S. Kenney, Abbott Laboratories, Long Grove, IL  
The perspective from extension. P. Steiner, Univ. of Maryland, College Park  
The perspective from research. P. Shoemaker, North Carolina State Univ., Raleigh  
The perspective from agricultural engineering. D. R. Menzies, Research

Station, Vineland, Ontario

1:15-5:00

#### Symposium: Genetic Basis of Biochemical Mechanisms of Disease.

James V. Groth presiding. University Centre, Clark Hall

Introduction. James V. Groth, Univ. of Minnesota, St. Paul

Implications of general resistance for physiological investigations. B. C. Clifford, United Kingdom

Prospects for using recombinant DNA technology to study race-specific interactions. A. H. Ellingboe, Univ. of Wisconsin, Madison

Basic incompatibility between unlike organisms: a role in plant disease resistance? W. R. Bushnell, USDA Cereal Rust Lab., St. Paul, MN

#### Break

Implications of nonhost resistance for understanding host-parasite interactions. M. C. Heath, Univ. of Toronto

Progress in understanding the biochemistry of race-specific interaction. N. T. Keen, Univ. of California, Riverside

General Discussion

#### 1:15-5:00 Contributed Paper Sessions 8-13

#### Session 8. Integrated Pest Management. University Centre 103

1:15 48. M. G. Zuck and F. L. Caruso. A volumetric spore trap designed for monitoring *Venturia inaequalis* spore release in apple scab management programs. University of Maine, Orono

1:30 49. R. A. Meronuck and P. S. Teng. Economic thresholds for chemical control of bean rust. University of Minnesota, St. Paul

1:45 50. A. F. Schmitthener and D. M. Van Doren. Integrated control of *Phytophthora* root rot of soybeans. Ohio Agricultural Research and Development Center, Wooster

2:00 51. Y. Pinkas, A. Kariv and J. Katan. Soil solarization for the control of *Phytophthora cinnamomi*: thermal and biological effects. Volcani Center, Bet-Dagan, and The Hebrew University, Rehovot, Israel

2:15 52. A. C. Schuergler and K. G. Pategas. Management of two *Pythium* spp. in hydroponic lettuce production. EPCOT Center, Lake Buena Vista, FL

2:30 53. T. D. Rogers, S. M. Lim and L. M. Wax. Integrated pest management in Illinois: soybean disease populations as affected by tillage, crop rotation, and pest management level. University of Illinois, Urbana

2:45 54. H. C. Huang and A. M. Harper. Transmission of *Verticillium albo-atrum* to alfalfa via feces of leaf-chewing insects. Agriculture Canada Research Station, Lethbridge, Alberta

#### 3:00 Break

3:15 55. L. E. Gholson and J. K. Waldron. Future directions for alfalfa IPM. University of Wyoming, Laramie

3:30 56. B. D. Nelson. The role of plant disease in the development of controlled ecological life support systems. North Dakota State University, Fargo

3:45 57. B. Becker. Taralan's multifactor system and plant pathology: a working integrated crop management program. Taralan Corporation, Springfield, IL

#### Session 9. Bacterial Diseases. Physical Sciences 113

1:15 58. A. M. Alvarez, A. A. Benedict and C. Y. Mizumoto. Delineation of xanthomonads with monoclonal antibodies. University of Hawaii, Honolulu

1:30 59. D. P. Roberts, P. M. Berman, G. H. Lacy, M. S. Mount and C. Allen. *Erwinia carotovora* subsp. *carotovora* DNA encoding pectate lyases cloned into plasmid pBR322. University of Massachusetts, Amherst, and Virginia Polytechnic Institute & State University, Blacksburg

1:45 60. R. E. Stall, D. C. Loschke and R. W. Rice. Conjugational transfer of

copper resistance and avirulence to pepper within strains of *Xanthomonas campestris* pv. *vesicatoria*. University of Florida, Gainesville

2:00 61. E. M. Steinberger and S. V. Beer. Isolation and mapping of Tn5 mutations in pathogenicity genes of *Erwinia amylovora*. Cornell University, Ithaca, NY

2:15 62. C. S. Orser, R. Lotstein, E. Lahue, D. K. Willis, N. J. Panopoulos and S. E. Lindow. Structural and functional analysis of the *Pseudomonas syringae* pv. *syringae* ice region and construction of ice-O deletion mutants. University of California, Berkeley

2:30 63. D. K. Willis and N. J. Panopoulos. Molecular characterization of tissue-specific and general virulence genes in *Pseudomonas syringae* pv. *syringae*. University of California, Berkeley

2:45 64. C. P. Lin and T. A. Chen. Thirteen monoclonal antibodies to specific epitopes on *Spiroplasma citri*. Rutgers University, New Brunswick, NJ

#### 3:00 Break

3:15 65. D. A. Cuppels and W. Smith. Chemotaxis by *Pseudomonas syringae* v. *tomato*. Agriculture Canada, London, Ontario

3:30 66. M. J. Klopmeier and S. M. Ries. Chemotaxis of *Erwinia herbicola*. University of Illinois, Urbana

3:45 67. C. A. Jasalovich and L. Sequeira. Adhesion of epiphytic phytopathogenic bacteria to leaf surfaces. University of Wisconsin, Madison

4:00 68. G. L. Cleveland and R. N. Goodman. Differential adsorption of *Agrobacterium tumefaciens* to grape tissue culture cells. University of Missouri, Columbia

4:15 69. S. M. Douglas. *In situ* detection of mycoplasma-like organism causing X-disease in relation to symptom expression. The Connecticut Agricultural Experiment Station, New Haven

4:30 70. C. Hiruki and A. Da Rocha. The use of fluorescent DNA-binding agent, 4',6-diamidino-2-phenylindol (DAPI), for detecting mycoplasma infections in *Vinca rosea*. University of Alberta, Edmonton

4:45 71. C. Stevens, A. Patterson, R. M. Cody and R. T. Gudasusk. Amino acid utilization by spiroplasmas in a chemically defined medium. Tuskegee Institute and Auburn University, AL

#### Session 10. Soil Microbiology and Root Diseases. Physical Sciences 105

1:15 72. Y. Elad, R. Lifshitz and R. Baker. Cell wall hydrolysis of host and non-host fungi during interaction with the mycoparasite *Pythium nunn*. Colorado State University, Ft. Collins

1:30 73. J. L. Parke, R. Moen, A. D. Rovira and G. D. Mowen. Root tip colonization by a pseudomonad suppressive to the take-all disease of wheat. CSIRO Division of Soils, Glen Osmond, Australia

1:45 74. G. Defago, P. Ahl, C. H. Berling, E. Stutz, C. Voisard, D. Haas and M. Rella. Characteristics of a *Pseudomonas fluorescens* strain involved in suppression of black root rot of tobacco. Institut für Phytomedizin and Institut für Mikrobiologie, Zürich, Switzerland

2:00 75. J. P. Stack and R. E. Rettig. Germination of *Aspergillus flavus* sclerotia in soil. Texas A&M University, College Station

2:15 76. W. H. Ko and K. A. Nishijima. A Hawaiian soil suppressive to *Phytophthora capsici*. University of Hawaii, Hilo

2:30 77. C. W. Kao and W. H. Ko. Factors responsible for inhibition of *Pythium splendens* in a suppressive soil in Hawaii. University of Hawaii, Hilo

2:45 78. C. S. Rothrock and B. M. Cunfer. Absence of take-all decline under wheat-soybean doublecropping. University of Georgia, Experiment

- 3:00 **Break**  
 3:15 79. F. M. Scher, J. W. Kloepper and C. A. Singleton. Chemotaxis of *Pseudomonas putida* to soybean seed exudates in vitro and in soil. Allelix Inc., Mississauga, Ontario  
 3:30 80. A. C. Hartung and C. T. Stephens. Allelopathic properties of asparagus: interaction with *Fusarium* spp. and bioassay techniques. Michigan State University, East Lansing  
 3:45 81. A. P. Keinath and R. L. Millar. Survival potential of *Verticillium albo-atrum* in soil. Cornell University, Ithaca, NY  
 4:00 82. V. L. Smith, Z. K. Punja and S. F. Jenkins. Effect of depth of burial and sclerotial treatment on survival of sclerotia of *Sclerotium rolfsii* in field soil. North Carolina State University, Raleigh  
 4:15 83. M. E. Leggett, D. Goertz and J. E. Rahe. Factors affecting colonization of sclerotia of *Sclerotium cepivorum* by soil microflora. Simon Fraser University, Burnaby, British Columbia  
 4:30 84. B. Hemming, D. Drahos, J. Brackin and C. Jonsson. Characterization of HCN-producing soybean rhizosphere bacterial isolates. Monsanto Co., St. Louis, MO  
 4:45 85. D. Drahos, B. Hemming, S. McPherson and J. Brackin.  $\beta$ -Galactosidase, a selectable non-antibiotic chromogenic marker for fluorescent pseudomonads. Monsanto Co., St. Louis, MO

**Session 11. Plant Virology. Physical Sciences 101**

- 1:15 86. S. Haber and C. C. Gill. A geminivirus-like particle from oats. Agriculture Canada, Winnipeg, Manitoba  
 1:30 87. R. G. Christie, B. W. Falk, N.-J. Ko and F. W. Zettler. Geminivirus-like nuclear inclusions associated with pseudo-curly top disease in Florida. University of Florida, Gainesville  
 1:45 88. M. E. Grasmick, A. Branch, S. A. Slack and H. Robertson. Heat-stressed tomato plants contain an RNA band that comigrates with potato spindle tuber viroid in non-denaturing polyacrylamide gels. University of Wisconsin, Madison, and Rockefeller University, New York, NY  
 2:00 89. S. A. Slack, W. F. Rochow and H. T. Hsu. Molarity and pH effects on five barley yellow dwarf virus isolates. University of Wisconsin, Madison, Cornell University, Ithaca, NY, and ATCC, Rockville, MD  
 2:15 90. R. F. Lee, L. A. Calvert and J. D. Hubbard. Characterization of the coat proteins of citrus tristeza virus. University of Florida, Lake Alfred  
 2:30 91. T. M. Zinnen and R. W. Fulton. The effect of coat protein of challenge TMV on superinfection of bean infected by TMV-legume. University of Wisconsin, Madison  
 2:45 92. G. A. de Zoeten and G. Gaard. The presence of viral antigen in the apoplast of systemically infected plants. University of Wisconsin, Madison  
 3:00 **Break**  
 3:15 93. H. H. Murakishi. Reaction of protoclones of potato to potato virus Y. Michigan State University, East Lansing  
 3:30 94. D. W. Fulbright and S. W. Garrod. Double-stranded RNA (dsRNA) banding pattern changes in hypovirulent *Endothia parasitica*. Michigan State University, East Lansing  
 3:45 95. J. A. Dodds and S. Q. Lee. Cross protection between strains of cucumber mosaic virus. University of California, Riverside  
 4:00 96. A. M. Childress and D. C. Ramsdell. Honeybee-mediated transmission of blueberry leaf mottle virus via infected pollen to highbush blueberry. Michigan State University, East Lansing  
 4:15 97. R. N. Skopp and L. C. Lane.

- Proteolysis of turnip yellow mosaic virus top component. University of Nebraska, Lincoln  
 4:30 98. M. C. Edward and R. G. Timian. Biological evaluation of barley stripe mosaic virus hybrids. North Dakota State University, Fargo  
 4:45 99. J. D. Lei and G. N. Agrios. Monitoring of maize dwarf mosaic virus infection and spread in corn leaves via immunofluorescence. University of Massachusetts, Amherst

**Session 12. Forest Pathology. Chemistry-Microbiology 160**

- 1:15 100. F. F. Jewell, Sr. Histopathology of loblolly pine needles infected by *Scirrhia acicola* (Dearn.) Siggers. Louisiana Tech University, Ruston  
 1:30 101. M. A. Palmer, T. H. Nicholls and C. F. Croghan. Chemical control of Diplodia shoot blight in forest tree nurseries. USDA Forest Service, St. Paul, MN  
 1:45 102. C. H. Walkinshaw and F. F. Jewell, Sr. Susceptibility of different age slash pine seedlings to fusiform rust in the greenhouse. Southern Forest Experiment Station, Gulfport, MS, and Louisiana Technical University, Ruston  
 2:00 103. R. C. Holley, M. C. Klapproth and R. A. Schmidt. Temporal and spatial patterns of fusiform rust incidence in five-year-old pine plantations. University of Florida, Gainesville  
 2:15 104. W. D. Kelley and J. C. Williams. Effects of two systemic fungicides as seed dressings on fusiform rust of loblolly pine seedlings. Auburn University, AL  
 2:30 105. R. A. Dietrich, W. K. Stewart and R. A. Blanchette. Artificial inoculation of jack pine with pine oak rust. University of Minnesota, St. Paul  
 2:45 106. A. M. Diner. Inoculation of *Pinus monticola* tissue culture plantlets with vegetative axenic *Cronartium ribicola*. Michigan Technological University, Houghton  
 3:00 **Break**  
 3:15 107. L. Shain and U. Järlfors. Ultrastructural histopathology of eastern cottonwood clones resistant or susceptible to leaf rust. University of Kentucky, Lexington  
 3:30 108. R. S. Webb. A new stem rust epidemic of *Pinus oocarpa* in Guatemala. University of Florida, Gainesville  
 3:45 109. M.-M. Chen. Rusts of the Sino-Himalayas. University of Wisconsin, Madison  
 4:00 110. J. Juzwick and M. Hubbes. Association of bacteria with tarnished plant bug stem lesions of hybrid poplars in Ontario. University of Toronto, Ontario  
 4:15 111. S. J. Kostka, J. L. Sherald and T. A. Tattar. Culture of fastidious, xylem-limited bacteria from declining oaks in the northeastern states. University of Massachusetts, Amherst and National Park Service, Washington, DC  
 4:30 112. S. J. Kostka, T. A. Tattar and J. L. Sherald. Suppression of elm leaf scorch symptoms with oxytetracycline. University of Massachusetts, Amherst, and National Park Service, Washington, DC  
 4:45 113. J. O. Castello, P. Shiel, J. A. Austin, F. Jones, C. Craft and G. Delgado. Partial purification of ash yellows and elm yellows mycoplasma-like organisms from infected symptomatic periwinkle tissue. State University of New York, Syracuse

**Session 13. Biological Control. Chemistry-Microbiology 200**

- 1:15 114. G. R. Alm and Z. A. Patrick. Microflora of peach leaf scars and its influence on peach canker caused by *Leucostoma cincta*. University of Toronto, Ontario  
 1:30 115. G. J. Griffin, R. A. Wendt and J. R. Elkins. Association of hypovirulent

- Endothia parasitica* with American chestnut in forest clearcuts and with mites. Virginia Polytechnic Institute & State University, Blacksburg  
 1:45 116. H. Hartmann, W. A. Riggs and J. W. Hall. Interactions between powdery mildew, *Tilletiopsis washingtonensis* and non-target organisms on cucumber. Saanichton Research & Plant Quarantine Station, Sidney, British Columbia  
 2:00 117. J. K. Mitchell and R. A. Taber. Establishment of *Dicyma pulvinata* in Cercosporidium leafspot of peanuts: interactions of spray formulation, inoculation time, and temperature. Texas A&M University, College Station  
 2:15 118. S. Tuzun, W. Nesmith and J. Kuć. The effect of stem injections with *Peronospora tabacina* and metalaxyl treatment on growth of tobacco and protection against blue mold in the field. University of Kentucky, Lexington  
 2:30 119. F. L. Caruso and M. G. Zuck. Antagonistic activity of three imperfect fungi towards the mummy berry fungus, *Monilinia vaccinii corymbosi*. University of Maine, Orono  
 2:45 120. J. Mercier and R. Reeleder. A method for screening phytoplane antagonists to *Sclerotinia sclerotiorum* on lettuce. MacDonald College of McGill University, Ste-Anne-de-Bellevue, Québec  
 3:00 **Break**  
 3:15 121. G. F. Gregory, L. R. Schreiber and J. Ichada. Microorganisms antagonistic to or producing antibiotic inhibitory to *Ceratocystis ulmi*. USDA Forest Sciences Laboratory, Delaware, OH  
 3:30 122. C. W. Murdoch, R. J. Campana and J. Hoch. On the biological control of *Ceratocystis ulmi* with *Pseudomonas fluorescens*. University of Maine, Orono  
 3:45 123. K. J. Harrison-Lavoie, M. A. Hoffman, S. S. Selfridge and B. L. McFarland. Inability of three applied fluorescent pseudomonads to successfully colonize elms. Chevron Chemical Company, Richmond, CA  
 4:00 124. R. L. Millar, D. W. Kalb and A. P. Keinath. Biological and chemical control of Verticillium wilt of alfalfa. Cornell University, Ithaca, NY  
 4:15 125. T. J. Hall, L. R. Schreiber and C. Leben. Effect of *Bacillus subtilis* on Verticillium wilt in silver maple. USDA-ARS Nursery Crops Research Laboratory, Delaware, OH, and Ohio Agricultural Research and Development Center, Wooster  
 4:30 126. G. W. Xu and D. C. Gross. Selection of fluorescent *Pseudomonas* strains antagonistic to *Erwinia carotovora*. Washington State University, Pullman  
 4:45 127. G. W. Xu and D. C. Gross. Effect of antagonistic fluorescent pseudomonads on colonization of potato roots by *Erwinia carotovora* and on yield. Washington State University, Pullman  
 3:15-5:00 **Discussion: Methods Used to Educate Diverse Clientele Groups.** G. C. Bergstrom, moderator. Botany-Genetics-Zoology 100  
 The changing picture in extension education. A. O. Paulus, Univ. of California, Berkeley  
 Teaching plant pathology through 4-H programs. H. W. Kirby, Univ. of Illinois, Urbana  
 Education for amateur producers—The dail-U program. W. C. Steinstra, Univ. of Minnesota, St. Paul  
 Differentiating programs for large vs. small producers. C. W. Averre, North Carolina State Univ., Raleigh  
 Educational methods for captive or hostile audiences. J. K. Springer, Rutgers Univ., Bridgeton, NJ

- 3:15-5:00 **Discussion: Employer Perspectives on Job Skills in Plant Pathology.** Botany-Genetics-Zoology 200

## Tuesday, August 14

### Meetings and Special Events

- 6:30-8:00 am Deciduous Tree-Fruit Workers Breakfast.** U. Centre 442
- 8:15 am-12:00 noon (also 1:30-4:00 pm) Exhibit: Florida Agricultural Information Retrieval System: Computerized database for pest control and crop production for Florida fresh market tomatoes.** G. Simone, coordinator. U. Centre, Commercial Exhibit area
- 8:15 am-5:00 pm Teaching Slide Salon.** U. Centre 004 Diseases caused by fastidious prokaryotic plant pathogens. M. J. Davis, ed., Univ. of Florida, Gainesville
- Biological control of weeds with plant pathogens. C. G. Van Dyke, ed., North Carolina State Univ., Raleigh
- Biological control of plant diseases. H. W. Spurr, Jr., USDA, Oxford, NC
- Plant Disease* (1983) slide set. L. E. Trevathan, ed., Mississippi State Univ., Mississippi State
- 9:30 am-12:00 noon APS Department Chairpersons Meeting.** G. R. Hooper presiding. U. Centre 441
- 1:00-2:00 pm Authors present at Posters P62-P123.** U. Centre 126 and 130
- 3:00-5:00 pm APS Council.** President R. J. Cook presiding. U. Centre 334
- 4:00-6:00 pm Publications Coordinating Committee.** T. Kommedahl presiding. U. Centre 335
- 5:00-6:00 pm Authors present at Posters P62-P123.** U. Centre 126 and 130

### Tuesday Morning Sessions

- 8:15-10:00 Symposium: Importance of Verticillium Wilt of Alfalfa in North America.** D. C. Arny presiding. Chemistry-Microbiology 200
- Introduction. D. C. Arny, Univ. of Wisconsin, Madison
- European research on Verticillium wilt of alfalfa. J. Heale, Univ. of London, U.K.
- Host range and evaluation of resistance. L. V. Busch, Univ. of Guelph, Ontario
- Break**
- Problems in alfalfa breeding and genetics of resistance to Verticillium wilt. B. Christie, Univ. of Guelph, Ontario
- Local and long-distance spread of Verticillium. R. Howard, Horticultural Research Centre, Brooks, Alberta
- Control of Verticillium wilt of alfalfa. R. Gilbert, West Washington Research Center, Puyallup
- 8:15-10:00 Workshop: What are Disease Predictive Systems Doing for Growers?** John Northover presiding. Crop Science 121
- Introduction. J. Northover, Agriculture Canada, Vineland, Ontario
- Apples. K. MacKay, Ontario Ministry of Agriculture and Food, Bowmanville
- Grapes. M. A. Ellis, Ohio Agr. Exp. Station, Wooster
- Onion. M. R. MacDonald, Ontario Ministry of Agriculture and Food, Brantford
- Potato. W. R. Stevenson, Univ. of Wisconsin, Madison
- 8:15-noon Colloquium: Environmental Physiology of Plant Disease.** Robert Hall presiding. Botany-Genetics-Zoology 200
- Introduction. R. Hall, Univ. of Guelph, Ontario
- Surface effects in plant disease. R. C. Staples and H. C. Hoch, Boyce Thompson Institute for Plant Research and Cornell Univ., Ithaca, NY
- Environmental water in downy mildews. P. D. Hildebrand, Research Station, Kentville, Nova Scotia
- Break**
- Environmental physiology of storage diseases. N. F. Sommer, Univ. of California, Davis
- Discussion

- 8:15-noon Discussion: Problems Associated with Multiple Handling and Mobility of Ornamental Crops.** M. N. Cline presiding, A. R. Chase assisting. University Centre 103
- Introduction. M. N. Cline, Mallinckrodt, Inc., St. Louis, MO
- The commercial production of clean propagules for national and international mobility. W. Oglevee-O'Donovan, Phytolab Inc., Connelville, PA
- Molding of stored woody ornamentals and forest nursery seedlings. J. R. Sutherland, Canadian Forestry Service, Victoria, British Columbia
- From the tropics to the temperate zones—mobilizing foliage plant diseases. A. R. Chase, Univ. of Florida, Apopka
- Break**
- Storage and shipment of floricultural crops—problems and solutions. M. N. Cline, Mallinckrodt, Inc., St. Louis, MO
- Does international mobility of ornamental crops present problems in federal regulations for disease control? R. K. Horst, Cornell Univ., Ithaca, NY
- Summary and Discussion

