

SESSION A

Sunday, July 28

7:00 – 9:00 a.m. Set Up Posters
 9:00 a.m. – 6:00 p.m. Poster Area Open

Monday, July 29

8:00 a.m. – 5:00 p.m. Poster Area Open
 12:00 – 2:00 p.m. Authors Present at Posters
 5:00 – 6:00 p.m. Take Down Posters

1 – 12	Bacteria — Genetics, Molecular Biology, Cell Biology
13 – 26	Bacteria — Systematics, Evolution, Ecology
27 – 42	Biological Control
43 – 50	Chemical Control
51 – 56	Disease Detection
57 – 67	Diseases of Cereals
68 – 79	Diseases of Field and Fiber Crops
80 – 94	Diseases of Fruits and Nuts
95 – 100	Diseases of Ornamentals
101 – 106	Diseases of Turfgrasses
107 – 119	Diseases of Vegetables
120 – 121	Environmental Quality and Plant Health
122 – 135	Epidemiology
136 – 145	Forest Pathology
146 – 162a	Fungi — Genetics, Molecular Biology, Cell Biology
163 – 171	Fungi — Systematics, Evolution, Ecology
172 – 189	Host Resistance
190 – 203b	Host-Parasite Relations — Biochemistry, Molecular Biology, Cell Biology
204 – 211	Integrated Pest Management
212 – 217	Pathogen-Vector Interactions
218 – 225	Phytoplasmas, Spiroplasmas, Fastidious Prokaryotes
226 – 230	Postharvest Pathology and Mycotoxicology
231 – 237	Rhizosphere Microbiology and Ecology
238 – 241	Seed Pathology
242 – 253	Viruses — Differentiation, Diversity, Detection
254 – 258	Viruses — Genetics, Molecular Biology, Cell Biology

SESSION B

Monday, July 29

7:00 – 9:00 p.m. Set Up Posters

Tuesday, July 30

8:00 a.m. – 6:00 p.m. Poster Area Open
 12:00 – 2:00 p.m. Authors Present at Posters

Wednesday, July 31

8:00 a.m. – 3:00 p.m. Poster Area Open
 3:00 – 4:00 p.m. Authors Take Down Posters

1 – 12	Bacteria — Genetics, Molecular Biology, Cell Biology
13 – 19	Bacteria — Systematics, Evolution, Ecology
20 – 40	Biological Control
41 – 51	Chemical Control
52 – 57	Disease Detection
58 – 65	Diseases of Cereals
66 – 80	Diseases of Field and Fiber Crops
81 – 96	Diseases of Fruits and Nuts
97 – 101	Diseases of Ornamentals
102 – 105	Diseases of Turfgrasses
106 – 119	Diseases of Vegetables
120 – 133a	Epidemiology
134 – 145	Forest Pathology
146 – 162a	Fungi — Genetics, Molecular Biology, Cell Biology
163 – 171	Fungi — Systematics, Evolution, Ecology
172 – 186	Host Resistance
187 – 202a	Host-Parasite Relations — Biochemistry, Molecular Biology, Cell Biology
203 – 214	Nematodes — Genetics, Molecular Biology, Cell Biology
215 – 221	Phyllosphere Microbiology and Ecology
222 – 225	Population Genetics
226 – 230a	Postharvest Pathology and Mycotoxicology
231 – 236	Rhizosphere Microbiology and Ecology
237 – 248	Viruses — Differentiation, Diversity, Detection
249 – 258	Viruses — Genetics, Molecular Biology, Cell Biology

Poster Session A • Sunday and Monday, July 28 and 29

Presiding: Donald Hopkins, University of Florida, Apopka, and
Rebecca Creamer, New Mexico State University, Las Cruces

Bacteria

Genetics, Molecular Biology, Cell Biology

- 1 Characterization of a mobilizable pathogenicity island in *Streptomyces turgidiscabies*. J.A. KERS, K.D. Cameron, and R. Loria. Cornell University, Ithaca, NY
- 2 Complete sequence of pEN2701, a 12kb cryptic plasmid from an endophytic *Streptomyces* sp. J.T. COOMBS (1,2), C.M.M. Franco (2) and R. Loria (1). (1) Cornell University, Ithaca, NY; (2) Flinders University, Adelaide, Australia
- 3 Pathogenicity region of *Streptomyces*, cause of potato common scab. L.A. WANNER. USDA-ARS, Beltsville, MD
- 4 Characterization of a nitric oxide synthase protein in the *Streptomyces turgidiscabies* pathogenicity island. K.D. CAMERON, B.R. Crane, and R. Loria. Cornell University, Ithaca, NY
- 5 A nitric oxide synthase in *Streptomyces turgidiscabies* affects thaxtomin biosynthesis. M. WACH (1), D. Gibson (2), and R. Loria (1). (1) Cornell University and (2) USDA-ARS, Ithaca, NY
- 6 Possible role of a putative nuclear localization signal in *dspE*, a pathogenicity/avirulence gene of *Erwinia amylovora*. W.S. KIM and S.V. Beer. Cornell University, Ithaca, NY
- 7 Weaponry revealed: secreted proteins of *Erwinia amylovora*. R.M. NISSINEN, K.J. van Wijk, J.A. Ytterberg, T. Thannhauser, and S.V. Beer. Cornell University, Ithaca, NY
- 8 Characterization of left end of the pathogenicity island of *Erwinia amylovora*. L. WANG (1), J.F. Kim (2) and S.V. Beer (1). (1) Cornell University, Ithaca, NY; (2) Korea Research Institute of Bioscience and Biotechnology, Yusong, Taejon
- 9 *gacA* regulates plant interaction, motility and extracellular polysaccharide of *Erwinia amylovora*. H. HASEGAWA, Y. Cui, A. Chatterjee, and A.K. Chatterjee. University of Missouri, Columbia
- 10 Transformation of *Xylella fastidiosa* using replicative shuttle vector pUFR047. A. VANAMALA, R. Harakava, and D.W. Gabriel. University of Florida, Gainesville
- 11 Pathogenic and genetic relationships among strains of *Xylella fastidiosa* isolated from various hosts. R.L. Wichman, C.M. Thompson, and D.L. HOPKINS. University of Florida, Apopka
- 12 Bacterial pathogens on cereals in the Russian Federation. E.V. Matveeva (1), V.A. Polityko (1), A.N. Ignatov (2), E.V. NIKOLAEVA (1), E.S. Pekhtereva (2), N.W. Schaad (3). (1) Russian Research Institute of Phytopathology, Vyasemy, Moscow; (2) Centre Bioengineering RAS, Moscow; (3) USDA-ARS, Fort Detrick, MD