- 8:15-noon Discussion: New Products and Services from Industry.** J. R. James presiding, W. D. McClellan assisting. Botany-Genetics-Zoology 100
- Techtum QSM 2500, a quanta spectrometer system. R. J. Cornell, Mandell Scientific Co., Ltd., Rockwood, Ontario
- Model 21X Micrologger and PC 200—versatile systems for monitoring climatological parameters and data retrieval. B. Tanner, Campbell Scientific, Inc., Logan, UT
- New label uses for Alette and Rovral fungicides. R. K. Hanrahan, Rhone-Poulenc Inc., Monmouth Junction, NJ
- Quantum-4000 a biological seed treatment. W. Hairston, Gustafson, Inc., Dallas, TX
- Fungoflor IOEC—A systemic seed dressing for small grain and cotton. W. R. Goodwine, Janssen Pharmaceutica, Piscataway, NJ
- Baytan (triadimenol)—A seed treatment for control of certain seed-borne, soil-borne and early season diseases of cereal crops. K. A. Noegel, Mobay Chemical Corp., Kansas City, MO
- END-TOX—A new seed treatment for control of the fescue endophyte *Acremonium* sp. K. Rushing, Gustafson, Inc., Dallas, TX
- Banner—A new fungicide for broad spectrum disease control in turf. D. Houseworth, CIBA-GEIGY Corp., Greensboro, NC
- Status of Bayleton on turf and ornamentals, cereals, and grasses grown for seed. D. A. Spilker, Mobay Chemical Corp., Kansas City, MO
- Status of Bayleton on fruit and nuts, vegetables, and sugar beets. J. P. Slesman, Mobay Chemical Corp., Indianapolis, IN
- Oxadinyl (Sandofan)—A fungicide for control of Pythium and Phytophthora in various crops. L. T. Hargett, Zoecon Corp., Palo Alto, CA
- MF-654 a new fungicide for control of Basidiomycetes: rust, *Rhizoctonia* sp. and *Sclerotium rolfsii*, and MF-695 a new fungicide for control of diseases caused by Oomycetes. M. N. Cline, Mallinckrodt, Inc., St. Louis, MO
- New uses for Banrot 8G (3% etridizole and 5% thiophanate-methyl), and Ornalin Fumigator (containing vinclozolin) on ornamental and nursery crops and Vorlan on turf. M. N. Cline, Mallinckrodt, Inc., St. Louis, MO
- Baycor—A foliar fungicide for control of diseases of tree and field crops. C. T. Schiller, Mobay Chemical Corp., Kansas City, MO
- Status of development of tilt on tree

and field crops. J. R. James, CIBA-GEIGY Corp., Greensboro, NC

New aqueous flowable formulations of Thiram, Captan, and Maneb. D. J. Pieczarka, Agway, Inc., Syracuse, NY

Incorporating IPM programs into integrated crop management (ICM) programs in the Northeast. D. J. Pieczarka, Agway, Inc., Syracuse, NY

Harvest Plus—A complete foliar nutritional spray which reduces the severity of foliar diseases. R. E. Woodard, Stoller Chemical Co., Houston, TX

### 8:15-noon Contributed Paper Sessions 14-19

- Session 14. Biological Control.** University Centre, Clark Hall
- 8:15** 128. J. E. Loper, C. Haack and M. N. Schroth. Population dynamics of soil pseudomonads in the rhizosphere. University of California, Berkeley
- 8:30** 129. J. B. Bahme and M. N. Schroth. Colonization dynamics of a rhizobacterium on potato. University of California, Berkeley
- 8:45** 130. W. L. Chao, H. C. Hoch and G. E. Harman. Downward movement of biological control agents in the rhizosphere. New York State Agricultural Experiment Station, Geneva
- 9:00** 131. D. M. Weller and J. C. Graham. Application of fluorescent pseudomonads to improve the growth of wheat. USDA-ARS, Washington State University, Pullman
- 9:15** 132. J. O. Becker and R. J. Cook. *Pythium* control by siderophore-producing bacteria on roots of wheat. USDA-ARS, Washington State University, Pullman
- 9:30** 133. D. M. Weller and A. D. Rovira. Suppression of take-all of wheat in South Australian soils by fluorescent pseudomonads. CSIRO Division of Soils, Glen Osmond, Australia
- 9:45** 134. J. L. Parke, A. D. Rovira and G. D. Bowen. Soil matric potential affects colonization of wheat roots by a pseudomonad suppressive to take-all. CSIRO Division of Soils, Glen Osmond, Australia
- 10:00 Break**
- 10:15** 135. Y. Elad and R. Baker. Influence of biomass, microelements and nutrient levels on activity of siderophore-producing pseudomonads in soil. Colorado State University, Ft. Collins
- 10:30** 136. G. Y. Yuen and M. N. Schroth. Iron competition by *Alcaligenes* sp. reduces *Fusarium* chlamydospore germination. University of California, Berkeley
- 10:45** 137. E. B. Nelson, W.-L. Chao, J. M. Norton and G. E. Harman. Lectin-mediated attachment of the biocontrol agent *Enterobacter cloacae* to fungal hyphae: I. Role in fungal growth inhibition. New York State Agricultural Experiment Station, Geneva
- 11:00** 138. E. B. Nelson, G. T. Nash and G. E. Harman. Lectin-mediated attachment of the biocontrol agent *Enterobacter cloacae* to fungal hyphae: II. Role in the biological control of *Pythium* seed rot. New York State Agricultural Experiment Station, Geneva
- 11:15** 139. T. E. Dolan and M. D. Coffey. Biocontrol of *Phytophthora cinnamomi* on *Persea indica* and *P. americana* by prior inoculation with *Phytophthora parasitica*. University of California, Riverside
- 11:30** 140. Y. Cohen and M. D. Coffey. Protecting *Persea indica* seedlings from *Phytophthora citricola* by a prior inoculation with three other *Phytophthora* species. University of California, Riverside
- 11:45** 141. M. B. Al-Heeti and J. B. Sinclair. Inhibition of *Phytophthora megasperma* f. sp. *glycinea* zoosporegenesis by *Gliocladium roseum*, *Trichoderma harzianum* and *Trichothecium roseum* culture filtrates. University of Illinois, Urbana

**Session 15. Virology. Physical Science 105**

- 8:15 **142. P. Koo** and M. AbouHaidar. Cloning and nucleotide sequence of the 3' OH end of clover yellow mosaic virus RNA. University of Toronto, Ontario
- 8:30 **143. M. G. AbouHaidar** and V. Ramassar. Cloning and nucleotide sequencing of the 5' and 3' ends of papaya mosaic virus RNA. University of Toronto, Ontario
- 8:45 **144. S. Simpson, M. AbouHaidar** and Y. C. Paliwal. Nucleotide sequence and cloning of lucerne transient streak virus (LTSV). University of Toronto, Ontario
- 9:00 **145. T. J. Morris** and J. C. Carrington. A carnation mottle virus group: a comparison of some tentative members. University of California, Berkeley
- 9:15 **146. B. I. Hillman** and T. J. Morris. Characterization of low molecular weight RNA species of members of the tombusvirus group. University of California, Berkeley
- 9:30 **147. R. M. Hanau, J. Stanley** and A. O. Jackson. The 3' terminal sequences of barley stripe mosaic virus RNAs. Purdue University, West Lafayette, IN
- 9:45 **148. C. W. Collmer** and J. M. Kaper. Terminal sequences of the double-stranded RNAs of cucumber mosaic virus and its satellite RNA. USDA Plant Virology Laboratory, Beltsville, MD
- 10:00 **Break**
- 10:15 **149. R. L. Jordan, J. Aebig** and H.-T. Hsu. Epitope specificity of seven monoclonal antibodies to apple mosaic virus (APMV) and *Prunus* necrotic ringspot virus (PNRV). USDA-ARS, Beltsville, MD, and American Type Culture Collection, Rockville, MD
- 10:30 **150. J. H. Tremaine** and W. P. Ronald. The effect of pH on the dissociation of precipitates of southern bean mosaic virus with three monoclonal antibodies. Agriculture Canada Research Station, Vancouver, British Columbia
- 10:45 **151. R. G. Tuskan** and S. A. Tolin. Properties of grape and soybean isolates of tomato ringspot virus. Virginia Polytechnic Institute & State University, Blacksburg
- 11:00 **152. K. M. Ready** and J. B. Bancroft. Polymerization of potexvirus proteins. The University of Western Ontario, London
- 11:15 **153. R. E. Gingery** and R. Louie. A satellite-like virus particle associated with maize white line mosaic virus. Ohio Agricultural Research and Development Center, Wooster
- 11:30 **154. A. D. Hewings, V. D. Damsteegt, S. A. Tolin** and P. L. Hunst. Purification of two strains of soybean dwarf virus. USDA-ARS Plant Disease Research Laboratory, Frederick, MD
- 11:45 **155. P. L. Hunst, A. D. Hewings, V. D. Damsteegt** and S. A. Tolin. Double-stranded RNA isolated from soybean plants infected with strains of soybean dwarf virus. USDA-ARS Plant Disease Research Laboratory, Frederick, MD

**Session 16. Disease Losses. Physical Science 101**

- 8:15 **156. C. L. Kohls** and J. A. Percich. Epidemiology and yield losses associated with fungal brown spot of wild rice. University of Minnesota, St. Paul
- 8:30 **157. P. G. Falloon, L. M. Falloon, B. L. Benson** and R. G. Grogan. Effect of *Phytophthora megasperma* var. *sojae* on yield of asparagus. University of California, Davis
- 8:45 **158. I. S. Hoang, P. S. Teng** and A. P. Roelfs. Effects of stem rust epidemics on yield of mixtures of wheat cultivars. University of Minnesota, St. Paul
- 9:00 **159. P. S. Teng** and H. L. Bissonnette. Effects of early blight on potato yield. University of Minnesota, St. Paul
- 9:15 **160. R. A. A. Morrall, J. Dueck** and P. R. Verma. Yield losses due to Sclerotinia stem rot in western Canadian rapeseed. University of Saskatchewan and Agriculture Canada

Research Station, Saskatoon

- 9:30 **161. P. F. Bertrand** and T. R. Gottwald. The effect of bunch disease on yield and quality of pecans. The University of Georgia, Tifton, and USDA Southeastern Fruit and Tree Nut Research Laboratory, Byron, GA
- 9:45 **162. L. V. Madden, J. K. Knoke** and R. Louie. Experimental design for determination of yield losses due to maize dwarf mosaic virus. Ohio Agricultural Research and Development Center, Wooster
- 10:00 **Break**

**Session 17. Mycorrhizae. Physical Science 101**

- 10:15 **163. N. Shishkoff.** The structure of the hypodermis and its influence on mycorrhizal and plant pathogenic fungi. Cornell University, Ithaca, NY
- 10:30 **164. N. C. Schenck, C. R. Johnson** and M. Niederhofer. Incidence of vesicular-arbuscular (VA) mycorrhizal fungi in Florida native plants. University of Florida, Gainesville
- 10:45 **165. G. S. Smith, R. W. Roncadori** and R. S. Hussey. Interaction of *Glomus intraradices*, *Meloidogyne incognita* and phosphorus on cotton. University of Georgia, Athens
- 11:00 **166. S. Jabaji-Hare** and B. Kendrick. Effect of fosetyl-Al (Aliette) on vesicular-arbuscular mycorrhizal (VAM) colonization in *Allium porrum*. University of Waterloo, Ontario
- 11:15 **167. R. M. Davis, M. H. Edriss** and D. W. Burger. Influence of mycorrhizal fungi on cytokinin production in sour orange. Texas A&I University Citrus Center, Weslaco

**Session 18. Fungicides and Plant Disease Control. Physical Science 113**

- 8:15 **168. M. S. Sharom** and L. V. Edgington. Negative cross resistance of benomyl and diphenylamine with *Botrytis cinerea* and *Gerlachia nivalis*. University of Guelph, Ontario
- 8:30 **169. J. Northover** and J. A. Matteoni. Iprodione-resistant *Botrytis cinerea* found in Ontario vineyards and greenhouses. Agriculture Canada, Vineland Station, Ontario
- 8:45 **170. A. R. Filonow.** Tolerance of *Rhizoctonia solani* to pentachloronitrobenzene and sensitivity of *Pythium myriotylum* to metalaxyl and their pathogenicity to peanut. Oklahoma State University, Stillwater
- 9:00 **171. P. L. Sanders, W. J. Houser** and P. J. Parish. Effect of single, alternating, and combination fungicide treatments on proportion of metalaxyl resistant:metalaxyl sensitive individuals in populations of *Pythium aphanidermatum*. The Pennsylvania State University, University Park
- 9:15 **172. H. D. Shew.** The effects of metalaxyl exposure on the sensitivity of *Phytophthora parasitica* var. *nicotianae* isolates to metalaxyl. North Carolina State University, Raleigh
- 9:30 **173. A. H. C. Van Bruggen** and P. A. Arneson. Resistance in *Rhizoctonia solani* to tolclofos-methyl. Cornell University, Ithaca, NY
- 9:45 **174. L. A. Bower** and M. D. Coffey. Development of resistance to phosphorus acid in *Phytophthora capsici*. University of California, Riverside
- 10:00 **Break**
- 10:15 **175. G. R. Watson, C. C. Abbott** and T. R. Young. Sensitivity monitoring of *Erysiphe graminis* f. sp. *tritici* to propiconazole. CIBA-GEIGY Corporation, Vero Beach, FL
- 10:30 **176. C. C. Abbott, G. R. Watson** and T. R. Young. Sensitivity monitoring of *Peronospora tabacina* to metalaxyl. CIBA-GEIGY Corporation, Vero Beach, FL
- 10:45 **177. L. J. Herr.** Preventive and curative fungicide treatments for control of tobacco blue mold. Ohio Agricultural Research & Development Center, Wooster

- 11:00 **178. R. A. Spotts.** Effect of sterol-inhibiting fungicides on apple mildew control, yield, and fruit growth factors. Mid-Columbia Experiment Station, Hood River, OR
- 11:15 **179. Y. Samoucha** and Y. Cohen. Synergy between metalaxyl and mancozeb in controlling late blight on potatoes. Bar-Ilan University, Israel
- 11:30 **180. H. W. Platt.** Late blight development and control with disease prevention fungicides. Agriculture Canada Research Station, Charlottetown, Prince Edward Island

**Session 19. Turf Diseases. Chemistry-Microbiology 160.**

- 8:15 **181. R. W. Smiley, M. C. Fowler** and R. T. Kane. Characteristics of pathogens causing patch diseases of *Poa pratensis* in New York. Cornell University, Ithaca, NY
- 8:30 **182. R. W. Smiley.** 'Fusarium blight syndrome' re-described as a group of patch diseases caused by *Phialophora graminicola*, *Leptosphaeria korrae*, or related species. Cornell University, Ithaca, NY
- 8:45 **183. G. A. Chastagner, R. L. Goss, J. M. Stanley** and W. Hammer. A new disease of bluegrass turf and its control in the Pacific Northwest. West Washington Research and Extension Center, Puyallup
- 9:00 **184. P. M. Endo, H. D. Ohr** and E. M. Krausman. The cause of the spring dead spot disease (SDS) of *Cynodon dactylon* (L.) Pers. in California. University of California, Riverside
- 9:15 **185. N. Jackson.** A new cool season patch disease of Kentucky bluegrass turf in the northeastern United States. University of Rhode Island, Kingston
- 9:30 **186. H. T. Wilkinson.** Yellow ring disease of *Poa pratensis*. University of Illinois, Urbana
- 9:45 **187. H. T. Wilkinson** and R. Avenius. The selection of bacteria antagonistic to *Pythium* spp. pathogenic to turfgrass. University of Illinois, Urbana
- 10:00 **Break**
- 10:15 **188. F. M. Ashbaugh** and P. O. Larsen. Comparison of fungicides for control of Pythium blight on *Festuca rubra*. The Ohio State University, Columbus
- 10:30 **189. D. C. Saha, M. A. Jackson** and R. L. Tate, III. A rapid staining method for detection of endophytic fungi in turf grasses. New Jersey Agricultural Experiment Station, New Brunswick
- 10:45 **190. P. M. Halisky** and C. R. Funk. Prevalence of *Lolium* endophyte in seed lots and plants of Manhattan perennial ryegrass. New Jersey Agricultural Experiment Station, New Brunswick
- 11:00 **191. G. Adams** and R. G. Grogan. A new disease of turf grass in California caused by a unique *Rhizoctonia*. University of California, Davis
- 11:15 **191A. D. L. Roberts** and J. M. Vargas, Jr. Antigenic relatedness of the North American Toronto bentgrass bacterium to *Xanthomonas campestris* pv. *graminis* from Europe. Michigan State University, East Lansing

**8:15 am-9:00 pm Contributed Poster Sessions 5-10.** (Authors will be present at posters from 1:00-2:00 pm and 5:00-6:00 pm)

- Session 5P. **Soil Microbiology and Root Diseases.** Posters P62-P76. University Centre 126
- Session 6P. **Mycorrhizae.** Posters P77-P79. University Centre 126
- Session 7P. **Field Crop Diseases.** Posters P80-P92. University Centre 126
- Session 8P. **Forest Pathology.** Posters P93-P107. University Centre 130
- Session 9P. **Epidemiology.** Posters P108-P115. University Centre 130
- Session 10P. **Disease Losses.** Posters P116-P123. University Centre 130



## Tuesday Afternoon Sessions

- 1:15-3:00 Discussion: New, Accurate Techniques for Plant Disease Detection.** R. E. Hite, moderator. Botany-Genetics-Zoology 100  
Detection and characterization of maize diseases. H. L. Warren, Purdue University, West Lafayette, IN  
Gas chromatographic techniques for identifying bacteria. M. Sasser, University of Delaware, Newark  
Diagnosis of abiotic stress with scanning electron microscopy and energy dispersive x-ray analysis. C. R. Krause, USDA Nursery Crops Res. Lab., Delaware, OH  
Dot-blot procedures for detecting plant viruses. C. A. Powell, Pennsylvania Dept. of Agriculture, Harrisburg
- 1:15-3:00 Workshop: Gel Electrophoresis.** L. C. Lane presiding.
- 1:15-5:00 Colloquium: Postharvest Decay and Mycotoxin Contamination of Grain, Seed and Nuts: Implications in International Trade.** Philip Martin presiding. Chemistry-Microbiology 200  
Regulatory problems associated with mycotoxins. P. Martin, Agriculture Canada, Ottawa  
Detoxification and use of mycotoxin contaminated feed. W. M. Hagler, North Carolina State Univ., Raleigh  
Absorption, translocation and metabolism of cotoxins by plants. G. A. Bean, Univ. of Maryland, College Park  
**Break**  
Deterioration of feed and food products during international shipping. Economic implications of postharvest decay.
- 1:15-5:00 Contributed Paper Sessions 20-26**
- Session 20. Soil Microbiology & Root Diseases.** University Centre, Clark Hall
- 1:15** 192. *W. H. Ko.* Sexual reproduction of *Phytophthora cactorum* in a chemically defined medium containing phospholipids but no sterols. University of Hawaii, Hilo
- 1:30** 193. *J. T. English* and D. J. Mitchell. Patterns of root growth and inoculum production in the *Catharanthus roseus-Phytophthora parasitica* pathosystem. University of Florida, Gainesville
- 1:45** 194. *B. D. Nelson.* The effect of plant stage and root growth on incidence of Sclerotinia wilt of sunflower. North Dakota State University, Fargo
- 2:00** 195. *H. C. Huang.* Factors affecting myceliogenic germination of sclerotia of *Sclerotinia sclerotiorum*. Agriculture Canada Research Station, Lethbridge, Alberta
- 2:15** 196. *Z. K. Punja, V. L. Smith* and S. F. Jenkins. Relationship of disease incidence to inoculum density in *Sclerotium rolfsii* root rot of processing carrots. North Carolina State University, Raleigh
- 2:30** 197. *G. S. Abawi* and A. C. Cobb. Relating soil densities of *Fusarium*, *Pythium*, *Rhizoctonia*, and *Thielaviopsis* to disease severity and yield of snap beans in field microplots. New York State Agricultural Experiment Station, Geneva
- 2:45** 198. *R. S. Utkhede.* Enhancement of crown rot of apple trees with nitrogen fertilizers and composts. Agriculture Canada Research Station, Summerland, British Columbia
- 3:00 Break**
- 3:15** 199. *J. M. Norton* and *G. E. Harman.* Responses of soil inhabiting microorganisms to volatile exudates from germinating pea seeds. New York Agricultural Experiment Station, Geneva
- 3:30** 200. *S. D. Lyda.* Vertical and horizontal distribution of Phymato-
- trichum sclerotia in Texas soils. Texas A&M University, College Station
- 3:45** 201. *D. R. Sumner* and *J. E. Hook.* Irrigation management and corn stalk rot. University of Georgia, Coastal Plain Station, Tifton
- 4:00** 202. *R. C. Ploetz* and *D. J. Mitchell.* Influence of soil water potential on the survival and saprophytic activity of *Rhizoctonia solani* AG 4 in natural soil. University of Florida, Gainesville
- 4:15** 203. *J. R. Sidebottom* and *H. D. Shew.* The effects of soil matric potential and soil texture on sporangial formation by *Phytophthora parasitica* var. *nicotianae*. North Carolina State University, Raleigh
- 4:30** 204. *S. E. Gold* and *M. E. Stanghellini.* The effect of temperature on *Pythium* root rot of hydroponically-grown spinach. University of Arizona, Tucson
- 4:45** 205. *C. B. Walker* and *J. Altman.* The influence of trifluralin on the bean root rot pathogen, *Fusarium solani* f. sp. *phaseoli*. Colorado State University, Ft. Collins
- Session 21. Fungus Diseases.** University Centre 103
- 1:15** 206. *M. Ayinla* and *W. M. Powell.* The effect of conservation tillage and rotation with grain sorghum on soybean diseases. University of Georgia, Athens
- 1:30** 207. *G. Morgan-Jones* and *P. A. Backman.* Characterization of southeastern biotypes of *Diaporthe phaseolorum* var. *caulivora*, the causal organism of soybean stem canker. Auburn University, AL
- 1:45** 208. *D. V. Phillips.* A selective medium for *Diaporthe phaseolorum* var. *caulivora*. Georgia Experiment Station, Experiment
- 2:00** 209. *S. C. Kramer* and *Z. A. Patrick.* Infection of tobacco callus tissue cultures by *Peronospora tabacina*. University of Toronto, Ontario
- 2:15** 210. *A. M. Svircev, W. E. McKeen* and *J. W. Berry.* Fungistatic effect of carbon dioxide on conidia of *Peronospora hyoscyami* f. sp. *tabacina*. University of Western Ontario, London
- 2:30** 211. *M. Reuveni, W. C. Nesmith* and *M. R. Siegel.* Virulence of *Peronospora tabacina* during serial passage through *Nicotiana tabacum* and *N. repanda*. University of Kentucky, Lexington
- 2:45** 212. *M. Reuveni, W. C. Nesmith* and *M. R. Siegel.* Symptomology and sporangia production of *Peronospora tabacina* of *Nicotiana tabacum* and *N. repanda*. University of Kentucky, Lexington
- 3:00 Break**
- 3:15** 213. *T. B. Brenneman, P. M. Phipps* and *R. J. Stipes.* A rapid technique to assess pathogenicity of *Sclerotinia minor* on peanut. Virginia Polytechnic Institute & State University, Blacksburg
- 3:30** 214. *B. B. Shew* and *M. K. Beute.* Effects of leaf misting and spore concentration on late leafspot development on detached peanut leaves. North Carolina State University, Raleigh
- 3:45** 215. *G. A. Kuter* and *M. A. Ellis.* Fungi that cause cane cankers on thornless blackberry in Ohio. Ohio Agricultural Research and Development Center, Wooster
- 4:00** 216. *A. J. Latham, W. A. Dozier, Jr.* and *J. W. Knowles.* Tolerance of four apple rootstocks to *Xylaria* root rot. Auburn University, AL
- 4:15** 217. *G. S. Bender* and *J. A. Menge.* Dry rot disease of citrus—Predisposing roots to infection by *Fusarium solani*. University of California, Riverside
- 4:30** 218. *J. E. Yuen* and *J. W. Lorbeer.* Natural and experimental production of oospores of *Bremia lactucae* in New York. Cornell University, Ithaca, NY
- 4:45** 219. *J. J. Ooka, J. Y. Uchida* and *B. T. Yamamoto.* *Phytophthora katusurae* fruit rot of coconut in Hawaii. University of Hawaii, Honolulu, and Kauai Community College, Lihue, HI
- Session 22. Physiology of Diseased Plants & Host-Parasite Interactions.** Physical Science 105
- 1:15** 220. *C. H. Wu, H. L. Warren* and *C. Y. Tsai.* Early events of gene expression in compatible maize-Helminthosporium spp. interactions: Polysome shift and specific translational alteration. Purdue University, West Lafayette, IN
- 1:30** 221. *C. Allen, D. P. Roberts, M. Ford, V. K. Stromberg, P. M. Berman, G. H. Lacy* and *M. S. Mount.* Lack of pathogenicity by *Escherichia coli* containing plasmids with genes mediating pectolytic enzyme production cloned from *Erwinia carotovora* subsp. *carotovora* strain EC14. Virginia Polytechnic Institute and State University, Blacksburg
- 1:45** 222. *C. H. Wu, H. L. Warren* and *C. Y. Tsai.* Translational regulation by ribosomal proteins in compatible maize-Helminthosporium spp. interactions. Purdue University, West Lafayette, IN
- 2:00** 223. *E. A. Traylor* and *L. D. Dunkle.* Heat protection of sorghum against effects of Periconia toxin. Purdue University, West Lafayette, IN
- 2:15** 224. *O. C. H. Kwok, R. E. Moore* and *S. S. Patil.* Revised structure of phaseolotoxin. University of Hawaii, Honolulu
- 2:30** 225. *D. W. Holden* and *R. Rohringer.* Glycoproteins in intercellular washing fluid obtained from healthy and rust infected leaves of wheat and barley. Agriculture Canada Research Station, Winnipeg, Manitoba
- 2:45** 226. *J. H. Graham, J. O. Whiteside* and *C. R. Barmore.* Ethylene production by *Mycosphaerella citri* and greasy spot-infected citrus leaves. University of Florida Citrus Research and Education Center, Lake Alfred, FL
- 3:00 Break**
- 3:15** 227. *R. E. Schneider.* Effect of corn root infection by *Fusarium moniliforme* on hydraulic resistance. Louisiana State University, Baton Rouge
- 3:30** 228. *P. J. Cotty* and *I. J. Misaghi.* Wilt-inducing factors from cotton infected with *Phymatotrichum omnivorum* (Shear) Dugger. University of Arizona, Tucson
- 3:45** 229. *G. S. Johal* and *J. E. Rahe.* Role of predisposition of beans to fungal attack in the herbicidal action of glyphosate. Simon Fraser University, Burnaby, British Columbia
- 4:00** 230. *R. G. Birch* and *S. S. Patil.* Production by *Xanthomonas albilineans* of an antibiotic inhibiting DNA synthesis in *Escherichia coli*. University of Hawaii, Honolulu
- 4:15** 231. *V. N. Armentrout* and *A. J. Downer.* Development of infection cushions of *Rhizoctonia solani* on artificial surfaces. California State Polytechnic University, Pomona
- 4:30** 232. *V. Chandrasekharan* and *M. V. B. Kumar.* Changes in asparagine/aspartic acid ratios in the leaves of the groundnut (peanut) in relation to infection by groundnut chlorotic virus. S.G.S. Arts College, Tirupati, India
- 4:45** 233. *T. Haragopal.* Changes in concentration of ribonucleic acid in the leaves of *Arachis hypogaea* L. under groundnut chlorotic spot virus infection. S. V. Jr. College, Tirupati, India
- 5:00** 234. *T. Haragopal.* Specific metabolic orientation of the groundnut chlorotic spot virus towards a translocated nitrogenous compound of the host, *Arachis hypogaea* L. S. V. Jr. College, Tirupati, India
- Session 23. Disease Resistance.** Physical Science 101
- 1:15** 235. *J. C. deFaria.* Identification of common bean germplasm with low bean common mosaic virus seed transmissibility. National Rice and Beans Research Center, Goiânia, Goiás, Brazil
- 1:30** 236. *W. L. Pedersen.* Field evaluations of maize inbreds and population

- selections for resistance to *Exserohilum turcicum*, race 2. University of Illinois, Urbana
- 1:45 237. S. Leath and W. L. Pedersen. Evaluation of the residual effects of the *Ht1* gene with respect to *Exserohilum turcicum* race 2 in maize inbreds and hybrids. University of Illinois, Urbana
- 2:00 238. E. H. Gendloff, E. C. Rossman and L. P. Hart. Quantitative characteristics of resistance to *Gibberella zeae* ear rot in selected field corn crosses. Michigan State University, East Lansing
- 2:15 239. M. J. Havey and D. P. Maxwell. Analytic breeding of alfalfa for resistance to *Phytophthora* root rot. University of Wisconsin, Madison
- 2:30 240. C. L. Hariman, T. R. Knous and T. J. McCoy. Field testing and preliminary progeny evaluation of alfalfa regeneration from cell lines resistant to the toxins produced by *Fusarium oxysporum* f. sp. *medicaginis*. University of Nevada, Reno
- 2:45 241. L. J. Ashworth, Jr. The potential of a mass screening technique for selection of pistachio rootstock material resistant to *Verticillium dahliae*. University of California, Berkeley
- 3:00 Break
- 3:15 242. L. S. Bird, K. M. El-Zik, P. M. Thaxton, M. Howell and R. G. Percy. Maintaining immunity and high resistance in cotton to races of *Xanthomonas campestris* pv. *malvacearum*. Texas Agricultural Experiment Station, College Station
- 3:30 243. L. S. Bird, K. M. El-Zik, P. M. Thaxton, R. G. Percy and G. R. Lazo. Resistance to *Phymatotrichum omnivorum* in cotton. Texas Agricultural Experiment Station, College Station
- 3:45 244. T. E. Dolan and M. D. Coffey. Assessing resistance of four avocado rootstocks to *Phytophthora cinnamomi* using a laboratory screening technique. University of California, Riverside
- 4:00 245. M. K. Bhalla and C. C. Bernier. Evaluation of the components of rate-reducing resistance in *Vicia faba* to *Uromyces viciae-fabae*. University of Manitoba, Winnipeg
- 4:15 246. R. L. Clark and C. C. Block. Belly rot resistance in *Cucumis sativus*. Regional Plant Introduction Station, Ames, IA
- 4:30 247. B. L. Keeling. Measurement of relative resistance of soybean cultivars to stem canker. USDA-ARS Soybean Production Research, Stoneville, MS
- 4:45 248. R. D. Berger and K. Hinson. Resistance in soybeans to *Diaporthe phaseolorum* var. *sojae*. University of Florida, Gainesville
- 5:00 249. P. E. Thomas and S. Hassan. Complete tolerance and immunity to tomato big bud disease in a *Lycopersicon peruvianum* line and its tomato hybrid progeny. Irrigation Agricultural Research & Extension Center, Prosser, WA
- 5:15 250. J. M. Krupinsky and J. D. Berdahl. Reaction of intermediate wheatgrass to leaf spot diseases. USDA-ARS Northern Great Plains Research Laboratory, Mandan, ND
- Minnesota, St. Paul
- 2:00 254. H. J. Dubin and R. W. Stubbs. *Puccinia striiformis* f. sp. *hordei* (PSH): cause of barley yellow rust epidemic in South America. CIMMYT, Quito, Ecuador
- 2:15 255. L. Kinkel and J. H. Andrews. Production of sterile leaf surfaces for phylloplane colonization studies. University of Wisconsin, Madison
- 2:30 256. R. Madariaga and A. L. Scharen. Interactions of *Mycosphaerella graminicola* and *Puccinia striiformis* on wheat. Montana State University, Bozeman
- 2:45 257. M. C. Klapproth and R. A. Schmidt. Inoculum production of *Cronartium quercuum* f. sp. *fusiforme* on oak. University of Florida, Gainesville
- 3:00 Break
- 3:15 258. J. C. Tu. Biology of *Alternaria alternata*, the causal fungus of black pod disease of white beans in southwestern Ontario. Agriculture Canada Research Station, Harrow, Ontario
- 3:30 259. J. W. Pscheidt and W. R. Stevenson. Seasonal dispersal of *Alternaria solani* spores over Russet Burbank potatoes in Wisconsin. University of Wisconsin, Madison
- 3:45 260. J. C. Correll and V. J. Elliott. Disease progress of powdery mildew (*Leveillula taurica*) on tomatoes in California. University of California, Berkeley
- 4:00 261. M. D. Ricker and M. K. Beute. Components of partial resistance of peanut to early leafspot. North Carolina State University, Raleigh
- 4:15 262. A. C. Kushalappa, T. Hernandez, G. M. Chaves, C. A. Melles and J. M. Miranda. Coffee rust: timing and frequency of fungicide application based on NSRMP prediction model. Universidade Federal de Vicosa, Vicosa, Minas Gerais, Brasil
- 4:30 263. O. H. Calvert, A. S. Foudin, G. Fry and G. F. Krause. Culture method for large scale production of characteristic conidia of *Cochliobolus carbonus* and *C. heterostrophus*. University of Missouri, Columbia
- 4:45 264. J. Burtleigh and M. Loubane. Plot size effects on disease progress and yield of wheat infected by *Mycosphaerella graminicola* and barley infected by *Pyrenophora teres*. University of Minnesota, St. Paul
- Session 25. Ornamental Crop Diseases. Chemistry-Microbiology 160
- 1:15 265. A. W. Engelhard and J. B. Jones. An apparent synergistic effect on static (*Limonium sinuatum*) inoculated with a nonpathogenic *Colletotrichum gloeosporioides* and a pathogenic *Pseudomonas caryophylli*. University of Florida Gulf Coast Research & Education Center, Bradenton
- 1:30 266. G. A. Chastagner. Effect of combined or alternating use of fungicides on resistance and control of fire on tulips. Washington State University, Puyallup
- 1:45 267. G. E. Holcomb and M. C. Henk. Association of the green alga *Cephaleuros* with the black leafspot of *Magnolia grandiflora*. Louisiana State University, Baton Rouge
- 2:00 268. H. L. Morton. Fungicide activity and cultivar reaction for Phomopsis canker of Russian-olive. University of Michigan, Ann Arbor
- 2:15 269. S. H. Kim, W. A. Woodward and S. K. Faul. Effects of oxytetracycline on geranium fasciation. Pennsylvania Department of Agriculture, Harrisburg
- 2:30 270. B. C. Raju and C. R. Semer, IV. Biological and chemical control of Fusarium wilt of chrysanthemum. Yoder Brothers, Inc., Alva, FL
- 2:45 271. P. A. Bachi, J. R. Hartman and R. E. McNiel. The association of *Thielaviopsis basicola* with decline of blue holly in Kentucky. University of Kentucky, Lexington
- 3:00 Break
- 3:15 272. R. L. Wick and R. C. Lambe. A first report of *Cercospora* blight on *Cryptomeria japonica* in the United States. Virginia Polytechnic Institute & State University, Blacksburg
- 3:30 273. G. S. Cobb, A. K. Hagan, C. H. Gilliam and J. M. Mullen. Triforine, a new fungicide for leaf spot control on *Photinia fraseri*. Auburn University, AL
- 3:45 274. A. B. A. M. Baudoin. Effect of environmental factors and leaf age on infection of *Photinia fraseri* by *Entomosporium maculatum*. Virginia Polytechnic Institute & State University, Blacksburg
- 4:00 275. A. R. Chase and J. B. Jones. Preinoculation factors affecting severity of *Pseudomonas* leaf spot of *Schefflera arboricola*. University of Florida Agricultural Research Center, Apopka
- 4:15 276. J. E. Watkins, J. A. Houfek and D. H. Steinegger. Evaluation of rose cultivars for reaction to black spot and powdery mildew. University of Nebraska, Lincoln
- Session 26. Forest Pathology. Botany-Genetics-Zoology 200
- 1:15 277. S. B. Silverborg, J. D. Castello and P. D. Manion. Ash dieback disease development in New York state: 1962-1980. State University of New York, Syracuse
- 1:30 278. T. C. Harrington, D. M. Rizzo and P. J. Marchand. Wind, rocks, root disease and mortality of subalpine red spruce and balsam fir. University of New Hampshire, Durham
- 1:45 279. D. R. Bergdahl and D. W. French. Association of wood decay fungi with decline and mortality of apple trees in Minnesota. University of Minnesota, St. Paul
- 2:00 280. L. Otjen. Decay of birch by *Hirschioporus pargamensis* (Fr.) Bond. et Sing. (*Polyporus pargamensis* Fr.): A comparison of laboratory and field decay. University of Minnesota, St. Paul
- 2:15 281. K. T. Smith and W. C. Shortle. Decay of altered wood related to decay of sapwood by a new, modified agar-block test. University of New Hampshire, Durham
- 2:30 282. C. Leben. Relation of wound occlusion to discolored wood columns in red maple. Ohio Agricultural Research & Development Center, Wooster
- 2:45 283. D. Lin, M. T. Dumas and M. Hubbes. Armillaria isolates, their characterization and their host specificity. University of Toronto, Ontario
- 3:00 Break
- 3:15 284. K. I. Mallett and Y. Hiratusuka. Identity of the *Armillaria mellea* complex in Alberta. University of Alberta, Edmonton
- 3:30 285. G. R. Stanosz and R. F. Patton. Aspen stump colonization, rhizomorph production, and sucker infection by *Armillaria mellea*. University of Wisconsin, Madison
- 3:45 286. F. W. Cobb, Jr. and D. Adams. Infection of outplanted Douglas fir seedlings by *Verticilladiella wagneri*. University of California, Berkeley
- 4:00 287. F. A. Baker and D. W. French. Economic effectiveness of operational therapeutic pruning for control of Dutch elm disease. University of Minnesota, St. Paul
- 4:15 288. D. F. Plourde, F. W. Holmes and W. E. Phair. A modified apparatus for trunk or root flare injection of elms. University of Massachusetts, Amherst
- 4:30 289. M. M. Chen, E. B. Smalley and R. P. Guries. Disease resistance screening of selected elm species and cultivars. University of Wisconsin, Madison
- 4:45 290. D. N. Appel and C. F. Drees. Distribution of *Ceratocystis fagacearum*



mating types in Texas. Texas Agricultural Experiment Station, College Station

**3:00-3:15 Break**

**3:15-5:00 Discussion: The Cutting Edge of Seed Treatment, 1984.** H. V. Morton presiding, R. L. Gabrielson assisting. Botany-Genetics-Zoology 100  
Biological seed treatments—where are we? D. S. Kennedy, Abbott Labs., North Chicago, IL  
New chemical seed treatments. J. R. James, CIBA-GEIGY Corp., Greensboro, NC  
Cloning and pelletizing seed embryos. Z. Wochak, Plant Genetics  
Novel seed coatings and equipment. K. Rushing, Gustafson Inc., Des Moines, IA

## Wednesday, August 15

### Meetings and Special Events

**6:30-8:00 am USDA-ARS Breakfast.** Lennox-Addington Cafeteria  
**8:15 am-5:00 pm Teaching Slide Salon.** U. Centre 004  
Diseases caused by fastidious prokaryotic plant pathogens. M. J. Davis, ed., Univ. of Florida, Gainesville  
Biological control of weeds with plant pathogens. C. G. Van Dyke, ed., North Carolina State University, Raleigh  
Biological control of plant diseases. H. W. Starr, Jr., USDA, Oxford, NC  
*Plant Disease* (1983) slide set. L. E. Trevathan, ed., Mississippi State Univ., Mississippi State  
**Noon-1:30 pm North American Pectolytic Erwinia Working Group Luncheon.** U. Centre 441  
**1:00-2:00 pm Authors present at Posters P124-P184.** U. Centre 126 and 130  
**2:00-3:00 pm Joint APS/CPS Session:** CPS President Claude Aubé presiding. University Centre, Clark Hall  
**Introduction:** C. Aubé  
**Address:** Biological Control of Plant Pathogens: Theory and Practice. R. J. Cook, APS president  
**Concluding Remarks:** W. R. Jarvis  
**3:00-5:00 pm CPS Business Meeting:** President Claude Aubé presiding. University Centre 103  
**3:00-5:00 pm APS Business Meeting:** President R. J. Cook presiding. All members welcome. University Centre, Clark Hall (**Council members will remain near front of hall after the meeting to answer questions.**)  
**5:00-6:00 pm APS Press Editorial Board (if approved by membership).** G. N. Agrios presiding. U. Centre 335  
**6:00-11:00 pm APS Extension-Industry Social**  
**8:30-10:00 pm Graduate Students Social.** Lampton Hall, Fireplace Lounge

### Wednesday Morning Sessions

**8:15-10:00 Discussion: On Teaching Plant Disease Control.** Blanche C. Haning, moderator. Botany-Genetics-Zoology 100  
Introduction. T. E. Stasz, Univ. of Hawaii, Honolulu  
Undergraduate instruction. T. B. Sutton, North Carolina State Univ., Raleigh  
Graduate instruction. D. A. Rouse, Univ. of Wisconsin, Madison  
**8:15-10:00 Discussion: Diseases of Christmas Trees.** H. L. Morton presiding. Botany-Genetics-Zoology 200.  
Air pollution effects on conifer production in Ontario. R. Pierson, Ontario Ministry of Environment, Toronto  
Pitch canker of Virginia pine in Christmas tree plantations. L. D. Dwinell, U.S. Forest Service, Athens, GA  
Are microbiological ice-nucleating agents involved in frost injury to conifers? S. E. Lindow, Univ. of

California, Berkeley  
Factors affecting postharvest quality of Douglas fir Christmas trees. G. A. Chastagner, W. Washington Res. & Ext. Ctr., Puyallup

**8:15-noon Symposium: Biological Control Strategies in the Phylloplane.** Curt Leben, moderator. C. E. Windels, assisting. Chemistry-Microbiology 200  
Introduction. C. Leben, OARDC, Wooster, OH  
Principles of ecological succession of leaf surface microflora. J. P. Blakeman, Queen's Univ., Belfast, UK  
Strategies for selecting microorganisms from the phylloplane. J. H. Andrews, Univ. of Wisconsin, Madison  
Control of microbial succession by modification of nutrients in the phylloplane. D. I. Rouse, Univ. of Wisconsin, Madison  
**Break**  
Biological control of leaf diseases with bacteria. H. W. Spurr, USDA-ARS, Oxford, NC  
Integrated control and role of antibiotics in biological control of fireblight and frost injury. S. Lindow, Univ. of California, Berkeley  
Genetic manipulation of microorganisms for biological control. J. Lindemann, Advanced Genetic Sci., Inc., Berkeley, CA

**8:15-noon Workshop: Electronic Instrumentation and Techniques in Epidemiology.** M. L. Lacy presiding. Crop Science 116-117  
Electronic leaf wetness sensing and recording. T. Gillespie, Univ. of Guelph, Ontario  
Electronic humidity sensing and recording. G. Thurtell, Univ. of Guelph, Ontario  
**Break**  
Making sense from sensors: Interfacing electronic devices with data systems. R. C. Seem, New York Agr. Exp. Station, Geneva  
Multispectral radiometry with a low-cost portable computer. V. D. Pederson, North Dakota State Univ., Fargo