Bacteria

Systematics, Evolution, Ecology

- 13 An evolutionary perspective of xylella diseases in grapevine, citrus, and mulberry. J. CHEN (1), J.S. Hartung (2), C.J. Chang (3), A.K. Vidaver (4). (1) Florida A&M University, Tallahassee; (2) USDA-ARS, Beltsville, MD; (3) University of Georgia, Griffin; (4) University of Nebraska, Lincoln
- 14 Multi-locus sequencing typing and single nucleotide polymorphism (SNP) genotyping of *Xylella fastidiosa* from citrus and coffee in Brazil. E. WICKERT (1), P.C. Ceresini (2), M.A. Machado (3), and E.G.M. Lemos (1). Universidade Estadual Paulista, (1) Jaboticabal, SP, and (2) Ilha Solteira, SP, Brazil; (3) Instituto Agronomico de Campinas, Cordeiropolis, SP, Brazil
- 15 Genomic diversity of *Erwinia carotovora* subsp. *carotovora*. M.-N. YAP and A.O. Charkowski. University of Wisconsin, Madison
- 16 How clonal are populations of *Xanthomonas axonopodis* pv. *citri* in Brazil? P.C. CERESINI (1), Z.R. Campos (1), J. Belasque, Jr. (2), J.A. Ferro (3), and E.G.M. Lemos (3). (1) Universidade Estadual Paulista, Ilha Solteira, SP; (2) Fundecitrus, Araraquara, SP; (3) Universidade Estadual Paulista, Jaboticabal, SP, Brazil
- 17 Phylogenetic studies of corn and rice strains of *Acidovorax avenae* subsp. *avenae* by DNA/DNA hybridization. E. Postnikova and N.W. SCHAAD. USDA-ARS, Fort Detrick, MD
- 18 Molecular based methods for the detection of *Ralstonia solanacearum* (race3/biovar2) and for biovar differentiation. M. MARTINI (1), I.-M. Lee (1) and E. Stefani (2). (1) USDA-ARS, Beltsville, MD; (2) University of Bologna, Bologna, Italy
- 19 New diagnostic assay based on DNA array for identification and detection of five bacterial pathogens of potato. A. Fessehaie (1), S.H. De Boer (2), and C.A. LEVESQUE (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON; (2) Canadian Food Inspection Agency, Charlottetown, PE
- 20 Does the viable but non-culturable state have implications for eradication of citrus canker bacterium? J. CUBERO and J.H. Graham. University of Florida, Lake Alfred
- 21 Effects of Messenger® on disease resistance and plant growth enhancement in strawberry and cucumber. D. QIU (1), K. Clayton (2), and Z.-M. Wei (3). EDEN Bioscience Corp., Bothell, WA
- 22 Effect of transgenic anthuriums producing the Shiva-1 lytic peptide on beneficial bacteria. T.M. Fujii, A. ALVAREZ, R. Fukui, K. Obsuwan, and A.R. Kuehnle. University of Hawaii, Honolulu
- 23 Beneficial bacteria protect microaroids from bacterial blight. A.M. ALVAREZ and C.Y. Mizumoto. University of Hawaii, Honolulu

- 24 *Monarda didyma* and control of damping off of tomato. S.E. Greene, K.D. GWINN, D.J. Trently, S.L. Hamilton, and B.H. Ownley. University of Tennessee, Knoxville
- 25 Hairy vetch soil amendment: A new potential alternative for suppression of Fusarium wilt in watermelon. X.G. ZHOU (1) and K.L. Everts (1,2). (1) University of Maryland, Salisbury; (2) University of Delaware, Georgetown
- 26 Colonisation of *Arabidopsis thaliana* by an endophytic *Streptomyces* sp. J.T. COOMBS (1,2), C.M.M. Franco (2) and R. Loria (1). (1) Cornell University, Ithaca, NY; (2) Flinders University, Adelaide, Australia

Biological Control

- 27 An assessment of the bioactivity of endophytic actinomycetes. J.T. COOMBS (1,2) and C.M.M. Franco (2). (1) Cornell University, Ithaca, NY; (2) Flinders University, Adelaide, Australia
- 28 Host specificity, population dynamics, and biocontrol of take-all by DAPG-producing *Pseudomonas* spp. in a long-term wheat field. B.B. McSpadden Gardener (1,2) and D.M. WELLER (2). (1) Ohio State University, Wooster; (2) USDA-ARS, Washington State University, Pullman
- 29  Genetic basis for the unique root-colonizing activity of *Pseudomonas fluorescens* Q8r1-96. O.V. MAVRODI (1), D.V. Mavrodi (1,2), D.M. Weller (1,2) and L.S. Thomashow (1,2). (1) Washington State University and (2) USDA-ARS, Washington State University, Pullman
- 30 Quantitative and rapid on-farm testing of compost stability. C.M. CHANGA, P. Wang, F.C. Michel Jr, M.E. Watson and H.A.J. Hoitink. Ohio State University, Wooster
- 31 Wheat cultivar-dependent root architecture and root colonization by *P. fluorescens* Q8r1. P.A. OKUBARA (1), B.B. Landa (2), B. Madsen (1), J.P. Kornoely (1). (1) USDA-ARS, Washington State University, Pullman; (2) Institute of Sustainable Agriculture, Córdoba, Spain
- 32 Effect of some pesticides on the mycoherbicide, *Epicoccossorus nematosporus* and synergistic effect in combination with herbicides on *Eleocharis kuroguwai* control in rice paddy field. Y.K. HONG (1), S.B. Song (1), B.C. Lee (1), S.C. Kim (1), and J.Y. Uhm (2). (1) National Yeongnam Agricultural Experiment Station, Milyang, Korea; (2) Kyungpook National University, Daegu, Korea
- 33 Nutritional requirements of *Trichoderma stromaticum*, a mycoparasite of *Crinipellis periniciosa*. S. SANOGO (1), P.K. Hebbar (2), and J.H. Bowers (3). (1) University of Maryland, Queenstown; (2) M&M Mars, Inc., Beltsville, MD; (3) USDA-ARS, Beltsville, MD
- 34 Time and number of applications of the mycoherbicide *Phomopsis amaranthicola* affect *Amaranthus lividus* interference with pepper. J.P. MORALES-PAYAN, R. Charudattan, W.M. Stall, and J. DeValerio. University of Florida, Gainesville
- 35 Effect of pH on growth and sporulation of *Hirsutella minnesotensis* and *Hirsutella rhossiliensis* in vitro. S.F. LIU and S.Y. Chen. University of Minnesota, Waseca
- 36 Development of a biocontrol product based on *Paecilomyces lilacinus* (strain 251). S. Kiewnick (1), P. Lueth (2), and R.A. SIKORA (1). (1) University of Bonn, Bonn, Germany; (2) Prophyta Biologischer Pflanzenschutz GmbH, Malchow, Germany
- 37 Biological control of sugar beet damping-off with *Trichoderma* species. L.E. HANSON. USDA-ARS, Fort Collins, CO
- 38 Mycotoxigenic *Fusarium* and deoxynivalenol production influence chitinase gene expression in *Trichoderma atroviridae*. M.P. LUTZ (1), G. Feichtinger (1), G. Defago (1), and B. Duffy (2). (1) Swiss Federal Institute of Technology, Zurich; (2) USDA-ARS, Albany, CA
- 39 Control of monosporascus root rot of melon using *Trichoderma* spp. in Taiwan. C.T. LO and J-H. Huang. Taiwan Agricultural Research Institute, Taichung, Taiwan
- 40 Systemic resistance induced in cucumber against *Phytophthora* crown rot and blight by *Trichoderma hamatum* 382. J. KHAN, L.V. Madden, and H.A.J. Hoitink. Ohio State University, Wooster
- 41 Integrated strategy to control blue mold and bitter rot of 'Golden Delicious' apples. B. LEVERENTZ (1), W.J. Janisiewicz (2), W.S. Conway (1), R.A. Saftner (1), A.N. Reed (3). (1) USDA-ARS, Beltsville, MD; (2) USDA-ARS, Kearneysville, WV; (3) Pennsylvania State University, Biglerville
- 42 Biological control of *Monilia* pod rot in the field using epiphytic bacteria isolated from cocoa's pods. C.E. FALCONI, G.T. Paez, A.R. Oleas and V.R. Yanez. University ESPE, Sangolqui, Ecuador

Chemical Control

- 43 Nicobifen - The foundation of a new fungicide family. E. AMMERMANN (1), R. Stierl (1) W. Hanke (1), M. Scherer (1), H. Ypema (2), and T. Bardinelli (2). (1) BASF AG, Limburgerhof, Germany; (2) BASF Corp., Research Triangle Park, NC
- 44 In-furrow treatments of Abound 2SC fail to enhance disease control or increase yield of peanut. H.L. CAMPBELL, A.K. Hagan, and K.L. Bowen. Auburn University, Auburn, AL
- 45 Control of leaf spot diseases and southern stem rot in Alabama using Moncut 70DF. H.L. CAMPBELL, A.K. Hagan, and K.L. Bowen. Auburn University, Auburn, AL

Poster Session A • Sunday and Monday, July 28 and 29

- 46 Effect of biocontrol agents and fungicides on *Fusarium* head blight development on winter wheat in Ohio. S.M. EL-ALLAF, P.E. Lipps, and L.V. Madden. Ohio State University, Wooster
- 47 Effects of zoxamide on sporangia and zoospores of *Phytophthora capsici*. D.H. YOUNG and U. Vjugina. Dow AgroSciences, Indianapolis, IN
- 48 Management of *Phytophthora* crown rot of yellow squash with foliar applied fungicides. K.W. SEEBOLD, A.S. Csinos, and T.B. Horten. University of Georgia, Tifton
- 49 Control of foliar late blight with a premix formulation of zoxamide and mancozeb. B.D. OLSON, G. Kemmitt, R.J. Ehr., J. Edmonds. Dow AgroSciences, Indianapolis, IN
- 50 Effect of three alternative fungicide materials on the viability and germinability of sclerotia of the soil pathogens *Sclerotinia sclerotiorum* and *Sclerotium rolfsii*. J.C. LOCKE. USDA-ARS, Beltsville, MD