### 8:15-noon Contributed Paper Sessions 27-32

**Session 27. Bacterial Diseases.** University Centre, Clark Hall  
**8:15** 291. J. L. Norelli, H. S. Aldwinckle and S. V. Beer. Effect of host resistance on the virulence of *Erwinia amylovora*. New York Agricultural Experiment Station, Geneva  
**8:30** 292. T. van der Zwet. In vitro testing of various chemicals for bactericidal activity against *Erwinia amylovora*. USDA-ARS Appalachian Fruit Research Station, Kearneysville, WV  
**8:45** 293. S. S. Hirano and C. D. Upper. Diurnal changes in population sizes and ice nucleation activity of *Pseudomonas syringae* on snap bean (*Phaseolus vulgaris* L.) leaflets. University of Wisconsin, Madison  
**9:00** 294. M. L. Schuster and C. C. Smith. Population trends of epiphytic *Corynebacterium nebraskense* on corn/popcorn genotypes. University of Nebraska, Lincoln  
**9:15** 295. B. C. Kirkpatrick and D. G. Garrott. Detection of X-disease in plant hosts by enzyme-linked immunosorbent assay. University of California, Berkeley  
**9:30** 296. J. E. Dimitman. Citrus bacteria canker disease in Yemen Arab Republic. Werner Gassert Yemen-German Plant Protection, Sanaa, Y.A.R.  
**9:45** 297. J. Fletcher and C. E. Eastman. Translocation and multiplication of *Spiroplasma citri* in turnip. Illinois Natural History Survey, Champaign  
**10:00 Break**  
**10:15** 298. T. Ersek, A. L. Karr and R. N. Goodman. Antibacterial activity of a

protein(s) from tomato. University of Missouri, Columbia

**10:30** 299. S. E. Lindow, J. E. Loper and M. N. Schroth. Lack of evidence for *in situ* fluorescent pigment production by *P. s. syringae* on leaf surfaces. University of California, Berkeley  
**10:45** 300. Y. S. Cody and D. C. Gross. Fluorescent siderophore production and iron acquisition by *Pseudomonas syringae* pv. *syringae*. Washington State University, Pullman  
**11:00** 301. N. Thaveechai and N. W. Schaad. Immunochemical characterization of specific antigenic determinant of membrane protein complex of *Xanthomonas campestris* pv. *campestris*. University of Idaho, Moscow  
**11:15** 302. J. V. Leary and W. Chun. Identification of a phytotoxin produced by *Pseudomonas corrugata*, causal agent of tomato pith necrosis. University of California, Riverside  
**11:30** 303. J. M. Wells and B. C. Raju. Physiological characteristics of the fastidious, gram-negative, xylem-limited bacteria from plants. USDA-ARS, Rutgers University, New Brunswick, NJ  
**11:45** 304. C. E. Morris, S. J. Ventura and D. I. Rouse. A video-microprocessor linked technique for scoring bacterial growth in liquid media. University of Wisconsin, Madison  
**12:00** 305. M. Paschke and N. K. Van Alfen. Extracellular polysaccharide mutants of *Corynebacterium michiganense* pv. *insidiosum*. Utah State University, Logan

### Session 28. Fungicides & Plant Disease Control. University Centre 103

**8:15** 306. M. Szkolnik. Threshold level of fungicides needed for protection of apple against scab. New York Agricultural Experiment Station, Geneva  
**8:30** 307. R. P. Pacumbaba, V. T. Sapra and L. K. Prom. Effect of two commercial fungicides on incidence of *Diaporthe phaseolorum* var. *caulivora* on susceptible soybean cultivars. Alabama A&M University, Normal  
**8:45** 308. J. A. Quinn and T. T. Fujimoto. RH-3866, a new fungicide for control of loculoascomycetes, powdery mildews and basidiomycetes. Rohm and Haas Co., Spring House, PA  
**9:00** 309. F. A. Gray and J. L. Horton. Efficacy of chlorothalonil in controlling spring black stem (*Phoma medicaginis* var. *medicaginis*) and common leaf spot (*Pseudopeziza medicaginis*) of alfalfa. University of Wyoming, Laramie  
**9:15** 310. C. J. Beauchamp and R. A. A. Morrall. Evaluation of foliar-applied fungicides to control ascochyta blight of lentils in Saskatchewan. University of Saskatchewan, Saskatoon  
**9:30** 311. N. L. Cashion. Effect of 14 fungicides on germination of secondary sporidia of the karnal bunt pathogen, *Neovossia indica*. Centro Internacional de Mejoramiento de Maiz y Trigo, Mexico, D.F., Mexico  
**9:45** 312. M. W. Hoy and J. M. Ogawa. Toxicity of Naccoconol 90F to decay-causing fungi of fresh market tomatoes. University of California, Davis  
**10:00 Break**  
**10:15** 313. C. H. Petzoldt. Control of primary apple scab with Rubigan in New York. Lilly Research Laboratories, Greenfield, IN  
**10:30** 314. R. H. Littrell, W. A. Rohde and G. W. Harrison. Comparison of chlorothalonil applied in overhead sprinkler irrigation and conventional boom sprayer for control of peanut leaf spot diseases. USDA-ARS Coastal Plain Station, Tifton, GA  
**10:45** 315. D. J. O'Leary and P. B. Shoemaker. Influence of level in canopy and post-application time on the efficacy of two protectant fungicide treatments for tomato early blight.

- North Carolina State University, Raleigh
- 11:00 316. A. S. Greathead. Control of blackleg disease of broccoli through cultural practices and the application of fungicides. Monterey County Agricultural Extension, Salinas, CA
- 11:15 317. M. E. Miller. Effect of size of lesions caused by *Alternaria porri* on the efficacy of two fungicides to control purple blotch of onions. Texas Agricultural Experiment Station, Weslaco
- 11:30 318. M. Carvajal. Influence of systemic chemical products on the infection caused by tobacco mosaic virus. Instituto de Biología, Mexico, D. F., Mexico
- 11:45 319. R. Macrae, T. Yoshimoto and M. Samejima. Effects of extracts of inner bark of *Cryptomeria japonica* on growth of *Trichoderma harzianum* and *Pleurotus ostreatus*. University of Tokyo, Japan
- Session 29. Vegetable Plant Diseases. Physical Science 105**
- 8:15 320. W. P. Bond and L. L. Black. *Pseudomonas corrugata*-induced pith necrosis occurrence on field-grown tomatoes in Louisiana. Louisiana State University, Baton Rouge
- 8:30 321. D. G. Kontaxis. Control of tomato powdery mildew. University of California Cooperative Extension, Pleasant Hill
- 8:45 322. R. W. Goth and R. E. Webb. Occurrence and distribution of potato viruses M, S, and X in the potato cultivar Atlantic. USDA-ARS Vegetable Laboratory, Beltsville, MD
- 9:00 323. R. T. Awuah and J. W. Lorbeer. Nature of cultural variability in *Fusarium oxysporum* f. sp. *apii*. Cornell University, Ithaca, NY
- 9:15 324. R. T. Awuah, J. W. Lorbeer and L. A. Ellerbrock. Occurrence of *Fusarium* yellows of celery in New York and attempts to control the disease. Cornell University, Ithaca, NY
- 9:30 325. K. L. Everts and H. F. Schwartz. Development of *Fusarium* basal rot and management of pink root of onions. Colorado State University. Ft. Collins
- 9:45 326. P. A. Somerville, D. H. Hall and A. S. Greathead. Dry rot of garlic caused by *Botrytis porri* Buchw. University of California, Davis
- 10:00 **Break**
- 10:15 327. D. J. Hagedorn, R. E. Rand and W. R. Stevenson. Field reaction of *Phaseolus vulgaris* to *Sclerotinia sclerotiorum* in Wisconsin. University of Wisconsin, Madison
- 10:30 328. K. M. Kobriger and D. J. Hagedorn. Multiple regression analysis to determine bean yields in Wisconsin's Central Sands. University of Wisconsin, Madison
- 10:45 329. Y. Cohen, H. Eyal and C. E. Thomas. Stabilizing resistance in *Cucumis melo* against downy and powdery mildews in Israel and the USA. Bar-Ilan University, Ramat-Gan, Israel, and USDA-ARS Vegetable Laboratory, Charleston, SC
- 11:00 330. P. G. Falloon, L. M. Falloon, R. J. Mullen, B. L. Benson and R. G. Grogan. Control of *Phytophthora* rot with metalaxyl in established asparagus. University of California, Davis, and Cooperative Extension, Stockton, CA
- 11:15 331. P. G. Falloon, L. M. Falloon and R. G. Grogan. A survey of California asparagus for asparagus virus I (AV I), asparagus virus II (AV II) and tobacco streak virus (TSV). University of California, Davis
- 11:30 332. S. A. Johnston. Influence of cutting pressure and captafol on asparagus decline. Rutgers Research & Development Center, Bridgeton, NJ
- 11:45 333. R. F. Cerkauskas. Parsnip petiole canker caused by *Phoma complanata*. Agriculture Canada, Vineland Research Station, Ontario
- Session 30. Diseases Caused by Nematodes. Physical Science 101**
- 8:15 334. D. Florini and R. Loria. Effects of field location and rotational history on *Pratylenchus penetrans* populations on potato. Cornell University, Long Island Horticultural Research Laboratory, Riverhead, NY
- 8:30 335. D. A. Komm and T. R. Terrill. Effect of resistant cultivars and a fumigant nematocide on the control of the tobacco cyst nematode (*Globodera tabacum solanacearum*) in flue-cured tobacco. Piedmont Center, Virginia Polytechnic Institute & State University, Blackstone
- 8:45 336. E. B. Minton and J. C. Bailey. Effects of aldicarb and Telone II on cotton production. USDA-ARS Cotton Physiology and Genetics Research Unit, Stoneville, MS
- 9:00 337. A. G. Csinos and A. W. Johnson. Conventional and chemigation methods for control of tobacco black shank and root knot nematodes with metalaxyl and fenamiphos. USDA-ARS Coastal Plain Station, Tifton, GA
- 9:15 338. W. Birchfield, B. G. Harville and M. Lear. Crop sequence and soybean reaction to root-knot nematode. Louisiana State University, Baton Rouge
- 9:30 339. P. F. Bertrand and D. R. Evert. A non-damaging association of root-knot nematode with peach. The University of Georgia, Tifton
- 9:45 340. P. C. Trivedi, K. R. Barker and J. S. Huang. Effects of glycoellin on hatching and motility of *Heterodera glycines*. North Carolina State University, Raleigh
- 10:00 **Break**
- 10:15 341. L. M. Carris, D. A. Glawe and D. I. Edwards. A comparison of fungi associated with *Heterodera glycines* cysts in two Illinois soybean fields during 1983. University of Illinois, Urbana
- 10:30 342. G. Morgan-Jones and R. Rodriguez-Kabana. Species of *Verticillium* and *Paeclomyces* as parasites of cyst and root-knot nematodes. Auburn University, Auburn, AL
- 10:45 343. L. D. Young and E. E. Hartwig. Response of resistant and susceptible soybeans to cropping systems in area infested with cyst nematode. USDA-ARS, Jackson, TN, and USDA-ARS, Stoneville, MS
- 11:00 344. M. P. Ko, P. Y. Huang, J. S. Huang and K. R. Barker. Phytoferritin and starch granules in developing nodules of cyst-nematode-infected soybeans. North Carolina State University, Raleigh
- 11:15 345. T. A. Melton, B. J. Jacobsen and G. R. Noel. Comparison of temperature and cultivar effects on the development of *Heterodera glycines* in snapbean and in soybean. University of Illinois, Urbana
- 11:30 346. E. C. McGawley, K. L. Winchell and G. T. Berggren. Possible involvement of *Hoplolaimus galeatus* in a disease complex of 'Centennial' soybean. Louisiana State University, Baton Rouge
- 11:45 347. C. E. Grant and J. J. Reilly. Comparison of two extraction methods on estimates of seasonal fluctuations of *Globodera tabacum solanacearum*, a tobacco cyst nematode. Virginia Polytechnic Institute & State University, Blacksburg, and Southern Piedmont Center, Blackstone
- Session 31. Fungus Physiology. Physical Science 113**
- 8:15 348. J. Y. Uchida, M. Aragaki and P. S. Yahata. Photosporogenesis of *Cerato-basidium* sp. on agar. University of Hawaii, Honolulu
- 8:30 349. E. O. Bassey and M. O. Garraway. Effect of dilution of media constituents on sporulation and growth of *Bipolaris maydis* race T *in vitro*. The Ohio State University, Columbus
- 8:45 350. L. Epstein, R. C. Staples and H. C. Hoch. Role of cyclic AMP in differentiation of *Uromyces phaseoli* uredospore germlings. Boyce Thompson Institute, Ithaca, NY
- 9:00 351. R. C. Staples, S. Hassouna and H. C. Hoch. Thigmodifferentiation and chemodifferentiation may be different processes in the rust fungi. Boyce Thompson Institute, Ithaca, NY
- 9:15 352. T. R. Gottwald and B. W. Wood. Effect of pecan phylloplane exudates on germination of *Cladosporium caryigenum*. USDA-ARS Southeastern Fruit & Tree Nut Research Laboratory, Byron, GA
- 9:30 353. C. P. Woloshuk, C. L. Soliday and P. E. Kolattukudy. Cutinase induction in germinating spores of *Fusarium solani* f. sp. *psii*. Washington State University, Pullman
- 9:45 354. Z. A. El-Hamalawi and D. C. Erwin. Physical and chemical factors affecting viability and germination of oospores of *Phytophthora megasperma* f. sp. *medicaginis* (PMM). University of California, Riverside
- 10:00 **Break**
- 10:15 355. Z. A. El-Hamalawi and D. C. Erwin. Effects of alfalfa root extract and exudate on oospore germination of *Phytophthora megasperma* f. sp. *medicaginis* (PMM). University of California, Riverside
- 10:30 356. J. L. Smilanick and J. A. Hoffman. Influence of temperature, light and pH on germination of *Tilletia indica* teliospores. USDA-ARS Cereal Crop Research Laboratory, Logan, UT
- 10:45 357. A. W. Day, A. M. Scirev, R. Smith and R. B. Gardiner. Fungal fimbriae and host infection. University of Western Ontario, London
- 11:00 358. J. Kaminskyj and A. W. Day. Effects of antifungal antisera on development of infection structures in the bean rust fungus. University of Western Ontario, London
- 11:15 359. J. Chong and D. E. Harder. Electron-probe x-ray analysis of haustorial neck rings of some rust fungi. Agriculture Canada Research Station, Winnipeg, Manitoba
- 11:30 360. H. Wheeler and D. Smith. Tolerance of the phytoalexin, kievitone, is associated with virulence in *Fusarium solani* f. sp. *phaseoli*. University of Kentucky, Lexington
- 11:45 361. J. A. Sweigard and H. D. VanEtten. Polar lipids from pea reduce the pisatin sensitivity of *Aphanomyces euteiches*. Cornell University, Ithaca, NY
- 12:00 362. T. W. Bischoff and M. O. Garraway. Ammonium production on L-asparagine: its relationship to the pH in cultures of *Bipolaris maydis* race T. The Ohio State University, Columbus
- Session 32. Genetics. Chemistry-Microbiology 160**
- 8:15 363. N. K. Van Alfen, D. R. Hansen, S. Miller and L. Barley. Cell-free transmission of hypovirulent phenotype in *Endothia parasitica*. Utah State University, Logan
- 8:30 364. N. K. Van Alfen, D. R. Hansen and S. Miller. High frequency mutation of a virulence regulatory site in *Endothia parasitica*. Utah State University, Logan
- 8:45 365. S. Takai, T. Iizuka and W. C. Richards. Discovery of plasmids in *Ceratocystis ulmi*. Great Lakes Forest Research Centre, Sault Ste. Marie, Ontario
- 9:00 366. S. A. Sebastian and C. D. Nickell. Identification of a gene for brown stem rot resistance in soybeans. University of Illinois, Urbana
- 9:15 367. D. Z. Skinner and D. L. Stuteville. Additive effects of alfalfa genes conditioning response to *Peronospora trifoliorum*. Kansas State University, Manhattan

- 9:30 368. J. R. Stavelly. Genetic relationships of resistance in two broadly rust resistant beans. USDA-ARS Plant Pathology Laboratory, Beltsville, MD
- 9:45 369. J. L. Ried and A. Collmer. A rapid, sensitive, high resolution activity stain for detecting and differentiating pectic enzymes in gels. University of Maryland, College Park
- 10:00 Break
- 10:15 370. J. I. Stein, T. C. Currier, F. M. Solan and W. D. Gould. Mutants of *Pseudomonas fluorescens* incapable of growth under iron limiting conditions. Allied Corporation, Solvay, NY
- 10:30 371. R. M. Hunger. A defined medium for growth and sporulation of *Pyrenophora tritici-repentis*, causal agent of tan spot of wheat. Oklahoma State University, Stillwater
- 10:45 372. A. G. Mathysse and E. Steele. A description of mutants of *Agrobacterium tumefaciens* which fail to attach to suspension culture cells. University of North Carolina, Chapel Hill
- 11:00 373. C. L. Patterson and R. G. Grogan. Hyphal interactions among single sclerotial isolates of *Sclerotinia minor*. University of California, Davis
- 11:15 374. C. L. Patterson and R. G. Grogan. Evidence for heterothallism in some isolates of *Sclerotinia minor*. University of California, Davis
- 11:30 375. M. B. Dickman and S. S. Patil. Induction and selection of *Colletotrichum gloeosporioides* mutants deficient in production of cutinase. University of Hawaii, Honolulu
- 11:45 376. L. T. Hong and J. V. Groth. Electrophoretic study of isozymes in *Uromyces appendiculatus*. University of Minnesota, St. Paul
- 12:00 377. C. L. Campbell and W. M. Thal. Characterization of *Leptosphaerulina* spp. from alfalfa, clover and peanut. North Carolina State University, Raleigh
- 8:15 am-9:00 pm Contributed Poster Sessions 11-15. (Authors will be present at posters from 1:00-2:00 pm)
- Session 11P. Physiology of Diseased Plants and Host-Parasite Interactions. Posters P124-P142. University Centre 126
- Session 12P. Genetics. Posters P143-P155. University Centre 126
- Session 13P. Fungal Physiology. Posters P156-P160. University Centre 130
- Session 14P. Disease Resistance. Posters P161-P177. University Centre 130
- Session 15P. Mycotoxicology. Posters P178-P184. University Centre 130
- 10:00-10:15 Break
- 10:15-noon Discussion: Use of Computers in Phytobacteriology. David L. Coplin presiding. Botany-Genetics Zoology 100
- 10:15-noon Discussion: Root Rots in Forest Stands. R. F. Patton presiding. Botany-Genetics-Zoology 200
- Armillaria*—East vs. West, P. M. Wargo, U.S. Forest Service, Hamden, CT
- Root diseases of subalpine spruce and fir in the northwest. T. C. Harrington, University of New Hampshire, Durham, NH
- Evaluating pine plantations for annosus root rot. S. A. Alexander, VPI & SU, Blacksburg, VA
- pathogens. M. J. Davis, ed., Univ. of Florida, Gainesville
- Biological control of weeds with plant pathogens. C. G. Van Dyke, ed., North Carolina State University, Raleigh
- Biological control of plant diseases. H. W. Spurr, Jr., USDA, Oxford, NC
- Plant Disease (1983) slide set. L. E. Trevathan, ed., Mississippi State Univ., Mississippi State
- 9:00 am-3:00 pm CPS (new) Council. President L. V. Edgington presiding. U. Centre 332
- 1:00-2:00 pm Authors present at Posters P185-P244. U. Centre 126 and 130
- 1:15-2:00 pm APS (new) Council. President J. L. Lockwood presiding. Members welcome. U. Centre 334
- 5:00-6:00 pm Authors present at Posters P185-P244. U. Centre 126 and 130
- ### Thursday Morning Sessions
- 8:15-10:00 Discussion: Soilborne Turf Diseases. Nichole O'Neill presiding. Botany-Genetics-Zoology 100
- Introduction. N. O'Neill, USDA-ARS, Beltsville, MD
- The nature and management of brown patch diseases. M. P. Grisham, Texas A&M Univ., College Station
- The nature and management of *Gaeumannomyces* patch disease. P. H. Dernoeden, Univ. of Maryland, College Park
- The nature and management of red thread and pink patch diseases. N. O'Neill, USDA-ARS, Beltsville, MD
- Necrotic ring spot on bluegrass. G. Worf, Univ. of Wisconsin, Madison
- Discussion
- 8:15-noon Symposium: Inoculum Thresholds of Seedborne Pathogens. Ta-Li Kuan presiding. Chemistry-Microbiology 200
- Introduction. T.-L. Kuan, Asgrow Seed Co., San Juan Bautista, CA
- Fungi. R. L. Gabrielson, W. Washington Res. and Ext. Center, Puyallup
- Bacteria. N. W. Schaad, Univ. of Idaho, Moscow
- Viruses. R. Stace-Smith and R. I. Hamilton, Agriculture Canada, Vancouver, British Columbia
- Sampling methods and statistical techniques. T. S. Russell, Washington State Univ., Pullman
- 8:15-noon Workshop: Computer Use in Integrated Pest Management. H. W. Kirby presiding. Crop Science 116-117
- Computer use in IPM: past, present, future. D. R. MacKenzie, Louisiana State Univ., Baton Rouge
- Forecasting diseases of peanut. J. E. Bailey, North Carolina State Univ., Raleigh
- SCAMP—A computer-based information delivery system. M. R. Schwarz, Cornell Univ., Geneva, NY
- Database for pest control for Florida fresh market tomatoes. K. Pohronezny and J. Viola, Univ. of Florida, Homestead, and G. W. Simone, Univ. of Florida, Gainesville
- Diagnosis of soybean diseases. G. Hartman, Univ. of Illinois, Urbana
- 8:15-noon Contributed Paper Sessions 33-38
- Session 33. Biological Control. University Centre, Clark Hall
- 8:15 378. R. Lifshitz, B. Sneh and R. Baker. Soil suppressiveness to a pathogenic *Pythium* sp. Colorado State University, Ft. Collins
- 8:30 379. R. M. Osburn and M. N. Schroth. Dynamics of *Pythium ultimum* infection and damping-off of sugar beets and biocontrol by a strain of *Pseudomonas putida*. University of California, Berkeley
- 8:45 380. F. N. Martin and J. G. Hancock. The use of *Pythium oligandrum* for biological control of *Pythium ultimum*. University of California, Berkeley
- 9:00 381. C. W. Murdoch and S. S. Leach. Further investigations on the use of *Laetisaria arvalis* to control *Rhizoctonia solani* infection of potato. N.E. Plant, Soil and Water Laboratory, Orono, ME
- 9:15 382. E. B. Nelson, G. T. Nash and G. E. Harman. Addition of food-base compounds to biological seed treatments for the improvement of *Trichoderma* biocontrol activity. New York State Agricultural Experiment Station, Geneva
- 9:30 383. L. J. Mihuta and R. C. Rowe. *Trichoderma* spp. as biological control agents of *Rhizoctonia* damping-off of radish in Ohio muck soils. Ohio Agricultural Research & Development Center, Wooster
- 9:45 384. J. A. Lewis and G. C. Papavizas. Proliferation of *Trichoderma* and *Gliocladium* from alginate pellets in natural soil and reduction of *Rhizoctonia solani* inoculum. USDA-ARS Soilborne Diseases Laboratory, Beltsville, MD
- 10:00 Break
- 10:15 385. J. Beagle-Ristaino and G. C. Papavizas. Reduction of *Rhizoctonia solani* in soil with fermentor preparations of *Trichoderma* and *Gliocladium*. USDA-ARS Soilborne Diseases Laboratory, Beltsville, MD
- 10:30 386. R. E. Wall and C. M. Johnson. Effects of *Trichoderma* spp. on conifer seedlings and damping-off. Canadian Forestry Service, Fredericton, New Brunswick
- 10:45 387. J. C. Locke and R. D. Lumsden. Biological control of *Rhizoctonia* root and crown rot of greenhouse grown snapdragons. USDA-ARS Soilborne Diseases Laboratory, Beltsville, MD
- 11:00 388. T. W. Mew and A. M. Rosales. Bacterization of rice plants for sheath blight control. The International Rice Research Institute, Los Banos, Laguna, Philippines
- 11:15 389. C. R. Howell and R. D. Stipanovic. Mycoherbicidal activity of *Gliocladium virens* by means of viridol production. USDA-ARS National Cotton Pathology Research Laboratory, College Station, TX
- 11:30 390. P. B. Adams and W. A. Ayers. World distribution of *Sporidesmium sclerotivorum* and *Teratosperma oligocladium*. USDA-ARS Soilborne Diseases Laboratory, Beltsville, MD
- 11:45 391. R. D. Lumsden, J. C. Locke, J. A. Lewis, G. C. Papavizas and J. J. Marois. Biocontrol of *Pythium* and *Rhizoctonia* damping-off of zinnia in soilless mix by *Gliocladium virens*. USDA-ARS Soilborne Diseases Laboratory, Beltsville, MD
- Session 34. Genetics. University Centre 103
- 8:15 392. D. W. Gabriel. Plasmid transformation of *Xanthomonas campestris* v. *malvacearum*. Oklahoma State University, Stillwater
- 8:30 393. G. R. Lazo and D. W. Gabriel. Described 'races' of *Xanthomonas campestris* pv. *malvacearum* are mixtures. Oklahoma State University, Stillwater
- 8:45 394. R. C. Peet, D. K. Willis, P. B. Lindgren and N. J. Panopoulos. Analysis of phaseolotoxin production by *Pseudomonas syringae* pv. *phaseolicola* through Tn5 mutagenesis. University of California, Berkeley
- 9:00 395. P. B. Lindgren, N. J. Panopoulos, D. K. Willis and R. C. Peet. Analysis of Vir- HR- Tn-insertion mutants of *Pseudomonas syringae* pv. *phaseolicola*. University of California, Berkeley
- 9:15 396. D. K. Willis, M. J. Hickman, C. S. Orser and N. J. Panopoulos. Isolation and characterization of the *Pseudomonas syringae* pv. *syringae* *recA* gene. University of California, Berkeley
- 9:30 397. C. J. Romeo and S. S. Patil. Tox-mutants of *Pseudomonas syringae* pv. *phaseolicola* by transposon Tn5 mutagenesis. University of Hawaii, Honolulu
- 9:45 398. J. R. Vincent and D. W. Fulbright.

## Thursday, August 16

### Meetings and Special Events

- 8:15 am-12:00 noon APS (old) Council. President R. J. Cook presiding. U. Centre 334
- 8:15 am-5:00 pm Teaching Slide Salon. U. Centre 004
- Diseases caused by fastidious prokaryotic plant

The plasmid pRD1 integrates into the chromosome of *Pseudomonas syringae*. Michigan State University, East Lansing

10:00 **Break**

10:15 399. C. L. Bender and D. A. Cooksey. Characterization of indigenous plasmids in *Pseudomonas syringae* pv. *tomato*. University of California, Riverside

10:30 400. J. W. Willis and J. V. Leary. Cloning of an entire small molecular weight plasmid of *Pseudomonas syringae* pv. *glycinea* in pBR329 and pRK404. University of California, Riverside

10:45 401. J. V. Leary and D. Trollinger. Construction of a genomic library of *Pseudomonas syringae* pv. *glycinea* race 8 and identification of a gene conferring resistance to trimethoprim. University of California, Riverside

11:00 402. B. Staskawicz, D. Dahlbeck and C. Napoli. Fine structure mapping of the *rsi* locus in *Pseudomonas syringae* pv. *glycinea*. University of California, Berkeley

11:15 403. J. S. Hartung, D. W. Fulbright and E. J. Klos. Cloning of bacteriophage pEal(h) genes in *E. coli*. Michigan State University, East Lansing

11:30 404. D. A. Cooksey. An insertion sequence from *Agrobacterium tumefaciens* strain C58 with homology to wild-type Ti-plasmid and chromosomal sequences. University of California, Riverside

11:45 405. C. Hendrick and A. K. Vidaver. Properties of arsenic-resistance plasmids from *Corynebacterium flaccumfaciens* ssp. *ooritii*. University of Nebraska, Lincoln

12:00 406. D. L. Roeder and A. Collmer. Insertional inactivation of a cloned *Erwinia chrysanthemi* pectate lyase gene. University of Maryland, College Park

**Session 35. Epidemiology. Physical Science 105**

8:15 407. D. M. Ferrin and D. J. Mitchell. The influence of density and patchiness of inoculum on the epidemiology of tobacco black shank. University of Florida, Gainesville

8:30 408. R. K. Gugel and R. A. A. Morrall. Inoculum-disease relationships in *Sclerotinia* stem rot of canola. University of Saskatchewan, Saskatoon

8:45 409. H. Otondo and S. R. Rimmer. Prediction of *Sclerotinia* stem rot in rapeseed using buried sclerotia. University of Manitoba, Winnipeg

9:00 410. B. K. Teo and R. A. A. Morrall. A technique to study the influence of soil moisture on sclerotium germination of *Sclerotinia sclerotiorum*. University of Saskatchewan, Saskatoon

9:15 411. G. G. Grove, L. V. Madden, M. A. Ellis and A. F. Schmitthenner. Influence of temperature and wetness duration on infection of strawberry fruit by *Phytophthora cactorum*. Ohio Agricultural Research & Development Center, Wooster

9:30 412. M. J. Jeger and S. D. Lyda. Comparison of annual *Phymatotrichum* root rot epidemics in cotton for the years 1965-1982. Texas A&M University, College Station

9:45 413. H. R. Dillard and R. G. Grogan. Relationship between sclerotial populations of *Sclerotinia minor* and the incidence of lettuce drop. University of California, Davis

10:00 **Break**

10:15 414. P. K. Basu. Effect of temperature on survival of the alfalfa wilt pathogen *Verticillium albo-atrum* in soil. Agriculture Canada, Research Station, Ottawa, Ontario

10:30 415. C. L. Patterson and R. G. Grogan. Comparative epidemiology and control of lettuce drop caused by *Sclerotinia minor* and *S. sclerotiorum*. University of California, Davis

10:45 416. J. J. Marois and P. B. Adams. Frequency distribution analysis of

lettuce drop, caused by *Sclerotinia minor*, as a function of quadrat size. University of California, Davis, and USDA-ARS Soilborne Diseases Laboratory, Beltsville, MD

11:00 417. B. Otrysko, G. Banville and A. Asselin. AG identification of *Rhizoctonia solani* isolates obtained from sclerotia occurring on potato tubers. Universite Laval, Quebec

11:15 418. T. R. Gottwald and W. L. Tedders. The potential use of an aerial remotely piloted vehicle (drone) from spore collection at various heights above the crop canopy. USDA-ARS Southeastern Fruit & Tree Nut Research Laboratory, Byron, GA

11:30 419. W. E. MacHardy and D. M. Gadoury. Patterns of ascospore discharge by *Venturia inaequalis* during rain-initiated wet periods. University of New Hampshire, Durham

11:45 420. J. M. Davis and C. E. Main. Meteorological aspects of the spread and development of blue mold on tobacco in North Carolina. North Carolina State University, Raleigh

**Session 36. Forest Pathology. Physical Science 113**

8:15 421. R. M. Bostock and M. A. Doster. Association of *Phytophthora syringae* with pruning wound cankers in almond. University of California, Davis

8:30 422. T. J. Proffer and J. H. Hart. Vegetative compatibility groups and the effect of water potential on the growth of *Cytospora kunzei*. Michigan State University, East Lansing

8:45 423. C. M. Catranis and P. D. Manion. *Cryosphaeria populina* associated with mortality in New York State aspen plantations. State University of New York, Syracuse

9:00 424. L. J. Spielman and M. Hubbes. Characterization of *Septoria musiva* isolates from Ontario and the United States. University of Toronto, Ontario

9:15 425. D. H. Griffin and P. D. Manion. Variation of *Populus tremuloides* reaction to toxic culture filtrates of *Hypoxyylon mammatum*. State University of New York, Syracuse

9:30 426. D. W. French and J. Juzwik. Hypoxylon canker of *Salix* spp. University of Minnesota, St. Paul

9:45 427. A. C. Alfenas, C. S. Hodges and R. Jeng. Similarities in physiological characters between *Endothia eugeniae* and *Cryphonectria cubensis*, causal agents of cankers in clove and eucalyptus, respectively. Universidade Federal de Viçosa, Brasil

10:00 **Break**

10:15 428. J. S. Russin and L. Shain. Disseminative fitness of *Endothia parasitica* containing different agents for cytoplasmic hypovirulence. University of Kentucky, Lexington

10:30 429. W. R. Jacobi. Relative susceptibility of four honeylocust cultivars to *Thyronectria austro-americana*. Colorado State University, Ft. Collins

10:45 430. J. W. Riffle and G. W. Peterson. Effect of stem wound age on infection and canker development in honeylocust seedlings by *Thyronectria austro-americana*. USDA Rocky Mountain Forest and Range Experiment Station, and University of Nebraska, Lincoln

11:00 431. J. W. Riffle and G. W. Peterson. Effect of temperature on infection and canker development in honeylocust seedlings by *Thyronectria austro-americana*. USDA Rocky Mountain Forest and Range Experiment Station, and University of Nebraska, Lincoln

11:15 432. M. J. Wingfield, P. J. Bedker and R. A. Blanchette. Observations on field grown pines inoculated with the pine wood nematode. University of Minnesota, St. Paul

11:30 433. G. J. Hunt, J. R. Bloom and D. D. Davis. Populations of *Bursaphelenchus xylophilus* in Scots pines inoculated with *B. xylophilus* and *Ceratocystis*

*ips*. The Pennsylvania State University, University Park

**Session 37. Pollution Damage and Abiotic Stress. Chemistry-Microbiology 160**

8:15 434. D. L. Sparks and C. R. Curtis. Dynamics of cation release from Delaware soils subjected to simulated acid rain. University of Delaware, Newark

8:30 435. E. J. Pell, C. J. Arny and N. S. Pearson. Yield and quality of field grown potato plants exposed to acid rain. The Pennsylvania State University, University Park

8:45 436. C. J. Arny and E. J. Pell. Effect of simulated acid rain treatments on ethylene production of potato, soybean and radish. The Pennsylvania State University, University Park

9:00 437. R. Long and D. D. Davis. Influence of site and climatic factors on tree growth in Pennsylvania. The Pennsylvania State University, University Park

9:15 438. M. Simini and I. A. Leone. The role of foliar epicuticular waxes in the tolerance of pines to de-icing salt spray. Rutgers University, New Brunswick, NJ

9:30 439. Y. S. Yang, E. J. Pell and D. D. Davis. A computerized system for exposing plants to gaseous pollutants. The Pennsylvania State University, University Park

9:45 440. W. D. McIlveen and J. J. Negusanti. Response of white birch trees to repeated SO<sub>2</sub> fumigations. Ontario Ministry of the Environment, Sudbury

10:00 **Break**

10:15 441. K. L. Reynolds, M. L. Zanelli and J. A. Laurence. Effects of sulfur dioxide exposure on the development of bacterial common blight caused by *Xanthomonas campestris* pv. *phaseoli* in field-grown kidney beans. Boyce-Thompson Institute, Ithaca, NY

10:30 442. J. A. Laurence and K. L. Reynolds. Joint action of HF and SO<sub>2</sub> on development of common blight of bean caused by *Xanthomonas campestris* pv. *phaseoli*. Boyce Thompson Institute, Ithaca, NY

10:45 443. J. P. Damicone, W. J. Manning and W. A. Feder. Effects of ozone and *Fusarium oxysporum* alone and in combination on growth of early maturing soybean lines. University of Massachusetts, Amherst

11:00 444. D. R. Cooley, W. J. Manning and W. A. Feder. Differences in alfalfa cultivar sensitivity to ozone. University of Massachusetts, Amherst

11:15 445. G. Smith and E. Brennan. The physiological response of soybean to ozone fumigation at various growth stages. Rutgers University, New Brunswick, NJ

11:30 446. P. G. Webb and R. H. Biggs. Ultraviolet-B irradiance effects on soybean productivity and incidence of fungi in seed. University of Florida, Gainesville

11:45 447. B. B. Clarke, E. Brennan and J. Rebbeck. EDU: a tool for assessing crop loss due to ambient oxidants. Rutgers University, New Brunswick, NJ

**Session 38. Virus Diseases. Botany-Genetics-Zoology 200**

8:15 448. K. L. Deahl, J. P. San Antonio and E. L. Civerolo. The occurrence of double-stranded RNA in spawn strains of *Agaricus bisporus*. USDA-ARS, Beltsville, MD

8:30 449. D. L. Clement, M. Skaria, J. A. McFatrige and R. M. Lister. Detectability of barley yellow dwarf virus in cereal leaf survey samples. Purdue University, West Lafayette, IN

8:45 450. M. Skaria, R. M. Lister and J. E. Foster. Association of the Yd<sub>2</sub> gene with reduced barley yellow dwarf virus production in barley. Purdue University, West Lafayette, IN

## Thursday Afternoon Sessions

- 9:00 **451. B. Sammons** and O. W. Barnett. Detection of tobacco ringspot virus infecting yellow summer squash (*Cucurbita pepo*) in SC. Clemson University, Clemson, SC
- 9:15 **452. D. C. Bays** and J. W. Demski. A potyvirus from clover that infects peanut. Georgia Experiment Station, Experiment, and Plant Disease Research Station, Yoakum, TX
- 9:30 **453. J. E. Dimitman**, A. Flores and J. A. Nickoloff. Cardamom mosaic a member of the potyvirus group in Guatemala. California State Polytechnic University, Pomona
- 9:45 **454. S. A. Lommel** and W. G. Willis. The role of wheat spindle streak and wheat soilborne mosaic viruses in an epiphytic of resistant wheat in Kansas. Kansas State University, Manhattan
- 10:00 **Break**
- 10:15 **455. J. K. Brown** and R. B. Hine. Geminate particles associated with the leaf curl or 'Chino' disease of tomatoes in coastal areas of Western Mexico. University of Arizona, Tucson
- 10:30 **456. R. P. Singh**. *Solanum* × *berthaultii*: a necrotic host for viroids from citrus, chrysanthemum, potato and tomato. Agriculture Canada, Research Station, Fredericton, New Brunswick
- 10:45 **457. M. E. Grasmick** and S. A. Slack. Suppression of a potato spindle tuber viroid inhibitor in true potato seedlings. University of Wisconsin, Madison
- 11:00 **458. Z. Pesic**, G. C. Figueiredo and C. Hiruki. Decreased detection rate by ELISA of alfalfa mosaic virus (AMV) during germination of alfalfa seed. University of Alberta, Edmonton
- 11:15 **459. J. C. Tu**. Calcium interacts with IAA and kinetin in the formation of local lesions by alfalfa mosaic virus (AMV) in bean (*Phaseolus vulgaris*). Agriculture Canada, Research Station, Harrow, Ontario
- 11:30 **460. D. L. Seifers** and H. L. Hackerott. Relative virus concentration and yield of infected sorghum hybrids having red-leaf or mosaic reactions to maize dwarf mosaic virus strain B. Kansas Agricultural Experiment Station, Hays
- 11:45 **461. E. Rosenkranz**. Effect of light on infection of corn with maize dwarf mosaic virus. Mississippi State University, Mississippi State
- 12:00 **462. P. R. Desjardins**, R. J. Drake, P. J. Sasaki, E. L. Atkins and B. O. Bergh. Pollen transmission of avocado sunblotch viroid and the fate of the pollen recipient tree. University of California, Riverside
- 8:15 am-9:00 pm Contributed Poster Sessions 16-19.** (Authors will be present at posters from 1:00-2:00 pm and 5:00-6:00 pm)
- Session 16P. **Bacteriology**. Posters P185-P210. University Centre 126
- Session 17P. **Ornamental Crop Diseases**. Posters P211-P215. University Centre 126
- Session 18P. **Fungus Diseases**. Posters P216-P235. University Centre 130
- Session 19P. **Fungicides and Plant Disease Control**. Posters P236-P244. University Centre 130
- 10:00-10:15 **Break**
- 10:15-noon **Discussion: Canadian and U.S. Regulatory Activities in Plant Pathology: Problems and Solutions.** E. G. Jordan presiding. Botany-Genetics-Zoology 100
- Interregional and international movement of germ plasm. R. P. Kahn, APHIS-USDA, Hyattsville, MD
- International movement of pests for research and development. W. P. Campbell, Agriculture Canada, Ottawa, Ontario
- California, Riverside
- 1:30 **477. P. Shiel** and J. D. Castello. Detection of tobacco mosaic and tobacco ringspot viruses by ELISA in herbaceous and woody hosts in central New York. State University of New York, Syracuse
- 1:45 **478. P. H. Berger**, D. W. Thornbury and T. P. Pirone. Highly sensitive serological detection of potato virus Y. University of Kentucky, Lexington
- 2:00 **479. F. D. Smith** and E. E. Banttari. Dot-ELISA on nitrocellulose membranes for detection of potato leafroll virus. University of Minnesota, St. Paul
- 2:15 **480. C. A. Powell**. Detection of three plant viruses by an immuno-blot assay. Pennsylvania Department of Agriculture, Harrisburg
- 2:30 **481. P. H. Berger**, D. W. Thornbury and T. P. Pirone. Autoradiographic detection of tobacco etch virus in aphids. University of Kentucky, Lexington
- 2:45 **482. B. W. Falk** and J. H. Tsai. Serological detection and evidence for multiplication of maize mosaic virus in the planthopper, *Peregrinus maidis*. University of Florida, Everglades Research & Education Center, Belle Glade, and Fort Lauderdale Research & Education Center, FL
- 3:00 **Break**
- 3:15 **483. M. K. Palomar**, S. G. Jensen and E. M. Ball. Maize dwarf mosaic virus (MDMV) titer in sorghum tissue. University of Nebraska, Lincoln
- 3:30 **484. D. K. Lakshman** and D. Gonsalves. Comparative analysis of cell-free translational products of some strains of cucumber mosaic virus. New York State Agricultural Experiment Station, Geneva
- 3:45 **485. S. M. Garnsey**. Separation of citrus tristeza virus strains and strain variants by stem-slash inoculation of citrus receptors. USDA-ARS, Orlando, FL
- 4:00 **486. B. Hunter**, L. A. Heaton, R. M. Hanau and A. O. Jackson. Comparison of the protein and nucleic acids of two hordeviruses. Purdue University, West Lafayette, IN
- 4:15 **487. R. F. Davis** and M. A. Yilmaz. Serological relationships and host range properties of zucchini yellow mosaic virus and watermelon mosaic virus isolates. Rutgers University, New Brunswick, NJ
- 4:30 **488. R. P. Singh**. Unsuitability of glycerol for the preservation of potato virus Y. Agriculture Canada Research Station, Fredericton, New Brunswick
- 4:45 **489. V. Chandrasekharan**. On the identification of common cotyledon-trophic translocator denominator in the hosts susceptible to groundnut (peanut) chlorotic spot virus. S.G.S. Arts College, Tirupati, India
- 5:00 **490. M. J. Foxe**. Identification of a group 4 strain of potato virus X infecting the cultivar King Edward. University of Florida, Gainesville
- 5:15 **491. M. J. Foxe** and J. Prakash. Expression of resistance to strains of potato virus X in isolated potato protoplasts. University of Florida, Gainesville
- Session 41. Physiology of Diseased Plants & Host-Parasite Interactions.** Physical Science 105
- 1:15 **492. N. A. Garas**, M. S. Lee and A. C. Waiss, Jr. Metabolism of fungitoxic terpenoids in resistant and susceptible cotton stele subsequent to inoculation with *Verticillium dahliae*. USDA-ARS Western Regional Research Center, Berkeley, CA
- 1:30 **493. M. E. Mace**, R. D. Stipanovic and A. A. Bell. Histochemical localization of the phytoalexin desoxyhemigossypol in *Verticillium dahliae*-infected cotton stem. National Cotton Pathology Research Laboratory, College Station, TX
- 1:15-3:00 **Discussion: Biochemical and Physiological Mechanisms by Which Plants Respond to Abiotic Stress.** W. J. Manning presiding. Botany-Genetics-Zoology 100
- Overview. A. G. Endress, Illinois State Natural History Survey, Urbana
- Stress interactions leading to low temperature injury in crop plants. C. J. Andrews, Agriculture Canada, Ottawa
- The nature of the impact of ozone. G. Hofstra and D. Beckerson, Univ. of Guelph, Ontario
- The effect of water stress on disease development. T. Gordon, Univ. of California, Davis
- 1:15-5:00 **Contributed Paper Sessions 39-46**
- Session 39. Soil Microbiology & Root Diseases.** University Centre, Clark Hall
- 1:15 **463. J. L. Leach** and T. R. Swinburne. An indirect ELISA for quantitative estimation of *Verticillium albo-atrum* in hops. East Malling Research Station, Maidstone, Kent, United Kingdom
- 1:30 **464. A. S. Windham** and L. T. Lucas. A baiting technique for selective isolation of *Rhizoctonia zeae* from soil. North Carolina State University, Raleigh
- 1:45 **465. M. J. Drilias**, J. E. Kuntz and G. L. Worf. Sugar maple cotyledons used to detect *Phytophthora citricola* and *P. cactorum* in soils. University of Wisconsin, Madison
- 2:00 **466. R. C. Rowe** and R. M. Riedel. Synergistic interactions between *Verticillium dahliae* and *Pratylenchus* species in potato early dying disease. Ohio Agricultural Research & Development Center, Wooster
- 2:15 **467. S. N. Jeffers** and H. S. Aldwinckle. *Phytophthora* species associated with nursery-grown apple rootstocks and trees. New York State Agricultural Experiment Station, Geneva
- 2:30 **468. W. F. Wilcox** and S. M. Mircetich. The pathogenicity and relative virulence on Mahaleb and Mazzard cherry of 7 *Phytophthora* spp. University of California, Davis
- 2:45 **469. G. S. Abawi** and A. C. Cobb. Populations of *Pratylenchus*, *Pythium*, *Rhizoctonia*, and *Thielaviopsis* of 20 snap bean fields in New York. New York State Agricultural Experiment Station, Geneva
- 3:00 **Break**
- 3:15 **470. M. E. Stanghellini**. Yield reduction in lettuce resulting from subclinical infection of feeder-rootlets by *Pythium dissotocum*. University of Arizona, Tucson
- 3:30 **471. R. E. Ykema** and J. C. Stutz. Fusarium root rot of guayule (*Parthenium argentatum*). Arizona State University, Tempe
- 3:45 **472. R. T. Kane** and R. W. Smiley. A succession of fungal communities associated with roots and crowns of winter wheat in New York. Cornell University, Ithaca, NY
- 4:00 **473. R. W. Smiley**, P. A. Taylor, F. C. Greenhalgh and R. G. Clarke. Intact cores for simulated pasture management studies on root disease complexes of *Trifolium* spp. Plant Research Institute, Burnley, Victoria, Australia
- 4:15 **474. Y. Cohen** and M. D. Coffey. Pathogenicity of *Phytophthora citricola* from avocado to *Persea indica*. University of California, Riverside
- 4:30 **475. T. V. Suslow**. Differential selectivity of metalaxyl in altering *Pseudomonas* population composition in the rhizosphere. Advanced Genetic Sciences, Inc., Oakland, CA
- Session 40. Virology.** University Centre 103
- 1:15 **476. D. J. Gumpf**, W. Kositrana and G.-Y. Zheng. Dot-immunobinding assay for virus detection. University of