Disease Detection

- 51 Investigation of the ITS region for pathovar-specific detection of *Pseudomonas syringae* pv. *lachrymans*, a pathogen of cucurbits, by polymerase chain reaction. Z. OZDEMIR and T.A. Zitter. Cornell University, Ithaca, NY
- 52 A rapid ELISA method for detecting *Ralstonia solanacearum*. B. SCHOEDEL and C. Sutula. Agdia, Inc., Elkhart, IN
- 53 Sensitive, high-throughput, real-time PCR for field diagnosis of citrus canker. V. MAVRODIEVA (1), L. Levy (1) and D. Gabriel (2). (1) USDA-APHIS, Beltsville, MD; (2) University of Florida, Gainesville
- 54 Immunocapture RT-PCR as a confirmation tool for ELISA. A.M. Harness, J.C. Johnson, B.P. KULEMEKA, C.L. Sutula, and M.D. Bandla. Agdia, Inc., Elkhart, IN
- 55 Two new hosts of *Pseudomonas savastanoi* and variability in strains isolated from different hosts. A.T. SAAD and L. Hanna. American University of Beirut, Beirut, Lebanon
- 56 Ultrastructure studies of potato virus Y in Egypt. A.A. EL-AMRETY (1), M.I. El-Refari (2), M.I. El Khalily (2), and E.F. Mohamed (2). (1) Agricultural Research Center, Giza, Egypt; (2) Cairo University, Fayoum, Egypt
- 58 Crop damage assessment for *Fusarium* crown rot of winter wheat in the inland Pacific Northwest. R.W. SMILEY. Oregon State University, Pendleton
- 59 Evaluation of inoculation methods to determine differences in resistance to *Fusarium graminearum* in wheat genotypes. J.S. ENGLE, P.E. Lipps and L.V. Madden. Ohio State University, Wooster
- 60 Effect of wheat floral structure extracts and endogenous compounds on the growth of *Fusarium graminearum*. J.S. ENGLE, P.E. Lipps, T.L. Graham and M.J. Boehm. Ohio State University, Wooster
- 61 *Fusarium* spp. causing wheat head blight and crown rot in Australia. O.A. Akinsanmi (1), V. Mitter (1), S. Simpfendorfer (2), D. Backhouse (3) and S. CHAKRABORTY (1). (1) CSIRO Plant Industry, University of Queensland; (2) NSW Agriculture, Tamworth, NSW, Australia; (3) University of New England, Armidale, Australia
- 62 Effect of cereal residue burning on incidence and the stratified distribution of *Fusarium graminearum* and *Cochliobolus sativus* in wheat and barley plants. R. Dill-Macky and B. SALAS. University of Minnesota, St. Paul
- 63 Timing of inoculations of dryland wheat plots and the effect on *Fusarium* head blight severity and mycotoxin accumulation due to *Fusarium graminearum* infection. C.K. EVANS and R. Dill-Macky. University of Minnesota, St. Paul
- 64 Epidemics and races of *Puccinia striiformis* in North America in 2001. X.M. CHEN (1,2) and M.K. Moore (2). (1) USDA-ARS and (2) Washington State University, Pullman
- 65 Characterization of a new virulent race of *Tilletia controversa*. B.J. GOATES. USDA-ARS, Aberdeen, ID
- 66 Factors affecting take-all of wheat and its management in Arkansas. E. MILUS, R. Cartwright, C. Rothrock, M. Anders, P. Rohman, and C. Parsons. University of Arkansas, Fayetteville
- 67 Laboratory evaluation of the effects of temperature and soil matric potential on infection of wheat by *Polymyxa graminis* using air pressure cells. L.E. DAVIDSON, R.R. Schindelbeck, H.M. van Es, and G.C. Bergstrom. Cornell University, Ithaca, NY

Diseases

Field and Fiber Crops

- 68 Managing *Phytophthora sojae* in the midst of population shifts. A.E. DORRANCE, D. Mills and P.E. Lipps. Ohio State University, Wooster
- 69 A new locus in soybean for resistance to *Phytophthora sojae*. K.D. BURNHAM, A.E. Dorrance, D.M. Francis, R.J. Fioritto, and S.K. St. Martin. Ohio State University, Wooster
- 70 Selection for resistance to *Sclerotinia sclerotiorum* (Ss) within soybean germplasm. C.R. GRAU, A.J. Peltier

Diseases

Cereals

- 57 Control of *Fusarium* scab with puroindoline-containing transgenic wheat. S.A. Gerhardt, C. Balconi, and J.E. SHERWOOD. Montana State University, Bozeman

- and N.C. Kurtzweil. University of Wisconsin, Madison
- 71 Interaction of glyphosate tolerance with soybean cyst nematode resistance. L. GIESLER (1), G. Graef (1), J. Wilson (2), J. Schimelfenig (1) and T.O. Powers (1). (1) University of Nebraska, Lincoln; (2) Burt County Cooperative Extension, Tekamah, NE
- 72 Evaluation of inoculation methods for *Aspergillus* ear rot and aflatoxin contamination of corn. L.M. MAUPIN (1), D.G. White (1) and J.M. Perkins (2). (1) University of Illinois, Urbana; (2) Monsanto Company, Waterman, IL
- 73 Soybean in Pennsylvania infected by *Sclerotinia sclerotiorum* clones common to legumes and crucifers in New York and Canada. L. Kohn (1) and B.W. PENNYPACKER (2). (1) University of Toronto, Mississauga, ON, Canada; (2) Pennsylvania State University, University Park
- 74 Co-inoculation of genotypes A and B of *Phialophora gregata* does not modify symptom expression of soybean. A.E. KINZIGER and C.R. Grau. University of Wisconsin, Madison
- 75 Effects of *Heterodera glycines* population levels on *Fusarium solani* f. sp. *glycines* colonization of near-isogenic soybean lines differing in resistance to each pathogen. T.A. JACKSON (1), T.L. Niblack (1), and G.S. Smith (2). (1) University of Illinois, Urbana; (2) Missouri Dept. of Agriculture, Jefferson City
- 76 Testing biological control and induced systemic resistance for the control of *Aphanomyces* root rot of sugarcane. M.S. METZGER (1) and J.J. Weil (1,2). (1) North Dakota State University and (2) USDA-ARS, Fargo, ND
- 77 Changes in symptom severity of soybean associated with single and double infections of *Alfalfa mosaic virus* and *Tobacco streak virus*. B.J. SORENSEN, C.R. Grau, and N.C. Kurtzweil. University of Wisconsin, Madison
- 78 Agronomic performance of soybeans (*Glycine max*) in the presence of *Soybean mosaic virus* and the herbicides glyphosate and imazamox. M.E. LEE, N.C. Kurtzweil, C. Boerboom, J. Gaska, and C.R. Grau. University of Wisconsin, Madison
- 79 Reaction of soybean to a Wisconsin field isolate of *Tobacco streak virus*. P.F. RABEDEAUX and C.R. Grau. University of Wisconsin, Madison
- 81 Sclerenchyma cell deterioration of CTV-infected Mexican lime. M. SKARIA and H. Miao. Texas A&M University, Weslaco
- 82 Geographical distribution of Pierce's disease in North Carolina's winegrowing region. U.J. HARRISON, O. Anas, and T.B. Sutton. North Carolina State University, Raleigh
- 83 Determining efficacy of streptomycin sulfate for preventing shoot blight following an injury event. S.C. OCKEY and S.V. Thomson. Utah State University, Logan
- 84 Detection of *Xanthomonas arboricola* pv. *pruni* with a PCR primer set and a digoxigenin-labeled DNA probe. C.M. PAGANI (1,2) and D.F. Ritchie (1). (1) North Carolina State University, Raleigh; (2) National Agriculture Research Institute, Andes, Uruguay
- 85 Eradication of *Pseudomonas syringae* pv. *syringae* in sweet cherry bud sticks. T.W. HALL, M.C. Heidenreich, R. Ciccirelli, R.L. Andersen, and W.W. Turechek. Cornell University, Geneva, NY
- 86 Resistance to bacterial angular leafspot disease, caused by *Xanthomonas fragariae*, in strawberry. J.L. MAAS, J.S. Hartung, C.T. Gouin, K. Lewers, and S. Hokanson. USDA-ARS, Beltsville, MD
- 87 Use of bentamicin to control fire blight in apples: Need, efficacy, and human health implications. G.L. MELCHIOR (1), P.J. David (1), V.W. Winkler (1), and R.A. Spitko (2). (1) Gowan Company, Walla Walla, WA; (2) New England Fruit Consultants, Montague, MA
- 88 Survey for viruses of grapevine in Oregon and Washington. R.R. MARTIN (1), K. Eastwell (2), A. Wagner (3), I.E. Tzanetakis (1), and S. Lamprecht (1). (1) USDA-ARS, Corvallis, OR; (2) Washington State University, Prosser, WA; (3) WSDA, Olympia, WA, and Oregon State University, Corvallis, OR
- 89 Incidence and competitive interactions of *Botrytis cinerea* and other filamentous fungi quiescent in grape berries and dormant buds in central Washington state. F.M. DUGAN (1), S.L. Lupien (1), and G.G. Grove (2). (1) USDA-ARS, Pullman, WA; (2) Washington State University, Prosser
- 90 Effect of various soil treatments on the viability of oospores of *Plasmopara viticola*, downy mildew of grapevine. B.X. KILLIGREW (1), K. Sivasithamparam (1), and E.S. Scott (2). (1) University of Western Australia, Crawley, Perth, WA, Australia; (2) University of Adelaide, Glen Osmond, SA, Australia
- 91 Specificity of grape and peach replant disorders. L.R. BULLUCK, III (1), G.T. Browne (1), S.M. Schneider (2), T.J. Trout (2). (1) USDA-ARS, University of California, Davis; (2) USDA-ARS, Parlier, CA
- 92 Timing of spore release by *Colletotrichum acutatum* in Michigan blueberry fields. P.S. WHARTON, J.S. Dickman, and A.M.C. Schilder. Michigan State University, East Lansing
- Diseases**
-
- Fruits and Nuts**
- 80 Bud union disorder in navel associated with a graft transmissible agent. L.J. MARAIS (1) and N.V. O'Connell (2). (1) University of California, Riverside; (2) University of California Cooperative Extension, Tulare