- 1:45 494. M. E. Mace, R. D. Stipanovic and A. A. Bell. Toxicity of terpenoid phytoalexins from cotton to *Verticillium dahliae*. National Cotton Pathology Research Laboratory, College Station, TX
- 2:00 495. A. Asselin. Light-stimulated extracellular accumulation of *Nicotiana* b proteins induced by some amino acids and by thiamine. University of Laval, Québec
- 2:15 496. M. Zook and J. Kuć. Elicitation of sesquiterpenoid stress metabolites in potato tuber slices by *Helminthosporium carbonum*. University of Kentucky, Lexington
- 2:30 497. C. L. Preisig and J. A. Kuć. Time-course for inhibition of arachidonic acid-elicited sesquiterpene accumulation in potato by salicylhydroxamic acid. University of Kentucky, Lexington
- 2:45 498. X. L. Xuei and J. Kuć. Responsiveness of cucumber leaves to induced systemic resistance as a function of the stage of leaf development. University of Kentucky, Lexington
- 3:00 Break
- 3:15 499. M. K. Bhattacharyya and E. W. B. Ward. Differential production of glyceollin isomers in the soybean-*Phytophthora megasperma* f. sp. *glycinea* interaction. University of Western Ontario, London
- 3:30 500. J. S. Rush and J. Kuć. Partial structural characterization of glucans from five races of *Phytophthora infestans*. University of Kentucky, Lexington
- 3:45 501. S. Mayama and N. T. Keen. Production of victorin by various isolates of *Helminthosporium victoriae* and its phytoalexin elicitor activity. University of California, Riverside
- 4:00 502. L. A. Hadwiger and B. W. Fristensky. Chitosan increases wheat yields and reduces the lodging prevalent in *Pseudocercospora herpotrichoides* infected plants. Washington State University, Pullman
- 4:15 503. B. W. Fristensky, R. C. Riggleman and L. A. Hadwiger. Compatible and incompatible reactions can be distinguished on the basis of the accumulation and synthesis of mRNA species homologous to DNA from individual cloned pea genes. Washington State University, Pullman
- 4:30 504. L. Duchesne, R. S. Jeng and M. Hubbes. Effect of *Ceratocystis ulmi* strain aggressiveness on phytoalexin accumulation in *Ulmus americana*. University of Toronto, Ontario
- 4:45 505. C. S. Tepper and A. J. Anderson. Purification of fungal elicitors. Utah State University, Logan
- 5:00 506. G. Lazarovits and B. Singh. The distribution and mechanism of activation of polyphenoloxidase in healthy and *Phytophthora* infected soybean hypocotyls. Agriculture Canada Research Centre, London, Ontario
- Session 42. Disease Resistance. Physical Science 101**
- 1:15 507. J. R. Pelletier and R. D. Schein. Within-leaf variation in receptivity of four winter wheat cultivars to *Erysiphe graminis* f. sp. *tritici*. The Pennsylvania State University, University Park
- 1:30 508. M. C. Heath. The effect of heat-induced fungal death on compatible and incompatible interactions involving the bean rust fungus. University of Toronto, Ontario
- 1:45 509. L. A. Wood and M. C. Heath. The development of *Puccinia helianthi* in heat-treated and untreated leaves of *Phaseolus vulgaris*. University of Toronto, Ontario
- 2:00 510. J. F. Elmhirst and M. C. Heath. Host-parasite interactions of *Uromyces phaseoli* var. *typica* and *U. phaseoli* var. *vignae* with species of the *Phaseolus-Vigna* plant complex. University of Toronto, Ontario
- 2:15 511. K. L. Conn, J. P. Tewari and D. Hadziyev. The role of epicuticular wax in canola in resistance to *Alternaria brassicae*. University of Alberta, Edmonton
- 2:30 512. J. Robb and P. F. S. Street. Vascular coating material: a resistance mechanism in *Verticillium* wilt of tomato. University of Guelph, Ontario
- 2:45 513. A. L. Shigo and T. van der Zwet. Patterns of barrier zone formation in *Pyrus* wood tissues infected with *Erwinia amylovora*. USDA-ARS Appalachian Fruit Research Station, Kearneysville, WV
- 3:00 Break
- 3:15 514. C. J. Perumalla and C. A. Peterson. Identification of a hypodermal Casparian band in *Allium porrum*, *Allium moly*, *Hoya carnea*, *Hoya compacta* and *Hoya globulosa*. University of Waterloo, Ontario
- 3:30 515. K. A. Rosenberg, P. A. Morgan and F. L. Caruso. Histopathology of cucumber callus infected by *Colletotrichum lagenarium*. University of Maine, Orono
- 3:45 516. N. A. Garas, S. Wilhelm and J. E. Sagen. Growth and microsclerotial formation of *Verticillium dahliae* on stem segments from resistant and susceptible cotton varieties. University of California, Berkeley
- 4:00 517. M. G. Smart, J. R. Aist and H. W. Israel. Are oospores in barley coleoptiles impermeable to small molecules? Cornell University, Ithaca, NY
- 4:15 518. J. W. Berry and W. E. McKeen. Responses of *Nicotiana exigua* to *Peronospora hyoscyami* f. sp. *tabacina*. University of Western Ontario, London
- 4:30 519. A. E. Jenns. Effects of environment on resistance of inbred lines of corn to isolates of *Bipolaris maydis* and *Colletotrichum graminicola*. North Carolina State University, Raleigh
- 4:45 520. T. R. Anderson. Effectiveness of resistant and tolerant soybean cultivars in reducing plant loss caused by *Phytophthora megasperma* f. sp. *glycinea*. Agriculture Canada Research Station, Harrow, Ontario
- 5:00 521. S. A. Miller, C. E. Flick and D. A. Evans. Inheritance of TMV resistance in backcross progeny of somatic hybrids of *Nicotiana tabacum* and *N. nesophila*. DNA Plant Technology Corporation, Cinnaminson, NJ
- Session 43. Field Crop Diseases. Physical Science 113**
- 1:15 522. J. P. Hill and C. L. Biles. Effect of low concentrations of imazalil on infection efficiency and sporulation capacity of *Cochliobolus sativus* on wheat seedlings. Colorado State University, Ft. Collins
- 1:30 523. E. L. Stromberg. Evaluation of selected corn hybrids for reaction to *Cercospora zae-maydis* in Virginia. Virginia Polytechnic Institute and State University, Blacksburg
- 1:45 524. F. M. Latterell and A. E. Rossi. An unidentified species of *Cercospora* pathogenic to corn. USDA-ARS Plant Disease Research Laboratory, Frederick, MD
- 2:00 525. P. E. Lipps. Significance of infested corn residues as a source of inoculum for anthracnose leaf blight and stalk rot of corn. Ohio Agricultural Research & Development Center, Wooster
- 2:15 526. C. A. Matyac and T. Kommedahl. Chlorotic spots on *Zea mays* seedlings infected with *Sphacelotheca reiliana* (head smut) and their use in screening for resistance. University of Minnesota, St. Paul
- 2:30 527. R. C. Rufiy, E. A. Wernsman and G. V. Gooding, Jr. Methods for storage of *Peronospora tabacina* sporangiospores. North Carolina State University, Raleigh
- 2:45 528. R. L. Gilbertson, W. M. Brown and E. G. Ruppel. Virulence of corn stalk rot *Fusarium* from Colorado. Colorado State University, Ft. Collins
- 3:00 Break
- 3:15 529. D. A. Collins and R. P. Pacumbaba. Races of *Phytophthora megasperma* f. sp. *glycinea*, *Phytophthora* root rot of soybeans in northern Alabama. Alabama A&M University, Normal
- 3:30 530. F. M. Shokes, T. A. Kucharek and R. K. Sprengel. Soybean stem canker in Florida. Agricultural Research & Education Center, Quincy, and University of Florida, Gainesville
- 3:45 531. J. C. Comstock and S. A. Ferreira. Factors affecting sugarcane rust severity. Hawaiian Sugar Planters' Association, Aiea
- 4:00 532. F. J. Crowe and W. W. Bockus. Effect of soybeans double cropped with wheat on subsequent wheat take-all incidence. Kansas State University, Manhattan
- 4:15 533. L. E. Trevathan, J. A. Cuarezmateran and L. M. Gourley. Soil-borne fungi associated with sorghum in tropical aluminum soils in Colombia. Mississippi State University, Mississippi State
- 4:30 534. D. W. Kalb and R. L. Millar. Dispersal of *Verticillium albo-atrum* by fungus gnats (*Bradysia*). Cornell University, Ithaca, NY
- 4:45 535. R. Jimenez-Diaz and A. T. Casas. Etiology of Fusarium wilt and root rot of chickpeas in southern Spain. University of Cordoba, Spain
- 5:00 536. D. H. Rickerl, J. T. Touchton and W. B. Gordon. Cotton seedling survival as affected by tillage and cover crop. Auburn University, AL
- 5:15 537. P. T. Roikis and S. M. Alcorn. Susceptibility of native plants to three soilborne fungi endemic to the southwestern United States. University of Arizona, Tucson
- Session 44. Fungicides & Plant Disease Control. Chemistry-Microbiology 160**
- 1:15 538. L. J. Herr and P. Sutton. Tobacco black shank control with metalaxyl and cultivars. Ohio Agricultural Research & Development Center, Wooster
- 1:30 539. G. Lazarovits. The influence of cultivar tolerance on the control of *Phytophthora* rot of soybeans by pyroxyfur seed treatment. Agriculture Canada Research Centre, London, Ontario
- 1:45 540. J. P. Gupta, D. C. Erwin, J. W. Eckert and A. I. Zaki. Translocation of metalaxyl in soybean plants and control of stem rot caused by *Phytophthora megasperma* f. sp. *glycinea* (PMG). University of California, Riverside
- 2:00 541. M. E. Fenn and M. D. Coffey. Studies on the in vitro and in vivo antifungal activity of fosetyl-Al and phosphorous acid. University of California, Riverside
- 2:15 542. T. M. Small and S. D. Lyda. Evaluation and use of slow-release propiconazole formulations in controlling *Phymatotrichum omnivorum* on cotton. Texas A&M University, College Station
- 2:30 543. E. Pond, J. A. Menge, H. D. Ohr and J. E. Pehrson. The effect of metalaxyl and eposite-Al applied through the drip irrigation system on *Phytophthora parasitica* in the soil and on the yield of navel oranges. University of California, Riverside
- 2:45 544. D. L. Roberts and C. T. Stephens. Sensitivity of *Rhizoctonia solani* to experimental fungicide NTN19701. Michigan State University, East Lansing
- 3:00 Break
- 3:15 545. R. T. Awuah and J. W. Lorbeer. Control of Fusarium yellows of celery in an organic soil. Cornell University, Ithaca, NY
- 3:30 546. M. L. Putnam and J. E. Mitchell. The use of metalaxyl to control *Phytophthora* root rot of ginseng (*Panax quinquefolium*). University of



8:15 am-9:00 pm  
Session 1P—Virology

- Wisconsin, Madison
- 3:45 **547. L. W. Timmer** and W. S. Castle. Control of *Phytophthora* on sweet orange rootstock using systemic fungicides. Citrus Research & Education Center, Lake Alfred, FL
- 4:00 **548. D. F. Myers** and R. Subramanya. Chemical control of *Phytophthora* crown rot of pepper in Florida. Everglades Research & Education Center, Belle Glade, FL
- 4:15 **549. R. S. Whitson** and R. B. Hine. Control of *Phymatotrichum* root rot of cotton by the basipetal translocation of propiconazole. University of Arizona, Tucson

Session 45. Fungus Diseases. Chemistry-Microbiology  
200

- 1:15 **550. R. D. Raabe**. Production of sporophores of *Armillaria mellea* in isolated and pure culture. University of California, Berkeley
- 1:30 **551. A. B. Gray**, W. E. Sackton and L. Thauvette. Infection structures of *Plasmopara halstedii* on sunflower seedling roots and in cell suspension cultures. Macdonald College of McGill University, Ste. Anne de Bellevue, Quebec
- 1:45 **552. B. W. Pennypacker**, K. T. Leath and R. R. Hill, Jr. Resistant alfalfa plants as symptomless carriers of *Verticillium albo-atrum*. USDA-ARS Regional Pasture Research Laboratory, University Park, PA
- 2:00 **553. B. W. Pennypacker**, K. T. Leath and R. R. Hill, Jr. Growth of resistant varieties of alfalfa infected by *Verticillium albo-atrum*. USDA-ARS Regional Pasture Research Laboratory, University Park, PA
- 2:15 **554. J. G. Hancock**. Prevalence and pathogenicity of *Pythium paroecandrum* on alfalfa in California. University of California, Berkeley
- 2:30 **555. M. H. Royer** and J. L. Rytter. The effect of host growth stage and inoculation technique on infection of wheat by *Tilletia indica*. USDA-ARS Plant Disease Research Laboratory, Frederick, MD
- 2:45 **556. S. M. Kelly** and J. R. Wallin. Systemic infection of maize seedlings by *Aspergillus flavus*. University of Missouri, Columbia
- 3:00 **Break**
- 3:15 **557. D. A. Inglis** and D. J. Hagedorn. Temperature requirements by *Isariopsis griseola* (IG) for infection and disease development on red kidney beans. University of Wisconsin, Madison
- 3:30 **558. T. M. Bourett**, H. C. Hoch and R. C. Staples. Cytological events during the course of appressorium development in uredospore germlings of *Uromyces phaseoli* var. *typica*. Cornell University, Geneva, NY
- 3:45 **559. M. R. Siegel**, M. C. Johnson, D. R. Varney and R. C. Buckner. Incidence and dissemination of the tall fescue fungal endophyte. University of Kentucky, Lexington
- 4:00 **560. E. S. Luttrell**. Development of loose smut galls in barley. University of Georgia, Athens
- 4:15 **561. K. L. Khew**, N. P. Lee, M. D. Coffey and G. A. Zentmyer. Effect of blast furnace slag (BFS) and potassium (K) on the growth and resistance of rice to brown spot disease. University Sains Malaysia, Penang, Malaysia
- 4:30 **562. E. J. Warham**. A comparison of inoculation methods for karnal bunt, *Neovossia indica*. Centro Internacional de Mejoramiento de Maiz y Trigo, Mexico, D.F., Mexico
- 4:45 **563. K. M. El-Zik**, L. S. Bird and P. M. Thaxton. Progression of *Phymatotrichum omnivorum* on cotton cultivars and effect on yield and fiber quality. Texas A&M University, College Station
- 5:00 **564. P. S. Gunnell** and R. K. Webster. The teleomorph of *Rhizoctonia oryzae*. University of California, Davis

## Session 46. Bacterial Diseases. Botany-Genetics-Zoology 200

- 1:15 **565. B. N. Dhanvantari**. Bacterial stem rot: a new disease of greenhouse tomato in Ontario. Agriculture Canada Research Station, Harrow, Ontario
- 1:30 **566. R. D. Gitaitis** and D. K. Bell. Seedborne infection of cowpea determined by lysotype distribution of *Xanthomonas campestris* pv. *vignicola*. University of Georgia, Tifton
- 1:45 **567. J. Fletcher**, M. E. Irwin, O. E. Bradfute and G. A. Granada. A machismo-like disease of soybeans in Mexico. University of Illinois, Urbana; Ohio Agricultural Research & Development Center, Wooster; and Instituto Colombiano Agropecuario, Palmira, Colombia
- 2:00 **568. J. M. Wells** and M. J. Ceponis. Pathogenicity of *Erwinia herbicola* var. *ananas* to honeydew melons. USDA-ARS, Rutgers University, New Brunswick, NJ
- 2:15 **569. B. C. Raju**, J. M. Wells, S. M. Mircetich and G. Nyland. Pathogenic relationships between Pierce's disease and phony peach bacteria. Yoder Brothers, Inc., Alva, FL; USDA-ARS, Rutgers University, New Brunswick, NJ; and University of California, Davis
- 2:30 **570. C. M. Waters** and R. G. Grogan. Identification of the bacterium causing lettuce corky root. University of California, Davis
- 2:45 **571. A. C. Schuenger** and J. C. Batzer. An *Erwinia* stem-rot of hydroponic cucurbits and crucifers. EPCOT Center, Lake Buena Vista, FL
- 3:00 **Break**
- 3:15 **572. A. R. Chase**. Bacterial leaf spots of *Hibiscus rosa-sinensis*. University of Florida Agricultural Research Center, Apopka
- 3:30 **573. Z. Qi** and T. W. Mew. Evaluation of the adult plant resistance of *Xa-6* to bacterial blight of rice. The International Rice Research Institute, Los Banos, Laguna, Philippines
- 3:45 **574. R. G. Bayot** and S. M. Ries. Role of motility in apple blossom infection by *Erwinia amylovora* and studies of fire blight control with attractant and repellent compounds. University of Illinois, Urbana
- 4:00 **575. M. A. Haque** and E. Echandi. Characteristics of strains of *Pseudomonas solanacearum* from tobacco in North Carolina. North Carolina State University, Raleigh
- 4:15 **576. N. W. Schaad** and R. L. Forster. A semiselective agar medium for isolating *Xanthomonas campestris* pv. *translucens* from wheat seeds. University of Idaho, Moscow
- 4:30 **577. J. B. Jones**, R. E. Stall, J. P. Jones, and K. L. Pohronezny. Survival of *Xanthomonas campestris* pv. *vesicatoria* in Florida. University of Florida Gulf Coast Research & Education Center, Bradenton
- 4:45 **578. J. E. Adaskaveg** and R. B. Hine. Resistance of field strains of *Xanthomonas campestris* pv. *vesicatoria* to copper bacteriocides. University of Arizona, Tucson

Posters P1-P61 (Monday) will be set up on Sunday evening or on Monday before 8:15 am. Posters P62-P123 (Tuesday) will be set up on Monday evening after 10:00 pm or on Tuesday before 8:15 am. Posters P124-P184 (Wednesday) will be set up on Tuesday evening after 10:00 pm or on Wednesday before 8:15 am. Posters P185-P244 (Thursday) will be set up on Wednesday evening after 10:00 pm or on Thursday before 8:15 am. All posters should be taken down between 9:00 and 10:00 pm of the day shown, except those posted Thursday should be removed after 5:00 pm. Authors should be present at their posters from 1:00-2:00 and 5:00-6:00 pm on the day of display.