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- 93 Refugia of *Colletotrichum acutatum* in dormant high-bush blueberry. A. DeMARSAY and P.V. Oudemans. Rutgers University, Chatsworth, NJ
- 94 Variation in severity of *Monilinia vaccinii-corymbosi* infection among lowbush blueberry clones. L.N. PENMAN and S.L. Annis. University of Maine, Orono

Diseases

Ornamentals

- 95 Web blight caused by *Rhizoctonia solani* on New Guinea impatiens. R.T. MCMILLAN, JR., S.V. Johnson, and W.R. Graves. University of Florida, Homestead
- 96 Characterization of *Phytophthora* species from an irrigation water recycling system at a container nursery in southwestern Virginia. E.A. BUSH (1), C. Hong (1,2), E.L. Stromberg (1). Virginia Polytechnic Institute and State University, (1) Blacksburg and (2) Virginia Beach
- 97 Infectivity of *Phytophthora ramorum* on selected Ericaceous host species. P.W. TOOLEY (1) and L. Englander (2). (1) USDA-ARS, Fort Detrick, MD; (2) University of Rhode Island, Kingston
- 98 Relative virulence of *Phytophthora* species, including the sudden oak death pathogen *P. ramorum*, on leaves of several ornamentals. R.G. LINDERMAN (1), J.L. Parke (2), and E.M. Hansen (2). (1) USDA-ARS and (2) Oregon State University, Corvallis
- 99 Effect of fungicides on rooting of three ornamental species. L.J. SIMMONS and K.L. Bowen. Auburn University, Auburn, AL
- 100 Pineapple genetically modified for resistance to plant-parasitic nematodes. B. SIPES (1), C. Nagai (2), M. McPherson (3), H. Atkinson (3), D. Christopher (1), J. Hu (1), R. Paull (1), K. Rohrbach (1), P. Moore (4), C. Oda (5), P. Wood (6), and M. Conway (7). (1) University of Hawaii, Honolulu; (2) Hawaii Agriculture Research Center, Aiea; (3) University of Leeds, Leeds, UK; (4) USDA-ARS, Aiea, HI; (5) Del Monte Fresh Produce, Hawaii; (6) Maui Land and Pineapple Company, Ltd.; (7) Dole Foods Hawaii

Diseases

Turfgrasses

- 101 Resistance of *Sclerotinia homoeocarpa* to thiophanate-methyl and propiconazole in Ohio. Y. JO, J.W. Rimelspach and M.J. Boehm. Ohio State University, Columbus
- 102 Evaluation of *Sclerotinia homoeocarpa* isolates from creeping bentgrass from various geographic regions in the United States. G. VIJI (1), W. Uddin (1), M.P.S. Camara (2) and N.R. O'Neill (2). (1) Pennsylvania State University, University Park; (2) USDA-ARS, Beltsville, MD

- 103 Survey of isolates of *Sclerotinia homoeocarpa* in Indiana for sensitivity to three fungicides. L.E. BROWNBACK and R. Latin. Purdue University, West Lafayette, IN
- 104 Development of a rapid take-all assay for bentgrass. S.L. THOMAS, M.J. Boehm, J.W. Rimelspach, and L.H. Rhodes. Ohio State University, Columbus
- 105 Aggressiveness of *Ophiostoma korrae* isolates from two genetically distinct populations to bermudagrass. F.B. IRIARTE (1), J.D. Fry (1), D.L. Martin (2), T.C. Todd (1) and N.A. Tisserat (1). (1) Kansas State University, Manhattan; (2) Oklahoma State University, Stillwater
- 106 Occurrences and severity of diseases of eggplant, pepper, and tomato on Guam. R.L. SCHLUB. University of Guam, Mangilao, Guam

Diseases

Vegetables

- 107 The effect of previous crop residues and *Bacillus subtilis* on root rot of dry bean. C. ESTEVEZ DE JENSEN and J.A. Percich. University of Minnesota, St. Paul
- 108 Screening of biorationals for control of *Phytophthora capsici*. E.N. ROSSKOPF (1), J.P. Albano (1), and E.M. Lamb (2). (1) USDA-ARS and (2) University of Florida, Fort Pierce
- 109 1,3-D and oxamyl for nematode management in cucumbers. A.S. CSINOS (1), K.W. Seebold (1), and R.F. Davis (2). (1) University of Georgia and (2) USDA, Tifton, GA
- 110 Evidence for the biological nature and host specificity of mature watermelon vine decline. R. HARIKRISHNAN, D.S. Egel, K.K. Rane, and R.D. Martyn. Purdue University, West Lafayette, IN
- 111 Two new bacterial diseases on watermelons in Illinois. M. BABADOOST and N. Pataky. University of Illinois, Urbana
- 112 Susceptibility of watermelon cultigens to ambient ozone in eastern North Carolina. G.J. HOLMES and J.R. Schultheis. North Carolina State University, Raleigh
- 113 Plectosporium blight of pumpkins, a new fungal disease in Illinois. M. BABADOOST. University of Illinois, Urbana
- 114 Soluble amino acid changes in potatoes in response to salt treatment and *Fusarium sambucinum* infection. S.I. DZENGELESKI, A.B. da Rocha, W.W. Kirk, and R. Hammerschmidt. Michigan State University, East Lansing
- 115 Coinfection of potato with *V. dahliae* and geographic strains of *P. penetrans*. M. OMER (1), A. MacGuidwin (2), and R. Rowe (1). (1) Ohio State University, Wooster; (2) University of Wisconsin, Madison
- 116 Seedborne *Phytophthora infestans*: Transmission and growth responses of different potato cultivars. H.M.

- Partipilo (1), M.L. Powelson (1), and D.A. INGLIS (2). (1) Oregon State University, Corvallis; (2) Washington State University, Mount Vernon
- 117 Responses of potato cultivars to seedborne clonal lineages of *Phytophthora infestans*. H.M. Partipilo (1), M.L. POWELSON (1), and D.A. Inglis (2). (1) Oregon State University, Corvallis; (2) Washington State University, Mount Vernon
- 118 Influence of soil moisture on severity of common scab of potato (*Streptomyces scabies*). E.C. POOLE, D.S. Douches, W.W. Kirk, and R. Hammerschmidt. Michigan State University, East Lansing
- 119 Greenhouse study of biological induction of resistance in onion against *Alternaria porri*. J. ARBOLEYA, A.B. da Rocha, I. Widders, B. Zandstra, and R. Hammerschmidt. Michigan State University, East Lansing

Environmental Quality and Plant Health

- 120 Black leaf spot caused in *Spartina alterniflora* (smooth cordgrass) by *Fusarium moniliforme*. C.L. ROBERTSON, R.W. Schneider, and S.A. Harrison. Louisiana State University, Baton Rouge
- 121 Polycyclic infection by *Colletotrichum gloeosporioides* at high CO₂ selects for increased aggressiveness. S. CHAKRABORTY (1) and S. Datta (2). (1) CSIRO Plant Industry, University of Queensland, Australia; (2) University of Georgia, Athens

Epidemiology

- 122 Spatial and temporal development of Fusarium head blight epidemics on winter wheat in Ohio. S.M. EL-ALLAF, L.V. Madden, and P.E. Lipps. Ohio State University, Wooster
- 123 Weather variables related to *Gibberella zeae* perithecia development. N.S. DUFAULT (1), E.D. De Wolf (1), P.E. Lipps (2), and L.V. Madden (2). (1) Pennsylvania State University, University Park; (2) Ohio State University, Wooster
- 124 Effect of post inoculation relative humidity on reaction of peanut to *Sclerotinia minor*. H.A. MELOUK (1) and K.E. Jackson (2). (1) USDA-ARS, Oklahoma State University, and (2) Oklahoma State University, Stillwater
- 125 Moisture sources in relation to conidial dispersal and infection by *Cladosporium carpophilum* within peach canopies. Z. LAN and H. Scherm. University of Georgia, Athens
- 126 Effects of soil temperature fluctuations on sclerotia germination and apothecia production of *Sclerotinia sclerotiorum*, causal agent of soybean stem rot. A.L. MILA and X.B. Yang. Iowa State University, Ames
- 127 Dynamics of inoculum potential of *Monilinia fructicola* in relation to cultural practices in prune orchards. Y.

- LUO (1), T.J. Michailides (1), D.P. Morgan (1), W.H. Krueger (2), and R.P. Buchner (3). (1) University of California-Davis, Parlier; (2) University of California Cooperative Extension Center, Orland; (3) University of California Cooperative Extension Center, Red Bluff
- 128 Pseudothecial development and ascospore production of *Mycosphaerella citri*, the cause of citrus greasy spot as affected by CaCO₃, dolomite or urea. S.N. MONDAL and L.W. Timmer. University of Florida, Lake Alfred
- 129 Effects of burning and nutrient additions on *Puccinia dioicae* infecting *Erigeron strigosus* in tallgrass prairie. S.P. DENDY, K.A. Garrett, and H.U. Ahmed. Kansas State University, Manhattan
- 130 Relationship between high resolution IKONOS satellite image intensities and soybean stress caused by soybean cyst nematode. J. GUAN, A.J.A. Moreira, G.L. Tylka, and F.W. Nutter, Jr. Iowa State University, Ames
- 131 Estimating green leaf area index (GLAI) of soybean canopies using a radiometer. A.J.A. MOREIRA, J. Guan, and F.W. Nutter, Jr. Iowa State University, Ames
- 132 Vegetative compatibility groups of *Verticillium dahliae* isolates from strawberry in California. J.J. HAO, J.M. Duniway, and D.M. Dopkins. University of California, Davis
- 133 RAPD-PCR and rep-PCR molecular markers in *Uromyces appendiculatus* associated with *Ur-6* avirulent and virulent phenotypes in common bean. A.T. ALLEYNE, J.R. Steadman, J.G. Fenton and K.M. Eskridge. University of Nebraska, Lincoln
- 134 Suppression of early leaf spot through peanut-corn intercropping. L.E. DUFFIE (1), B.B. Shew (1), and M.A. Boudreau (2). (1) North Carolina State University, Raleigh; (2) Warren Wilson College, Asheville, NC
- 135 Range grasses: Potential reservoirs for fungal pathogens. J.M. FLEER and J.E. Partridge. University of Nebraska, Lincoln

Forest Pathology

- 136 *Heterobasidion annosum* associated with mortality of Christmas trees in the Pacific Northwest. G.A. CHASTAGNER (1), I.M. Thomsen (2), J. Hudak (1), and K.L. Riley (1). (1) Washington State University, Puyallup; (2) Danish Forest and Landscape Research Institute, Hoersholm, Denmark
- 137 Root diseases associated with dead and dying noble fir Christmas trees in the Pacific Northwest. G.A. CHASTAGNER and J. Hudak. Washington State University, Puyallup
- 138 Fungal diversity in woody roots of east-slope Cascade Mountain Douglas-fir and ponderosa pine. J.A. HOFF (1,2), N.B. Klopfenstein (1), G.I. McDonald