- 8:15 am-9:00 pm  
Session 1P—Virology
- P1 H. E. Moline, R. W. Goth and J. O. Kuti. A severe strain of tobacco etch virus recovered from tomato in Maryland. University of Maryland, College Park
- P2 R. C. French, S. H. Simon and K. S. Derrick. Detection of sugarcane mosaic virus by dot-blot hybridization. Louisiana State University, Baton Rouge
- P3 J. Bird, K. S. Kim, R. L. Rodriguez, E. M. Martin and J. Escudero. Transmission and cytopathology of *Jatropha* mosaic disease caused by a whitefly-transmitted geminivirus. University of Puerto Rico, Rio Piedras, and University of Arkansas, Fayetteville
- P4 N.-S. Lin and W. G. Langenberg. Localization of first appearance of barley stripe mosaic virus (BSMV) protein in infected wheat cells. University of Nebraska, Lincoln
- P5 C. Luciano, M. Siaw, S. Ballard, Z. Xu and J. Shaw. Aggregation of potyviral RNA. University of Kentucky, Lexington
- P6 Z. Xu, S. T. Ballard, C. S. Luciano and J. G. Shaw. Infection of tobacco protoplasts with a potyvirus. University of Kentucky, Lexington
- P7 R. Allison, R. Johnston, F. Armstrong, R. Horton and W. G. Dougherty. A comparative study of the capsid proteins and the 3'terminal nucleotide sequence of the potyviruses tobacco etch and pepper mottle. North Carolina State University, Raleigh
- P8 W. G. Dougherty, R. Allison, F. Armstrong, R. Horton and R. E. Johnston. Nucleotide sequence determination of a gene proximal to the 3'terminus of pepper mottle virus genomic RNA. North Carolina State University, Raleigh
- P9 Y. H. Hsu and M. K. Brakke. Gold-labeled antibodies for the detection of plant virus antigen on nitrocellulose paper. University of Nebraska, Lincoln
- P10 T. M. Zinnen and R. W. Fulton. Some interactions of TMV-common, TMV-legume, and southern bean mosaic virus. University of Wisconsin, Madison
- P11 R. L. Mernaugh. Neuron location in the mandibulatory stylets of the aphid, *Myzus persicae*. Iowa State University, Ames
- P12 D. H. Zanzinger, B. P. Bandy and S. M. Tavantzis. Further studies on the role of double-stranded RNA (dsRNA) in virulence of *Rhizoctonia solani*. University of Maine, Orono
- P13 S. M. Tavantzis and B. P. Bandy. Characterization of a dsRNA containing virus from *Rhizoctonia solani*. University of Maine, Orono
- P14 R. R. Martin. Monoclonal antibodies define three different antigenic regions of raspberry bushy dwarf virus. Agriculture Canada, Vancouver, British Columbia
- P15 D. A. Wakarchuk and R. I. Hamilton. Two double-stranded RNAs of unknown origin in vegetative tissues of bean. Agriculture Canada, Vancouver, British Columbia
- P16 M. K. Brakke, E. Ball, Y. H. Hsu and J. Joshi. Non-capsid protein associated with wheat streak mosaic virus infection. University of Nebraska, Lincoln
- P17 R. Diaco, J. H. Hill, R. M. Lister and D. P. Durand. Use of monoclonal antibodies in serologically specific electron microscopy of barley yellow dwarf virus. Iowa State University, Ames
- P18 T. A. Evans and C. T. Stephens. Virus-fungus interrelationships in a *Fusarium* root and crown rot complex in asparagus. Michigan State University, East Lansing

- P19** F. C. Wu and R. G. Timian. Electrophoretic patterns of several multiple forms of enzymes in healthy and barley stripe mosaic virus (BSMV) inoculated barley cultivars. North Dakota State University, Fargo
- P20** C. P. Paul, M. A. Estelle and D. W. Fulbright. Homology among nucleic acids from Michigan hypovirulent strains of *Endothia parasitica*. Michigan State University, East Lansing
- P21** F. Mohamed, C. Sieckman and O. P. Sehgal. Southern bean mosaic virus-induced hypersensitive reaction in *Phaseolus vulgaris* L. 'Pinto': analysis of soluble and plasmalemma proteins. University of Missouri, Columbia
- P22** J. E. Schoelz, S. D. Daubert and R. J. Shepherd. Gene VI of cauliflower mosaic virus (CaMV) controls systemic spread in solanaceous hosts. University of California, Davis
- P23** H. T. Hsu and R. H. Lawson. Comparative detection of carnation etched ring virus (CERV) using mouse monoclonal antibodies and chicken and rabbit antiserum. American Type Culture Collection, Rockville, MD, and USDA-ARS Florist and Nursery Crops Laboratory, Beltsville, MD
- P24** M. Avila-Rincon, C. W. Collmer and J. M. Kaper. *In vitro* messenger RNA activity of several satellite RNAs of cucumber mosaic virus. USDA-ARS Plant Virology Laboratory, Beltsville, MD
- P25** C. P. Romaine and A. Sriskantha. Synthesis of double-stranded RNA by a virus-enriched fraction from *Agaricus bisporus*. The Pennsylvania State University, University Park
- P26** F. E. Gildow. Role of the hindgut in aphid acquisition of barley yellow dwarf virus (BYDV). The Pennsylvania State University, University Park
- P27** R. L. Jordan, N. Elliott and H.-T. Hsu. Production of monoclonal antibody secreting hybridoma cell lines to prune dwarf virus by *in vivo* and *in vitro* immunization. USDA-ARS, Beltsville, MD, and American Type Culture Collection, Rockville, MD

8:15 am-9:00 pm

Session 2P—Virus Diseases

- P28** H. J. Larsen, M. K. Brakke and W. G. Langenberg. Relationships between virus infection, disease resistance, and early growth of winter wheat. University of Nebraska, Lincoln
- P29** T. Haragopal. Incidence of infection by the groundnut (peanut) chlorotic spot virus in the cotyledonotrophic stages of susceptible hosts. S. V. Jr. College, Tirupati, India
- P30** V. Chandrasekharam and N. S. Srikanth. On the biochemistry of chlorotic spot-mottle pathology of the leaves of *Datura fastuosa* Linn. S. G. S. Arts College, Tirupati, India
- P31** J. M. Gillett and D. C. Ramsdell. Detecting the inclusion forming blueberry red ringspot virus with ELISA. Michigan State University, East Lansing
- P32** S. S. Hearon. A virus from *Hibiscus rosa-sinensis* with properties of a tombusvirus. USDA-ARS Florist and Nursery Crops Laboratory, Beltsville, MD

8:15 am-9:00 pm

Session 3P—Biological Control

- P33** C. Wijetunga, R. W. Stack and R. Baker. Induction of suppressiveness to *Rhizoctonia solani* in an unmodified loamy soil. North Dakota State University, Fargo
- P34** C. Wijetunga, R. W. Stack and R. Baker. Survival curves to evaluate biological control of *Rhizoctonia solani* by *Trichoderma harzianum*. North Dakota State University, Fargo, and Colorado State University, Ft.

Collins

- P35** D. R. Fravel, J. J. Marois and D. M. Benson. Edaphic parameters associated with establishment of the biocontrol agent *Talaromyces flavus*. University of Maryland, College Park
- P36** D. A. Abdelwahab and G. W. Buchenau. Factors affecting biological control of *Pythium ultimum* on alfalfa using seed treatment with *Gliocladium virescens*, *Trichoderma harzianum* and *T. hamatum*. South Dakota State University, Brookings
- P37** P. Gill, L. Anderson, T. Suslow and G. Warren. Genetic analysis of *Pythium* antibiosis by *Pseudomonas fluorescens*. Advanced Genetic Sciences, Inc., Oakland, CA
- P38** J. Jones, J. S. Ziegler and T. V. Suslow. Cloning and expression of *Serratia* chitinase genes in *E. coli* and *Pseudomonas* rhizobacteria. Advanced Genetic Sciences, Inc., Oakland, CA
- P39** C. M. Kenerley, M. J. Jeger, R. W. Jones and D. A. Zuberer. Fungi associated with sclerotia of *Phymatotrichum omnivorum* in Texas soils. Texas Agricultural Experiment Station, College Station
- P40** H. A. Melouk, F. A. Chanakira and K. E. Conway. Inhibition of *Sclerotinia minor* by *Penicillium citrinum*. Oklahoma State University, Stillwater
- P41** J. Feinstein and A. L. Morehart. Interactions of *Verticillium albo-atrum* and three fungal antagonists. University of Delaware, Newark
- P42** R. W. Jones and R. E. Pettit. Variation in sensitivity to gliotoxin among *Rhizoctonia solani* anastomosis groups. Texas A&M University, College Station
- P43** P. S. Randhawa and N. W. Schaad. Bacteria antagonistic to bacterial and fungal pathogens. USDA-ARS, Beltsville, MD
- P44** P. S. Randhawa and E. L. Civerolo. Inhibition of *Xanthomonas campestris* pv. *pruni* by bacteria and pruniphage on detached peach leaves. USDA-ARS, Beltsville, MD
- P45** J. A. Dick and B. H. MacNeill. Bacterial canker of tomato: biocontrol of seed-borne inoculum. University of Guelph, Ontario
- P46** J. K. Mitchell, M. J. Jeger and R. A. Taber. Quantitative description of colonization of Cercosporidium leafspot of peanuts by the mycoparasite *Dicyma pulvinata*. Texas A&M University, College Station
- P47** W. A. Riggs, H. Hartmann and B. R. Currie. Effects of 2 naturally occurring bacteria on *Tilletiopsis washingtonensis*, a biological control agent of powdery mildew. Saanichton Research & Plant Quarantine Station, Sidney, British Columbia
- P48** H. Hartmann, W. A. Riggs and J. W. Hall. Screening for biological control agents of powdery mildew (*Sphaerotheca fuliginea*) on cucumbers. Saanichton Research & Plant Quarantine Station, Sidney, British Columbia
- P49** E. M. Sutker and W. L. Bruckhart. Host specificity of *Melampsora euphorbiae*, a pathogen of *Euphorbia cyparissias*. USDA-ARS Plant Disease Research Laboratory, Frederick, MD
- P50** D. O. TeBeest. Induction of tolerance to benomyl in *Colletotrichum gloeosporioides* f. sp. *aeschnomene* by ethyl methanesulfonate. University of Arkansas, Fayetteville
- P51** D. O. TeBeest. Additions to the host range of *Colletotrichum gloeosporioides* f. sp. *aeschnomene*. University of Arkansas, Fayetteville
- P52** B. S. Brosten and D. C. Sands. *Sclerotinia sclerotiorum* to control Canada thistle. Montana State University, Bozeman
- P53** R. C. French, S. K. Turner and E. Piotrowski. Identification of teliospore germination stimulators in Canada thistle roots. USDA-ARS, Plant

Disease Research Laboratory, Frederick, MD

- P54** W. A. Riggs, H. Hartmann and D. P. Elliott. Factors determining efficacy of greenhouse whitefly control with *Verticillium lecanii*. Saanichton Research & Plant Quarantine Station, Sidney, British Columbia
- P55** C. J. Baker and J. R. Stavelly. Effect of different isolates of *Bacillus subtilis* used for biological control of bean rust under field conditions. USDA-ARS Plant Pathology Laboratory, Beltsville, MD

8:15 am-9:00 pm

Session 4P—Vegetable Diseases

- P56** C. E. Thomas. Resistant reaction type against *Alternaria* leaf blight in *Cucumis melo*. USDA-ARS Vegetable Laboratory, Charleston, SC
- P57** M. Caperton, R. D. Martyn and J. L. Starr. The influence of *Meloidogyne incognita* on vascular wilt of summer squash caused by *Fusarium oxysporum* f. sp. *niveum*. Texas A&M University, College Station
- P58** R. H. Proctor, H. Hartmann and C. J. French. The effect of light on sporulation of *Peronospora parasitica* on cabbage seedlings. Saanichton Research & Plant Quarantine Station, Sidney, British Columbia
- P59** K. E. Conway and J. E. Motes. *Cercospora* blight of asparagus in Oklahoma. Oklahoma State University, Stillwater
- P60** W. H. Elmer and M. L. Lacy. The effects of crop residues on populations of *Fusarium oxysporum* f. sp. *apii* race 2 in soil and resulting disease in celery. Michigan State University, East Lansing
- P61** J. J. Cho, W. C. Mitchell, L. Yudin and L. Takayama. Ecology and epidemiology of tomato spotted wilt virus (TSWV) and its vector, *Frankliniella occidentalis*. University of Hawaii, Honolulu

Tuesday, August 14

8:15 am-9:00 pm

Session 5P—Soil Microbiology and Root Diseases

- P62** N. S. Blaker and J. D. MacDonald. Effect of soil salinity on development of *Phytophthora* root rot of citrus. University of California, Davis
- P63** C. K. Elliott and D. P. Maxwell. Evaluation of isozymes for the identification of isolates of *Phytophthora megasperma*. University of Wisconsin, Madison
- P64** A. H. C. van Bruggen, C. H. Whalen and P. A. Arneson. Computer simulation of emergence of dry beans as affected by *Rhizoctonia solani*. Cornell University, Ithaca
- P65** M. L. Putnam. Effect of seedling rate on progress of damping-off caused by *Rhizoctonia solani*. University of Wisconsin, Madison
- P66** D. E. Carling. Effect of chemical treatment of soil or seed piece on emergence and yield of potatoes inoculated with *Rhizoctonia solani* AG-3. University of Alaska, Palmer
- P67** C. N. Mwindiila and C. C. Bernier. Characterization of *Rhizoctonia solani* isolates from Manitoba. University of Manitoba, Winnipeg
- P68** D. A. Kaminski and P. R. Verma. Characterization, virulence and effect of temperature on growth of *Rhizoctonia* isolates from canola/rapeseed. Agriculture Canada Research Station, Saskatoon, Saskatchewan
- P69** H. A. Sandler, R. B. Carroll and D. L. Sparks. Effect of biocidal treatments on cation exchange capacity and *Fusarium* blight of soybeans in five Delaware soils. University of Delaware, Newark

- P70** D. W. James, Jr., T. V. Suslow and K. E. Steinback. The relationship between short-term adherence and long-term colonization of roots by bacteria. Advanced Genetic Sciences, Inc., Oakland, CA
- P71** E. Stutz, G. Défago and H. Kern. Role of in vitro antagonistic fluorescent pseudomonads in soils suppressive to black root rot of tobacco. Institut für Phytomedizin, Zürich, Switzerland
- P72** C. H. Berling, G. Défago and H. Kern. Population dynamics of *Thielaviopsis basicola* in soils conducive and suppressive to black root rot disease. Institut für Phytomedizin, Zürich, Switzerland
- P73** T. Isakeit and J. L. Lockwood. The disease-supporting capability of soils of different fungistatic capacity. Michigan State University, East Lansing
- P74** C. E. Windels and T. Kommedahl. Silica gel as a substrate for storing *Fusarium* species. University of Minnesota, St. Paul
- P75** B. Vimard, M. E. Leggett and J. E. Rahe. Rapid isolation of sclerotia of *Sclerotium cepivorum* from muck soil using sucrose centrifugation. Simon Fraser University, Burnaby, British Columbia
- P76** S. N. Jeffers and H. S. Aldwinckle. Baiting *Phytophthora cactorum* from naturally infested soil. New York State Agricultural Experiment Station, Geneva
- 8:15 am-9:00 pm**  
**Session 6P—Mycorrhizae**
- P77** R. S. Ferris, A.-C. McGraw and J. W. Hendrix. Production of moniloid cells in root cells by binucleate *Rhizoctonia* isolates. University of Kentucky, Lexington
- P78** R. C. Summerbell. Interactions between the ectomycorrhizal fungus *Laccaria laccata* and associated rhizosphere fungi on roots of black spruce. University of Toronto, Ontario
- P79** K. S. Elias and G. R. Safir. The effect of root organs, exudates and extracts on hyphal elongation of *Glomus fasciculatus* in axenic culture. Michigan State University, East Lansing
- 8:15 am-9:00 pm**  
**Session 7P—Field Crop Diseases**
- P80** A. A. Al-Heeti, R. W. Caldwell and E. B. Smalley. Pathogenicity of *Fusarium tricinctum*, *F. poae* and *F. sporotrichioides* in maize ears. University of Wisconsin, Madison
- P81** J. H. McBeath. *Gerlachia nivalis* (*Fusarium nivale*), a new snow mold on winter cereals and grasses in Alaska. University of Alaska, Fairbanks
- P82** S. M. Yang and T. J. Gulya, Jr. Groups of *Diaporthe/Phomopsis* isolates obtained from cultivated sunflower. USDA-ARS, Bushland, TX
- P83** M. A. Langham, R. W. Toler, J. D. Alexander and F. R. Miller. Evaluation of *Sorghum bicolor* (L.) Moench accessions under natural infection with yellow sorghum stunt mycoplasma. Texas A&M University, College Station
- P84** G. A. Forbes and R. A. Frederiksen. Effects of soil moisture, soil temperature, and soil-borne organisms on sorghum seedling vigor. Texas Agricultural Experiment Station, College Station
- P85** J. A. Percich and M. W. Hotchkiss. Field evaluation of several systemic and protectant fungicides to control benomyl-, thiophanate- and thiazobazole-resistant strains of *Cercospora beticola* on sugar beet. University of Minnesota, St. Paul
- P86** R. B. Carroll and K. J. Byrnes. A hand-held force gauge for rapid assessment of field corn standing strength. University of Delaware, Newark
- P87** K. J. Byrnes and R. B. Carroll. Fungi isolated from rotted corn stalks on tilled and no-till soils in Delaware. University of Delaware, Newark
- P88** B. D. Gossen, J. W. Sheard and R. A. A. Morrall. Multivariate comparisons of morphological and cultural characteristics of *Ascochyta lentis* and *Ascochyta fabae*. University of Saskatchewan, Saskatoon
- P89** T. J. Gulya and L. D. Charlet. Involvement of *Cylindrocrypturus adspersus* in the premature ripening complex of sunflower. North Dakota State University, Fargo
- P90** S. J. Allen, G. L. Barnes and J. L. Caddel. Incidence of alfalfa anthracnose in Oklahoma. Oklahoma State University, Stillwater
- P91** D. Chun and J. L. Lockwood. A laboratory method of possible use for assessing resistance of soybeans to white mold. Michigan State University, East Lansing
- P92** T. Matsumoto, D. Showers, D. Luscher, D. Higuera, C. Krass and A. French. Seed survey for kernel smut of rice in California. Department of Food and Agriculture, Sacramento, CA
- 8:15 am-9:00 pm**  
**Session 8P—Forest Pathology**
- P93** D. Zimel, R. J. Campana and A. L. Shigo. Relation of energy reserves in *Ulmus americana* to susceptibility to *Ceratocystis ulmi*. University of Maine, Orono
- P94** H. Merler and B. J. van der Kamp. Root disease of white spruce in central British Columbia. University of British Columbia, Vancouver
- P95** P. Fenn, R. T. Holland and D. L. Nida. Latent colonization of seedling and sprout oaks by *Hypoxylon atropunctatum*. University of Arkansas, Fayetteville
- P96** N. J. Phillips-Luckai. Bacterial population changes in white spruce nursery seedlings. Lakehead University, Thunder Bay, Ontario
- P97** J. S. Coleman, C. W. Murdoch, R. J. Campana and W. H. Smith. Investigations on the decay resistance of elm wetwood. University of Maine, Orono
- P98** J. G. O'Brien and R. A. Blanchette. Fungal colonization of moribund American elm tissues. University of Minnesota, St. Paul
- P99** Chen-guo, W., R. A. Blanchette and M. A. Palmer. Variation in spore wall structure among isolates of *Sphaeropsis sapinea*. University of Minnesota, St. Paul
- P100** L. D. Dwinell. Relative susceptibilities of five southeastern pine species to the pinewood nematode, *Bursaphelenchus xylophilus*. USDA Forestry Sciences Laboratory, Athens, GA
- P101** A. R. Biggs. Intracellular suberin: occurrence and detection in tree bark. Agriculture Canada, Vineland Station, Ontario
- P102** A. H. Chappelka, B. I. Chevone and T. E. Burk. Ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), and acidic rain effects on growth of white and green ash seedlings. Virginia Polytechnic Institute and State University, Blacksburg
- P103** C. R. Krause and L. S. Dochinger. Surface changes to pine needles induced by ambient particles. USDA-ARS Nursery Crops Research Laboratory, Delaware, OH
- P104** V. Ammon and D. Seifers. Amino acid alterations in susceptible, tolerant, and resistant southern pines inoculated with the fusiform rust fungus. Mississippi State University, Mississippi State
- P105** T. L. Highley, L. Murmanis and J. G. Palmer. TEM observations on decomposition of western hemlock and sweetgum by the brown-rot fungus *Poria placenta*. Forest Products Laboratory, Madison, WI
- P106** N. Wenner, W. Merrill and B. Towers. Resistance of *Pinus virginiana* and *P. rigida* × *taeda* seedlings to *Endocronartium harknessii*. The Pennsylvania State University, University Park
- P107** D. Karasevich, W. Merrill and B. Towers. Biodeterioration of oak trees dead following gypsy moth defoliation. The Pennsylvania State University, University Park
- P107A** N. Benhamou, G. B. Ouellette, J. G. Lafontaine, and J. R. Joly. Monoclonal antibodies to a glycopeptide produced by *Ophiostoma ulmi*. Université Laval, Quebec, and Laurentian Forest Research Centre, Quebec, Canada
- 8:15 am-9:00 pm**  
**Session 9P—Epidemiology**
- P108** A. Mengistu and C. R. Grau. Combined effects of irrigation and precipitation on brown stem rot development and yield of two soybean cultivars. University of Wisconsin, Madison
- P109** B. R. Delp, L. J. Stowell and R. G. Grogan. Distribution of lettuce anthracnose in the field. University of California, Davis
- P110** L. J. Stowell, B. R. Delp and R. G. Grogan. Disease distribution and crop loss assessment using a field-portable microcomputer. University of California, Davis
- P111** N. Lalancette, Jr., J. M. Russo and K. D. Hickey. Field sampling of fungal pathogen populations: a simple device for monitoring fungicide resistance. The Pennsylvania State University Fruit Research Lab, Biglerville
- P112** D. M. Ferrin and D. J. Mitchell. The influence of soil water status on the epidemiology of tobacco black shank. University of Florida, Gainesville
- P113** C. R. Bronson and W. M. Klittich. Phytoscan 83: a computer program for quantitative disease assessment. Iowa State University, Ames
- P114** S. M. Coakley and R. F. Line. Validation of regional models for predicting stripe rust on winter wheat. NCAR, Boulder, CO, and Washington State University, Pullman
- P115** J. W. Pscheidt and W. R. Stevenson. The critical period for control of potato early blight. University of Wisconsin, Madison
- 8:15 am-9:00 pm**  
**Session 10P—Disease Losses**
- P116** J. P. Snow, G. T. Berggren and E. C. McGawley. Reaction of soybean cultivars to stem canker in Louisiana. Louisiana State University, Baton Rouge
- P117** G. T. Berggren, J. P. Snow and E. C. McGawley. Distribution of soybean stem canker in Louisiana. Louisiana State University, Baton Rouge
- P118** G. T. Berggren, E. C. McGawley, M. E. Pace, J. S. Gershey and G. F. Joye. Strategies for controlling soybean aerial blight in Louisiana. Louisiana State University, Baton Rouge
- P119** D. M. Gerten and M. V. Wiese. Video image analysis of lodging and yield loss in winter wheat relative to foot rot. University of Idaho, Moscow
- P120** H. M. Alexander, J. J. Burdon and A. P. Roelfs. Applications of competition models to studies of yield in diseased and disease-free cultivar mixtures. University of Louisville, KY; Division of Plant Industry, Canberra City, Australia; and University of Minnesota, St. Paul
- P121** V. D. Pederson. Multispectral radiometry using a 12-bit analog-to-digital converter interfaced with a portable microcomputer. North Dakota State University, Fargo
- P122** F. W. Nutter, Jr. and V. D. Pederson. Yield loss modeling: tolerance to pathogens. North Dakota State

University, Fargo

- P123** J. A. Appel, G. R. Noel, D. I. Edward and S. M. Lim. Interrelationships of *Septoria glycines*, *Xanthomonas campestris* pv. *glycines* and *Heterodera glycines* on soybeans in Illinois. University of Illinois, Urbana