- (1), J.R. Tonn (1), P.J. Zambino (1), J.D. Rogers (2), T.L. Peever (2), and L.M. Carris (2). (1) USDA Forest Service, Moscow, ID; (2) Washington State University, Pullman
- 139 Host range and distribution of a *Longidorus* sp. associated with stunted loblolly pine seedlings. S.W. FRAEDRICH (1), M.M. Cram (1), and Z.A. Handoo (2). (1) USDA Forest Service, Athens, GA; (2) USDA-ARS, Beltsville, MD
- 140 *Phytophthora cinnamomi* on loblolly decline sites in Alabama. A. Weber (1), J. JONES (1), N. Hess (2), E. Carter (3), and J. Stienman (4). (1) Louisiana State University, Baton Rouge, LA; (2) U.S. Forest Service, Pineville, LA; (3) U.S. Forest Service, Auburn University, AL; (4) U.S. Forest Service, Asheville, NC
- 141 A phylogenetic study of the Coniophoraceae, a family of wood decay fungi. C.A. JASALAVICH and J. Jellison. University of Maine, Orono
- 142 Oxalic acid production and pH regulation in liquid cultures of four wood decay fungi. J.S. SCHILLING and J. Jellison. University of Maine, Orono
- 143 Sudden oak death surveys in Oregon - 2001. M.G. McWilliams (1), A. Kanaskie (1), N. Osterbauer (2), E.M. Goheen (3), E.M. HANSEN (4), W. Sutton (4), and J. Mair (1). (1) Oregon Dept. of Forestry, Corvallis; (2) Oregon Dept. of Agriculture, Salem; (3) U.S. Forest Service, Central Point, OR; (4) Oregon State University, Corvallis
- 144 Log inoculations to assess tree susceptibility to sudden oak death. E.M. HANSEN and W. Sutton. Oregon State University, Corvallis
- 145 Distribution of *Ceratocystis fagacearum* in actively wilting red oaks. M. YAMATO (1), J. Juzwik (2,3), and K.W. Kromroy (3). (1) University of Tokyo, Tokyo, Japan; (2) USDA Forest Service and (3) University of Minnesota, St. Paul, MN
- G. Rodriguez-Alvarado (1), E. Garay-Serrano (2), A.K. Sturbaum (2), N.J. Grünwald (3), J.M. Sanchez-Yañez (1) and H. Lozoya-Saldaña (2). (1) Univ. Michoacana de San Nicolas Hidalgo, Morelia, Mexico; (2) PICTI-PAPA, Metepec, Mexico; (3) USDA-ARS, Prosser, WA
- 150 Exploring genetic diversity of *Uromyces appendiculatus* by AFLP analysis. M.A. PASTOR-CORRALES (1), J.M. Eibl (1), N.R. O'Neill (1), P. Van Berkum (1), and J.R. Steadman (2). (1) USDA-ARS, Beltsville, MD; (2) University of Nebraska, Lincoln
- 151 Aggressiveness and molecular variability of *Fusarium solani* f. sp. *glycines*. S. LI (1), G. Hartman (1,2) and W. Pedersen (1). (1) University of Illinois and (2) USDA-ARS, Urbana, IL
- 152 Chromosome length polymorphism in *Cochliobolus sativus*. S. ZHONG and B.J. Steffenson. University of Minnesota, St. Paul
- 153 Use of nitrate nonutilizing mutants to examine vegetative compatibility groups in *Cercospora kikuchii*. G. CAI and R.W. Schneider. Louisiana State University, Baton Rouge
- 154 Genetic differentiation of *Phoma ligulicola* isolates from pyrethrum in Tasmania. S.J. PETHYBRIDGE (1), J.S. Scott (1), K. Harrison (1), F.S. Hay (1) and T. Groom (2). (1) University of Tasmania, Burnie, TAS, Australia; (2) Botanical Resources Australia Pty. Ltd., Ulverstone, TAS, Australia
- 155 Genetic instability in field isolates of *Phytophthora infestans*. C.L. GROVES and E.R. Champaco. USDA-ARS, University of Maine, Orono
- 156 Molecular variability and pathogenesis of *Phoma medicaginis* var. *medicaginis* isolates from Minnesota. C. CASTELL (1), D. Samac (1,2), and L.J. Szabo (1,3). (1) University of Minnesota and (2) USDA-ARS, St. Paul, MN
- 157 Mechanistic studies of pheromone analog mating and germination inhibitors from *Ustilago hordei*. P.J. KOSTED and J.E. Sherwood. Montana State University, Bozeman
- 158 Association of a fungal endophyte with seed tissue and locoweed toxicity. J. Romero (1), R. CREAMER (1), M.H. Ralphs (2), and D.R. Gardner (2). (1) New Mexico State University, Las Cruces; (2) USDA-ARS, Logan, UT
- 159 Characterization of oxygenases involved in the *Aspergillus* seed interaction. D.I. TSITSIGIANNIS, T.M. Kowieski, and N.P. Keller. University of Wisconsin, Madison
- 160 Isolation and characterization of the second catalytic subunit of cAMP-dependent protein kinase in *Magnaporthe grisea*. Y. KIM, J.E. Hamer, and J.-R. Xu. Purdue University, West Lafayette, IN
- 161 Characterization of a *Fusarium verticillioides* seedling pathogenicity factor. A.E. GLENN, F.I. Meredith, and R.T. Riley. USDA-ARS, Athens, GA

Fungi

Genetics, Molecular Biology, Cell Biology

- 146 REMI mutagenesis in the wheat scab fungus *Fusarium graminearum*. M. TRACY (1), Z. Hou (1), H.C. Kistler (2), J.R. Xu (1). (1) Purdue University, West Lafayette, IN; (2) USDA-ARS, University of Minnesota, St. Paul
- 147 Production and liberation of secondary conidia by *Cercospora zea-maydis*. C.L. LAPAIRE (1) and L.D. Dunkle (2). (1) Purdue University and (2) USDA-ARS, Purdue University, West Lafayette, IN
- 148 Characterization of isolates of *Colletotrichum gloeosporioides* and *Glomerella cingulata* from apple. E. GONZÁLEZ (1), T.B. Sutton (1) and J.C. Correll (2). (1) North Carolina State University, Raleigh; (2) University of Arkansas, Fayetteville
- 149 Characterization of *Phytophthora infestans* in Michoacan, Mexico. S.P. FERNANDEZ-PAVIA (1),

- 162 Biochemical implications of blocking the ergot alkaloid pathway of a grass endophyte. D.G. PANACCIONE (1), B.A. Tapper (2), G.A. Lane (2), C.L. Schardl (3), R.D. Johnson (1), C. Machado (3), E. Davies (2), and K. Fraser (2). (1) West Virginia University, Morgantown; (2) AgResearch, Palmerston North, New Zealand; (3) University of Kentucky, Lexington
- 162a *Agrobacterium tumefaciens*-mediated transformation of *Monilinia fructicola* with green fluorescent protein. S.M. MAREK (1), Z. Pan (1), L.M. Ciuffetti (2), and R.M. Bostock (1). (1) University of California, Davis; (2) Oregon State University, Corvallis

Fungi

Systematics, Evolution, Ecology

- 163 A new species of *Pythium* from apple and wheat in eastern Washington. T.C. PAULITZ (1), K. Adams (1), M. Mazzola (2), and C.A. Levesque (3). (1) USDA-ARS, Pullman, WA; (2) USDA-ARS, Wenatchee, WA; (3) Agriculture and Agri-Food Canada, Ottawa, ON
- 164 Discrete speck, a putative newly discovered fungus in the sooty blotch and flyspeck complex on apples. J.C. BATZER, M.L. Gleason, and L.H. Tiffany. Iowa State University, Ames
- 165 Advances in the integration of morphological and molecular characterization in *Phytophthora* genus: The case of *P. kelmania* and other putative new species. Z.G. ABAD, J.A. Abad, and T. Creswell. North Carolina State University, Raleigh
- 166 Expansion of the sooty blotch and flyspeck complex on apple using ribosomal DNA. J.C. BATZER, M.L. Gleason, T. Harrington, and W. Chen. Iowa State University, Ames
- 167 Substrate utilization patterns by *Fusarium solani* f.sp. *glycines* and *F. solani* f.sp. *phaseoli*. J.C. RUPE (1), L.A. Mozzoni (2), and E.B. Gbur, Jr. (1). (1) University of Arkansas, Fayetteville; (2) Rosario National University, Rosario, Argentina
- 168 Fatty acid production by species of *Phytophthora*: Potential for identification. C.-H. Duan, M.B. Riley, and S.N. JEFFERS. Clemson University, Clemson, SC
- 169 A survey of *Phytophthora* species in Hainan Province of China. H.C. Zeng (1), F.C. Zheng (1), and H.H. HO (2). (1) Chinese Academy of Tropical Sciences, Danzhou City, Hainan, China; (2) State University of New York, New Paltz
- 170 Effects of fire on annual infection levels of big bluestem by *Puccinia andropogonis*. C.W. BARNES and J.V. Groth. University of Minnesota, St. Paul
- 171 Implication of stigmatic exudate in infection of blueberry flowers by *Monilinia vaccinii-corymbosi*. H.K. NGUGI and H. Scherm. University of Georgia, Athens

Host Resistance

- 172 Proposed chromosome location of *Fusarium* head blight resistance genes in additional sets of durum disomic substitution lines. R.W. Stack (1), J.D. MILLER (2), and L.R. Joppa (2). (1) North Dakota State University and (2) USDA-ARS, Fargo, ND
- 173 Molecular analysis of the response of wild barley-derived lines to inoculation with *Rhynchosporium secalis* spores. R.K. GENGER (1), K. Oldach (2), and W. Knogge (2). (1) CSIRO Plant Industry, Canberra, ACT, Australia; (2) Adelaide University, Glen Osmond, SA, Australia
- 174 Genetic analysis of resistance in lettuce against *Verticillium dahliae*. R.G. BHAT (1), E.J. Ryder (2), and K.V. Subbarao (1). (1) University of California, Davis; (2) USDA-ARS, Salinas, CA
- 175 Genes expressed during the resistance response to *Mycosphaerella graminicola*. S. Ray (1), S.B. Goodwin (2), and J.M. ANDERSON (2). (1) Purdue University and (2) USDA-ARS, West Lafayette, IN
- 176 Resistance to the soybean aphid in soybean and other legumes. C.B. HILL (1), C.R. Ferro (1), Y. Li (1), and G.L. Hartman (1,2). (1) University of Illinois and (2) USDA-ARS, Urbana, IL
- 177 Functional and sequence comparisons of *Brassica* FLS2 homologues and their elicitors. C. PFUND, F.M. Dunning, and A.F. Bent. University of Wisconsin, Madison
- 178 Quantitative trait loci for partial resistance to *Phytophthora sojae* in soybeans. K. BURNHAM (1), A.E. Dorrance (1), T. VanToai (2), and S.K. St. Martin (1). (1) Ohio State University and (2) USDA-ARS, Wooster, OH
- 179 Apparent lack of strong selection pressure on non-functional *avrBs2* for change to a functional *avrBs2*. T. WANGSOMBOONDEE, P.B. Lindgren, and D.F. Ritchie. North Carolina State University, Raleigh
- 180 Molecular mapping and quantitative trait loci (QTL) analysis of late blight resistance in potato. S. COSTANZO (1), B.J. Christ (1), and K.G. Haynes (2). (1) Pennsylvania State University, University Park; (2) USDA-ARS, Beltsville, MD
- 181 QTL analysis for partial resistance to early blight in an F1 diploid hybrid potato population. R. ZHANG (1), B.J. Christ (1), and K.G. Haynes (2). (1) Pennsylvania State University, University Park; (2) USDA-ARS, Beltsville, MD
- 182 Development of RGAP markers for stripe rust resistance gene *Yr15* and use of the markers to detect the gene in breeding lines. X.M. CHEN (1,2) and G.P. Yan (2). (1) USDA-ARS and (2) Washington State University, Pullman
- 183 A one-step polymerase chain reaction protocol using soybean seed for marker assisted selection of disease resistance in soybean. M. BOLTON, B. Nelson, R.

- Sparks and A. Santoso. North Dakota State University, Fargo
- 184 Phenotypic recurrent selection for improving partial resistance to crown rust (*Puccinia coronata* Corda) in oat (*Avena sativa* L.) populations. C. CASTELL and D. Stuthman. University of Minnesota, St. Paul
- 185 Differences in substrate specificity and antimicrobial activity of potato aspartic proteases. M.G. GUEVARA (1), P. Verissimo (2), E. Pires (2), C. Faro (2), A. Mayoral (1) and G.R. Daleo (1). (1) University Nacional De Mar Del Plata, Mar Del Plata, Argentina; (2) Coimbra, Portugal
- 186 *Brassica napus* polygalacturonase inhibitors are differentially regulated by abiotic stress, wounding and fungal infection. R. LI, R. Rimmer, M. Yu, M. Gruber, A. Sharpe, G. Seguin-Swartz, and D. Hegedus. Agriculture and Agri-Food Canada, Saskatoon, SK
- 187 Nitric oxide synthase in higher plants: A novel protein different from NOS in animals. M.-Y. WONG, C.-C. Chou, and J.-S. Huang. North Carolina State University, Raleigh
- 188 Genetics of root-knot nematode resistance in *Arachis* interspecific hybrids. G.T. CHURCH (1), J.L. Starr (1), and C.E. Simpson (2). (1) Texas A&M University, College Station; (2) Texas Agricultural Experiment Station, Stephenville
- 189 Induction of systemic acquired resistance by acibenzolar-S-methyl to plant-parasitic nematodes in pineapple. B. CHINNASRI, B.S. Sipes, and D.P. Schmitt. University of Hawaii at Manoa, Honolulu
- Colombia; (2) CATAS, Danzhou City, People's Republic of China; (3) Minamitomigaoka, Nara-shi, Nara, Japan
- 195 Fungal mannitol metabolism in plant-pathogen interactions. H. VÉLEZ, M. Ehrenshaft, J.D. Williamson, D.M. Pharr, and M.E. Daub. North Carolina State University, Raleigh
- 196 Maize secondary metabolites and *Fusarium* mycotoxin production. A.C. BILY (1,2), L.M. Reid (3), C. Lefevre (1), B.A. Blackwell (3), M. Savard (3), C. Regnault-Roger (2), J.T. Arnason (1) and B.J.R. Philogène (1). (1) University of Ottawa, Ottawa, ON, Canada; (2) Université de Pau et des Pays de l'Adour, Pau, France; (3) Agriculture and Agri-Food Canada, Ottawa, ON
- 197 Primary germ tube formation by conidia of *Blumeria graminis hordei* on leaf epidermal cells of *Hordeum vulgare* and *Arabidopsis*. H.H. EDWARDS. Western Illinois University, Macomb
- 198 Systematic replacement of amino acid residues in conserved regions of Ptr ToxA. V.A. Manning, R.M. ANDRIE, L.M. Ciuffetti. Oregon State University, Corvallis
- 199 Involvement of hormones in symptomatology of post-bloom fruit drop (PFD) of citrus caused by *Colletotrichum acutatum*. K.R. CHUNG, R. Yuan, J.K. Burns, L.W. Timmer. University of Florida, Lake Alfred
- 200 Genomics of compatibility between potato and *Phytophthora infestans*. C.D. SMART (1), S. Restrepo (1), A. Hart (2), R. Buell (2), and W.E. Fry (1). (1) Cornell University, Ithaca, NY; (2) Institute for Genomic Research, Rockville, MD
- 201 Identifying peptides that bind to and inhibit secreted cellulase of soybean cyst nematode using a phage display peptide library. W. DU (1), R.S. Hussey (3), T.J. Baum (2), and E.L. Davis (1). (1) North Carolina State University, Raleigh; (2) Iowa State University, Ames; (3) University of Georgia, Athens
- 202 Construction of a secretory gland cell-specific cDNA library of *Heterodera glycines* through an amplified RNA approach. X. WANG (1), T. Maier (2), R. Hussey (3), T. Baum (2), and E. Davis (1). (1) North Carolina State University, Raleigh; (2) Iowa State University, Ames; (3) University of Georgia, Athens
- 203 Management of early blight of potato in Khartoum State, Sudan. Z.H.M. SAEED. University of Khartoum, Omdurman, Sudan
- 203a Redox regulation of *Monilinia fructicola* cutinase expression and germ tube development. M.H. LEE, S.M. Marek, and R.M. Bostock. University of California, Davis
- 203b A novel tomato cDNA with homology to lipid transfer proteins is rapidly induced by arachidonic acid and pathogen infection. Z. Pan (1), P.D. WEYMAN (2), Q. Feng (2), D.G. Gilchrist (1,2), and R.M. Bostock.

Host-Parasite Relations

Biochemistry, Molecular Biology, Cell Biology


- 190 Insight into *Ralstonia solanacearum* pathogenesis using strains expressing fluorescent proteins. T.P. DENNY and H. Liu. University of Georgia, Athens
- 191 Molecular characterization of a new *Xanthomonas citri* strain isolated in Florida. A. AL-SAADY and D.W. Gabriel. University of Florida, Gainesville.
- 192 Light-dependent bleaching of detached barley leaf tissue by deoxynivalenol. W.R. BUSHNELL, T.M. Seeland, and D.E. Krueger. USDA-ARS and University of Minnesota, St. Paul
- 193 The *Magnaporthe pth1* mutant forms defective appressoria. J. Beckerman (1), C. Cortes (2), C. FILIPPI (3), J. Sweigard (4), B. Valent (5) and D. Ebbole (3). (1) University of Minnesota, St. Paul; (2) Esc. de Quimico-Farmacobio., Morelia, Mexico; (3) Texas A&M University, College Station; (4) DuPont Ag Biotech., Newark, DE; (5) Kansas State University, Manhattan
- 194 A PCR-based assay for specific detection of *Acremonium implicatum*, an endophytic fungus in species of *Brachiaria*. S. KELEMU (1), H. Dongyi (1), H. Guixiu (2) and Y. Takayama (3). (1) CIAT, Cali,


(1) Center for Engineering Plants for Resistance against Pathogens and (2) University of California, Davis, CA