### Wednesday, August 15

8:15 am-9:00 pm

#### Session 11P—Physiology of Diseased Plants and Host-Parasite Interactions

- P124** N. A. Garas and J. Kuć. The extraction, assay and general properties of an inducing resistance factor from cucumber leaves induced with *Pseudomonas lachrymans*. University of Kentucky, Lexington
- P125** J. M. Gardner and Y. Kono. Characterization of rough lemon-specific toxins from *Alternaria citri* and their site of action. Citrus Research and Education Center, Lake Alfred, FL
- P126** M. Pierce, M. Essenberg, A. Birdsong and V. E. Scholes. Fluorescence-activated cell sorting for localization of phytoalexins. Oklahoma State University, Stillwater, and Oral Roberts University, Tulsa, OK
- P127** B. D. McMillan and N. K. Van Alfen. Locations of *Corynebacterium michiganense* pv. *insidiosum* extracellular polysaccharide accumulation within the transpiration stream of alfalfa. Utah State University, Logan
- P128** R. H. Brlansky, M. H. Collins and R. F. Lee. Comparison of xylem blockage structures in various citrus tree declines. Citrus Research and Education Center, Lake Alfred, FL
- P129** S. D. Salt and J. Kuć. Effects of ionone-type compounds on growth of tobacco and resistance to blue mold. University of Kentucky, Lexington
- P130** J. A. Sweigard, D. E. Matthews and H. D. VanEtten. Synthesis of (+)-pisatin by a methyltransferase from pea. Cornell University, Ithaca
- P131** W. R. Bushnell and C. Curran. Effects of N-acetyl- and amine-sugar derivatives on infection of barley epidermis by *Erysiphe graminis* f. sp. *hordei*. University of Minnesota, St. Paul
- P132** V. Stockwell and P. Hanchey. Lignification of lesion borders in bean stem canker. Colorado State University, Ft. Collins
- P133** D. H. Kruse and S. D. Lyda. Growth dynamics of *Phymatotrichum omnivorum* and *Gossypium klotzianum* in a parabolic system. Texas A&M University, College Station
- P133A** H. Chamberland, P. M. Charest, F. Pauzé, and G. B. Ouellette. Use of chitinase- and lectin-gold complexes for the ultrastructural identification of chitin in tomato plants infected by *Fusarium oxysporum* f. sp. *Radicis-Lycopersici*. Université Laval, Québec, and Laurentian Forest Research Centre, Québec, Canada.
- P134** J. R. Creamer and R. M. Bostock. Identification and elicitor activity of phospholipids from *Phytophthora infestans*. University of California, Davis
- P135** J. A. Smith and R. Hammerschmidt. Association of enhanced peroxidase activity with induced resistance of muskmelon and watermelon. Michigan State University, East Lansing
- P136** A. J. Anderson and L. W. Bennett. Root surface peroxidase: a defense role? Utah State University, Logan
- P137** H. M. Griffiths and A. J. Anderson. Plant protoplast death caused by fungal extracellular products. Utah State University, Logan
- P138** D. Classen and E. W. B. Ward. Elicitor production in temperature-induced compatibility of soybean and *Phytophthora megasperma* f. sp. *glycinea*. University of Western Ontario and

- Agriculture Canada, London, Ontario
- P139** A. M. Svircev, R. Smith, R. B. Gardiner and A. W. Day. Visualization of fungal fibrillae using fluorescent and gold-immunostaining. University of Western Ontario, London, Ontario
- P140** S. S. Lee, R. W. Stack and B. A. Vick. Two toxic compounds produced by *Helminthosporium sativum* in liquid culture. North Dakota State University, Fargo
- P141** G. Smith and E. Brennan. The impact of ambient ozone on field grown soybean. Rutgers University, New Brunswick, NJ
- P142** C. J. Baker, A. Collmer and M. Roy. Prevention of the hypersensitive response by periplasmic shock fluids from *Escherichia coli* containing a cloned pectate lyase gene. USDA-ARS, Beltsville, MD, and University of Maryland, College Park

8:15 am-9:00 pm

#### Session 12P—Genetics

- P143** K. L. McNally, D. W. Gabriel and M. K. Essenberg. Useful minimal media for *Xanthomonas campestris* pv. *malvacearum*. Oklahoma State University, Stillwater
- P144** L. E. Browder. The expression of resistance to leaf rust in *Triticum aestivum* 'Atlas 66' in the seedling stage. Kansas State University, Manhattan
- P145** J. Wilson and G. Shaner. Genetics of leaf rust resistance in triticale. Purdue University, West Lafayette
- P146** A. K. Aruna and A. K. Vidaver. Integration of pUW942 into the chromosome of extra-slow-growing *Rhizobium japonicum* and formation of recombinant plasmids. University of Nebraska, Lincoln
- P147** C. R. Bronson. Effect of alleles at the *tox1* locus on the fertility of *Cochliobolus heterostrophus*. Iowa State University, Ames
- P148** C. R. Bronson. Sectoring in *Cochliobolus heterostrophus*. Iowa State University, Ames
- P149** C. E. Henry, R. W. Schaefer and B. Bullock. Genetics of *Ustilago hordei*: the selection of fungicide resistance mutants. Chicago State University, Chicago, IL
- P150** Withdrawn.
- P151** R. T. Zink and A. K. Chatterjee. Construction of a cosmid gene library of *Erwinia carotovora* subsp. *carotovora* (Ecc). Kansas State University, Manhattan
- P152** F. S. Rutherford and E. W. B. Ward. Inheritance of virulence in single zoospore propagations and mass vegetative transfers of *Phytophthora megasperma* f. sp. *glycinea*. Agriculture Canada, London, Ontario
- P153** D. L. Coplin, R. D. Frederick and D. Majerczak. Cloning of virulence genes from *Erwinia stewartii* by direct complementation of avirulent mutants. Ohio Agricultural Research & Development Center, Wooster
- P154** W. J. Raupp, L. E. Browder and B. S. Gill. Further studies in transferring leaf rust resistance from *Aegilops squarrosa* to common wheat. Kansas State University, Manhattan
- P155** C. Schoedel, J. L. Ried and A. Collmer. Subcloning of genes encoding different *Erwinia chrysanthemi* pectate lyase isozymes. University of Maryland, College Park

8:15 am-9:00 pm

#### Session 13P—Fungal Physiology

- P156** S. E. Benes and D. F. Ritchie. Evidence for increased melanin content in dicarboximide-resistant strains of *Monilinia fructicola*. North Carolina State University, Raleigh
- P157** N. Gutterson, T. Suslow and G. Warren. Secretion of lytic activities by

*Trichoderma*, a mycoparasite of *Pythium ultimum*. Advanced Genetic Sciences, Inc., Oakland, CA

- P158** C. Madhosingh and W. Orr. Zearelenone induction in *Fusarium culmorum*. Agriculture Canada, London, Ontario
- P159** J. J. Goodell, L. C. Valenti and A. R. Ayers. Immunohistochemistry of the extracellular enzymes of *Phytophthora megasperma* f. sp. *glycinea*. Harvard University, Cambridge
- P160** S. W. Banks and D. A. Smith. High performance liquid chromatography (HPLC) in the purification of kievitone hydratase (KHase). University of Kentucky, Lexington

8:15 am-9:00 pm

#### Session 14P—Disease Resistance

- P161** B. J. McMaster and B. F. Huang. Phenylalanine ammonia lyase (PAL) activation and lignification as an induced resistance mechanism in tobacco mosaic virus (TMV)-induced tobacco plants. Allied Corporation, Solvay, NY
- P162** L. E. Browder and M. G. Eversmeyer. The influence of temperature on 'slow-leaf-rusting' in *Triticum aestivum* 'SUWON 85'. Kansas State University, Manhattan
- P163** A. E. Jenns. Estimation of relative specificity in a model host-pathogen system with quantitative resistance. North Carolina State University, Raleigh
- P164** B. M. Cumfer, J. W. Johnson and A. R. Brown. Resistance of winter barleys to *Leptosphaeria nodorum*. University of Georgia, Experiment
- P165** R. E. Gold, M. C. Stolzenburg, J. R. Aist, M. R. Marshall, C. A. Stockwell, B. E. Hazen, M. G. Smart and H. W. Israel. Chlortetracycline breaks papilla-mediated resistance to powdery mildew in *ml-o* barley coleoptiles. Cornell University, Ithaca
- P166** T. Hsiang and B. J. van der Kamp. Some aspects of the disease interaction between *Melampsora occidentalis* and *Populus trichocarpa* from their natural pathosystem. University of British Columbia, Vancouver
- P167** G. B. Ouellette, J. R. Thibault and D. Rioux. Observations of *Ophiostoma ulmi* development in elm and non host trees. Laurentian Forest Research Centre, and Université Laval, Québec
- P168** H. A. Melouk and J. L. Sherwood. Reduction of *Cercospora arachidicola* sporulation on peanut cv. 'Tamnut 74' infected with peanut mottle virus. Oklahoma State University, Stillwater
- P169** M. D. Simons and P. G. Rothman. Field resistance of oats to *Puccinia graminis* measured in yield and seed weight reduction. Iowa State University, Ames, and University of Minnesota, St. Paul
- P170** H. J. Zeringue, E. J. Conkerton and D. C. Chapital. Cotton leaf responses to wounding and treatment with cell-free extracts of *Aspergillus flavus*. USDA-ARS Southern Regional Research Center, New Orleans, LA
- P171** S. J. Allen, J. L. Caddel, G. L. Barnes and C. M. Taliaferro. Relation to resistance to *Colletotrichum trifolii* in alfalfa to agronomic traits. Oklahoma State University, Stillwater
- P172** K. L. Bailey, D. R. Knott and H. Harding. Screening *Triticum* and *Aegilops* species for resistance to *B. sorokiniana*. University of Saskatoon, Saskatoon, Saskatchewan
- P173** L. M. Treeful and R. D. Wilcoxson. Resistance in *Hordeum spontaneum* to three races of *Puccinia hordei*. University of Minnesota, St. Paul
- P174** L. Lamari, R. Y. Rashid and C. C. Bernier. Evaluation of faba bean accessions for resistance to *Aphanomyces* root rot. University of Manitoba, Winnipeg

- P175** A. F. Olah and A. F. Schmitthenner. Direct measurement of soybean taproot tolerance to *Phytophthora megasperma* f. sp. *glycinea*. Ohio Agricultural Research & Development Center, Wooster
- P176** B. J. Christ and C. O. Person. Changes in percent smutted plants caused by multiple infections. University of British Columbia, Vancouver
- P177** A. Ramos, S. Nganga, A. Michieka and C. Martin. A method of screening potato clones for resistance to *Pseudomonas solanacearum* races from Kenya. CIP, Tropical Africa Region, Nairobi, Kenya

8:15 am-9:00 pm

Session 15P—Mycotoxicology

- P178** D. B. Sauer and R. Burroughs. Disinfection of seed-surfaces with sodium hypochlorite. USDA-ARS Grain Marketing Research, Manhattan, KS
- P179** D. B. Sauer. Growth of *Aspergillus* and *Penicillium* species following mixed inoculation in stored grain. USDA-ARS Grain Marketing Research, Manhattan, KS
- P180** H. Cohen, G. A. Neish and V. Purkayastha. Effect of gluten, Proflor, soya, yeast extract, and zein on zearalenone production by *Fusarium graminearum*. Agriculture Canada, Ottawa, Ontario
- P181** R. F. Vesondar, J. J. Ellis, J. Haliburton, W. B. Buck and J. F. Tuite. Occurrence of *Fusarium moniliforme* on corn associated with equine leucoencephalomalacia. USDA-ARS Northern Regional Research Center, Peoria, IL
- P182** M. Lacroix and D. Dostaler. Etude de la variabilité dans la production de vomitoxine chez le *Fusarium graminearum*. Université Laval, Québec
- P183** K. Nkongolo-Kabwe and D. Dostaler. Effet de la betaine et de la choline sur la fusariose de l'épi du ble et la teneur en vomitoxine produite par le *Fusarium graminearum*. Université Laval, Québec
- P184** G. Gilbert and D. Dostaler. Etude de l'accumulation et du potentiel de production de la vomitoxine par le *Fusarium graminearum* chez le ble de printemps. Université Laval, Québec

Thursday, August 16

8:15 am-9:00 pm

Session 16P—Bacteriology

- P185** C. J. Chang and C. Yonce. Plum leaf scald bacteria: survival through winter. University of Georgia, Experiment
- P186** M. K. Morgan and A. K. Chatterjee. Isolation and characterization of Tn5 induced mutants of *Pseudomonas syringae* subsp. *syringae* altered in syringotoxin production. Kansas State University, Manhattan
- P187** J. J. Stapleton and V. M. Medina U. Evaluation of copper oxychloride sprays to control bacteriosis disease of Mexican lime trees in Colima, Mexico. INIA, Tecoman, Colima, Mexico
- P188** B. Joshi and A. K. Vidaver. Evaluation of cellular protein profiles for identification of *Corynebacterium michiganense* ssp. *nebraskense* and *C.m.* ssp. *tessellarius* from infected plants. University of Nebraska, Lincoln
- P189** T. R. Rocheford, A. K. Vidaver and C. O. Gardner. Growth of *Corynebacterium michiganense* ssp. *nebraskense* on corn (*Zea mays* L.) callus tissue. University of Nebraska, Lincoln
- P190** R. S. Livingston, E. A. Maher and A. Kelman. Separation and activity of extracellular pectolytic enzymes of *Erwinia carotovora*. University of Wisconsin, Madison
- P191** K. Knoche and R. W. Fulton. The use

of infectivity titrations to compare relative resistance of tobacco to *Pseudomonas syringae* pv. *tabaci*. University of Wisconsin, Madison

- P192** E. A. Maher and A. Kelman. Influence of wounding and time in storage on susceptibility of Russet Burbank potatoes to *Erwinia carotovora* (Ec). University of Wisconsin, Madison
- P193** J. C. Trolinger, R. K. Jones and B. C. Raju. Diagnostic procedures for plant diseases caused by *Erwinia carotovora* and *Pseudomonas solanacearum*. Yoder Bros., Inc. Alva, FL, and North Carolina State University, Raleigh
- P194** M. J. Davis. Fluorescent-antibody detection and enumeration of the ratoon stunting disease bacterium. University of Florida, Ft. Lauderdale
- P195** A. G. Gillaspie, Jr., M. Sasser and M. J. Davis. Fatty acid profiles of bacteria causing ratoon stunting disease (RSD) of sugarcane and bermudagrass stunting disease (BSD). USDA-ARS, Beltsville, MD
- P196** S. V. Thomson. Survival of *Erwinia amylovora* on non-host flowers of sweet cherry. Utah State University, Logan
- P197** D. C. Sands, G. Mizrak and V. Hall. An indicator dye for *Xanthomonas campestris* pv. *translucens*. Montana State University, Bozeman
- P198** W. W. Shane and J. S. Baumer. Population dynamics and syringomycin bioassay to evaluate resistance of spring wheat cultivars to *Pseudomonas syringae* pv. *syringae*. University of Minnesota, St. Paul
- P199** P. Graham and B. Kennedy. Adaption of seedborne bacterial pathogens to low water potentials *in vitro*. University of Minnesota, St. Paul
- P200** R. R. Webb. Epidemiology and control of bacterial canker of papaya caused by an *Erwinia* species in St. Croix, U. S. Virgin Islands. CVI-AES, St. Croix
- P201** C. Ishimaru and E. J. Klos. Antibiotic production in *Erwinia herbicola* strain C9-1. Michigan State University, East Lansing
- P202** D. J. Jardine and C. T. Stephens. Influence of timing of application on chemical control of bacterial speck of tomatoes. Michigan State University, East Lansing
- P203** H. E. Moline. Use of two-dimensional electrophoresis to identify soft-rotting bacteria. USDA-ARS, Beltsville, MD
- P204** P. J. Charest and P. Dion. Thermo-sensitive characters associated with virulence in *Agrobacterium tumefaciens*. Université Laval, Québec
- P205** D. M. Haeefe and S. E. Lindow. Changes in leaf surface characteristics influence the mean, variance, and nucleation frequency of epiphytic ice nucleation active bacterial populations. University of California, Berkeley
- P206** M. A. Roy and M. Sasser. Implication of phospholipase in a bacterially induced hypersensitive reaction in tobacco. University of Delaware, Newark
- P207** J. M. Sasser, D. J. Fieldhouse and C. N. Carter. Computer assisted identification of bacteria based on fatty acid analysis. University of Delaware, Newark
- P208** R. G. McGuire and J. B. Jones. Populations of *Xanthomonas campestris* pv. *vesicatoria* on leaves accompanying nitrogen and potassium fertilization to tomatoes. Gulf Coast Research & Education Center, Bradenton, FL
- P209** J. B. Jones and B. C. Raju. Systemicity of *Agrobacterium radiobacter* pv. *tumefaciens* and low frequency of galling on chrysanthemum cuttings. Gulf Coast Research & Education Center, Bradenton, FL
- P210** R. G. McGuire and J. B. Jones. Evaluation of a selective medium for the isolation of *Xanthomonas campestris* pv. *vesicatoria* from seeds and

foliage. Gulf Coast Research & Education Center, Bradenton, FL

8:15 am-9:00 pm

Session 17P—Ornamental Crop Diseases

- P211** J. R. Hartman, W. P. Clinton and R. E. McNeil. Effect of flooding and fungicide treatments on severity of *Phytophthora* root rot of Taxus. University of Kentucky, Lexington
- P212** J. E. Tuinier and C. T. Stephens. Rapid detection of *Xanthomonas campestris* pv. *pelargonii* in *Pelargonium* × *hortorum*. Michigan State University, East Lansing
- P213** M. K. Hausbeck, C. T. Stephens and R. D. Heins. Increased *Pythium ultimum* mortality on 'Ringo Scarlet' geraniums treated with silver thio-sulphate. Michigan State University, East Lansing
- P214** C. T. Stephens and T. C. Stebbins. Control of damping-off pathogens in soilless container media. Michigan State University, East Lansing
- P215** D. Neely. Susceptibility of differently aged crabapple and hawthorn leaves to *Gymnosporangium* rusts. Illinois Natural History Survey, Champaign

8:15 am-9:00 pm

Session 18P—Fungus Diseases

- P216** W. Bair and J. E. Ayers. The extent of northern corn leaf blight and *Helminthosporium turcicum* race-types in Pennsylvania. The Pennsylvania State University, University Park
- P217** I. J. Gupta and A. F. Schmitthenner. Effect of some fungi on seed quality of soybean. Ohio Agricultural Research & Development Center, Wooster
- P218** H. H. Ho, Y. N. Yu, W. Y. Zhuang, Z. R. Liang, J. Y. Lu and L. Y. Gong. *Phytophthora* spp. in China. State University of New York, New Paltz; Academia Sinica, Beijing, China, and Nanjing Agricultural College, Nanjing, China
- P219** W. S. Conway and C. E. Sams. The influence of maturity of 'Golden Delicious' apples on the effect of postharvest calcium treatment on decay. USDA-ARS, Beltsville, MD
- P220** M. E. K. Ali and H. L. Warren. Variations in pathogenicity within sorghum isolates of *Colletotrichum graminicola*. Purdue University, West Lafayette, IN
- P221** W. R. Jarvis and J. A. Traquair. A bunch rot of grapes caused by *Aspergillus aculeatus*. Agriculture Canada, Harrow, Ontario
- P222** J. A. Micales and R. J. Stipes. Differentiation of *Endothia* and *Cryphonectria* species by polyacrylamide gel electrophoresis. Virginia Polytechnic Institute and State University, Blacksburg
- P223** W. E. McKeen, A. M. Svircev and J. W. Berry. Metamorphosis of *Peronospora hyoscyami* f. sp. *tabacina* protoplasm. University of Western Ontario, London
- P224** K. O. Britton and F. F. Hendrix. Population dynamics of fungi in peach gummosis cankers. University of Georgia, Athens
- P225** D. A. Inglis, D. J. Hagedorn and R. E. Rand. Using dry inoculum in the field for testing beans for resistance to angular leaf spot. University of Wisconsin, Madison
- P226** K. C. Blits and A. L. Morehart. Pathogenic capacity of *Verticillium albo-atrum* protoplasts. University of Delaware, Newark
- P227** D. M. Gadoury and W. E. MacHardy. Negative geotropism in *Venturia inaequalis*. University of New Hampshire, Durham
- P228** R. H. Vargo and J. S. Baumer. Soaking as a method of preparing samples for an enzyme-linked immunosorbent assay (ELISA) for *Bipolaris sorokinii*

- P229** *ana*. University of Minnesota, St. Paul  
J. B. Manandhar, G. L. Hartman and J. B. Sinclair. A *Glomerella* and *Colletotrichum* sp. from soybeans. University of Illinois, Urbana.
- P230** L. M. Schickli and J. A. Percich. Early infection events of *Bipolaris oryzae* on wild rice. University of Minnesota, St. Paul
- P231** D. A. Gaudet and E. G. Kokko. Application of scanning electron microscopy to paraffin-embedded plant tissues to study invasive processes of plant-pathogenic fungi. Agriculture Canada Research Station, Lethbridge, Alberta
- P232** N. L. Nickerson. A previously unreported disease of cranberries caused by *Exobasidium perenne* sp. nov. Agriculture Canada Research Station, Kentville, Nova Scotia
- P233** J. L. Maas and F. A. Uecker. A new cane canker of thornless blackberry caused by *Botryosphaeria dothidea*. USDA-ARS, Beltsville, MD
- P234** A. K. Bal, A. C. Dey and M. C. Hampson. Lipid classes and fatty acid distribution in the resting sporangium of *Synchytrium endobioticum*. Research Station, Agriculture Canada, St. John's, Newfoundland
- P235** M. Corlett. *Venturia asperata*, a second species of *Venturia* occurring

on apple in Canada. Biosystematics Research Institute, Agriculture Canada, Ottawa, Ontario

**8:15 am-9:00 pm**  
**Session 19P—Fungicides**  
**and Plant Disease Control**

- P236** D. B. Smith. Evaluation of seed treatment formulations containing triadimenol and nuarimol for control of loose smut of wheat and loose smut of barley. Chipman Inc., Stoney Creek, Ontario
- P237** T. E. Stasz and S. P. Martin. Survival of thick-walled and thin-walled oospores and sporangia of *Pythium ultimum* exposed to soil fungicides. University of Hawaii, Hilo
- P238** J. H. McBeath. Chemical control of snow mold on winter wheat in Alaska. University of Alaska, Fairbanks
- P239** J. T. Mathieson and S. D. Lyda. Efficacy of propiconazole (Tilt) against *Phymatotrichum omnivorum* on cotton. Texas A&M University, College Station
- P240** J. R. Davis and L. H. Sorensen. Controlling the Rhizoctonia disease of potato with seedpiece treatments. University of Idaho, Aberdeen
- P241** E. J. Warham and J. M. Prescott. Effect of chemicals on teliospore

germination of karnal bunt, *Neovossia indica*. Centro Internacional de Mejoramiento de Maiz y Trigo, Mexico, D.F., Mexico

- P242** V. Miao and V. J. Higgins. Leaf-printing: an efficient method to rapidly screen samples of *Cladosporium fulvum* for tolerance to fungicides. University of Toronto, Ontario
- P243** H. J. Kaplan and C. M. Smithwick. The relationship between OPP residues, fruit condition, and decay rates of citrus. Pennwalt Corporation, Monrovia, CA
- P244** M. K. Rahimian and J. E. Mitchell. Evaluation of fungicides in ginseng gardens. University of Wisconsin, Madison

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