Integrated Pest Management

- 204 Jackbean accessions, as soil amendments, vary in suppressing root-knot nematode. J.T. WALKER (1) and J.B. Morris (2). (1) University of Georgia, Griffin; (2) USDA-ARS, Griffin, GA
- 205 Reducing root disease problems in dry beans by new methods aimed at alleviating soil compaction. R.M. HARVESON, J.A. Smith, E.S. Blehm, and R. Gatch. University of Nebraska, Scottsbluff
- 206 Suppression of *Rhizoctonia* pre-emergence damping-off of impatiens by enhanced microbial activity in potting mix amended with composted swine waste. H.G. DIAB EL-ARAB, S. Hu, and D.M. Benson. North Carolina State University, Raleigh
- 207 Integrating fungicides and a *Bacillus mycoides* biological control agent to manage *Cercospora* leaf spot resistance to fungicides. B.J. LARSON and B.J. Jacobsen. Montana State University, Bozeman
- 208 Pathogenic variation of *Phoma* spp. from alfalfa and chemical control of *Phoma* pathogens in Alberta. H. WANG (1), S.F. Hwang (1), K.F. Chang (2), G.D. Turnbull (1), and R.J. Howard (2). (1) Alberta Research Council, Vegreville, AB, Canada; (2) Alberta Agric Food and Rural Dev, Brooks, AB, Canada
- 200 Managing *Cercospora* using the prediction model. M. KHAN. North Dakota State University, Fargo, and University of Minnesota
- 210 Supervised control of *Cercospora beticola* in sugar beet using action thresholds and weather in the Netherlands. J. VEREIJSEN and J.H.M. Schneider. Institute of Sugar Beet Research, Bergen op Zoom, Netherlands
- 211 Performance of a warning system for sooty blotch and flyspeck on apple using on-site wetness measurements and site-specific wetness estimates. M.L. GLEASON (1), M. Babadoost (2), P.S. McManus (3), S.N. Wegulo (1), and S.J. Hell (1). (1) Iowa State University, Ames; (2) University of Illinois, Urbana; (3) University of Wisconsin, Madison

Pathogen-Vector Interactions

- 212  Characterization of transfer regions in the mollicute *Spiroplasma kunkelii*: Putative pathogenicity islands? X. BAI, T. Fazzolari and S. Hogenhout. Ohio State University, Wooster
- 213 *Homalodisca coagulata* (Hemiptera, Cicadellidae) transmission of *Xylella fastidiosa* to almonds. R.P.P. ALMEIDA and A.H. Purcell. University of California, Berkeley

- 214 Luteovirus-binding proteins associated with aphid transmission specificity. C. Li, F.E. GILDOW, and D. Cox-Foster. Pennsylvania State University, University Park
- 215 CP-RTD genes of BYDV-PAV isolates affect aphid transmission efficiency and symptom severity. S. LIU and W.A. Miller. Iowa State University, Ames
- 216 Feeding preference of *Frankliniella fusca* for selected peanut cultivars and a breeding line. B. Mandal (1), H.R. Pappu (2), L. Wells (1), A.K. CULBREATH and J.W. Todd (1). (1) University of Georgia, Tifton; (2) USDA-APHIS, Riverdale, MD
- 217  Baculovirus expression of soluble TSWV glycoproteins. A.E. WHITFIELD (1), D.E. Ullman (2), and T.L. German (1). (1) University of Wisconsin, Madison; (2) University of California, Davis

Phytoplasmas, Spiroplasmas, Fastidious Prokaryotes

- 218 A novel method for *in vitro* quantification of biofilm and planktonic populations of the plant pathogenic bacterium *Xylella fastidiosa*. L.L.R. MARQUES (1), H. Ceri (1), G.P. Manfio (2), and M.E. Olson (1). (1) University of Calgary, Calgary, AB, Canada; (2) CPQBA - UNICAMP, Campinas, SP, Brazil
- 219 Gene expression profile of pathogenicity factors in *Xylella fastidiosa*. R. HERNANDEZ-MARTINEZ, C.K. Dumenyo and D.A. Cooksey. University of California, Riverside
- 220 Minimum inhibitory concentrations of terpene on growth of *Xylella fastidiosa* strains. C.J. CHANG (1) and L. Franklin (2). (1) University of Georgia, Griffin; (2) Alpha Gamma Research Inc., Atlanta, GA
- 221 Gene content and organization of an 85-kbp DNA segment from the genome of *Spiroplasma kunkelii*. Y. ZHAO, R.E. Davis, I.-M. Lee, M. Martini, and R. Jomantiene. USDA-ARS, Beltsville, MD
- 222 Classification of phytoplasmas in the expanded elm yellows group (16SrV) based on 16S rRNA and ribosomal protein gene sequences. I.-M. LEE (1), M. Martini (1), and C. Marcone (2). (1) USDA-ARS, Beltsville, MD; (2) University of Basilicata, Potenza, Italy
- 223 A new member of the clover proliferation phytoplasma group associated with elm yellows in Illinois. K.A. Jacobs (1), I.M. LEE (2), H.M. Griffiths (3), F. Miller (4) and K.D. Bottner (2). (1) Morton Arboretum, Lisle, IL; (2) USDA-ARS, Beltsville, MD; (3) Cornell University, Ithaca, NY; (4) Joliet Junior College, Joliet, IL
- 224 Phytoplasma typing based on PCR of 16S rDNA and genetic sequences. E. TUMBAN, J. Rascoe, and M. Shaw. New Mexico Highlands University, Las Vegas
- 225 Characterization of the spread of two aster yellows phytoplasma strains in lettuce. J. ZHANG, S. Hogenhout, and S.A. Miller. Ohio State University, OARDC, Wooster

Poster Session A • Sunday and Monday, July 28 and 29

Postharvest Pathology and Mycotoxicology

- 226 Aflatoxin contamination of commercial cottonseed in south Texas from 1997 to 2000. R. JAIME-GARCIA and P.J. Cotty. USDA-ARS, New Orleans, LA
- 227 Molecular characterization of a mutation in *Aspergillus flavus* causing the dominant repression of aflatoxin biosynthesis. G.-H. Huh (1), J.E. Flaherty (2), C.P. WOLOSHUK (2). (1) Inje University, Kimhae, Korea; (2) Purdue University, West Lafayette, IN
- 228 Cultural and analytical methods to determine aflatoxin production by *Aspergillus* species from the Mississippi Delta. H.K. ABBAS (1), R.M. Zablotowicz (1), B.W. Horn (2), W. Xie (3), and W.T. Shier (3). (1) USDA-ARS, Stoneville, MS; (2) USDA-ARS, Dawson, GA; (3) University of Minnesota, Minneapolis
- 229 Role of sugars and other nutrients in germination of *Penicillium expansum* conidia with implication to biological control of postharvest decays on apple. W.J. JANISIEWICZ and T.J. Tworowski. USDA-ARS, Kearneysville, WV
- 230 Continuous exposure to exogenous ethylene does not affect brown rot development on cold-stored stone fruits. L. PALOU, C.H. Crisosto, and L.M. Basinal. University of California, Davis

Rhizosphere Microbiology and Ecology

- 231 Characterization of bacterial communities in soil during the transition to organic agriculture. A.A. COLLINS, D.C. Fargo, and F.J. Louws. North Carolina State University, Raleigh
- 232 Functional and species composition of soil microbial communities from organic and conventional field soils in North Carolina. D.L. GLENN and J.B. Ristaino. North Carolina State University, Raleigh
- 233 Differentiation of rhizosphere microbial communities of tobacco, soybean and corn using fatty acid methyl ester analysis. K.L. ONG, D.A. Kluepfel, B.A. Fortnum, and M.B. Riley. Clemson University, Clemson, SC
- 234 Effects of different 3-yr cropping systems on soil microbial communities and soilborne disease of potato. R.P. LARKIN. USDA-ARS, Orono, ME
- 235 Effect of fungicides for black pod control on soil microflora in Papua New Guinea. P.H. Aisa (1), G. Blaha (1), P.K. Hebbbar (2), S. Sanogo (3), and J.H. BOWERS (4). (1) Papua New Guinea Cocoa and Coconut Research Institute, Rabaul, Papua, New Guinea; (2) M&M Mars, Inc., Beltsville, MD; (3) Wye Research and Education Center, University of Maryland, Queenstown; and (4) USDA-ARS, Beltsville, MD
- 236 Cultivar-specific increase in 2,4-diacetylphloroglucinol-producing fluorescent pseudomonads associated with wheat. D.L. FUNNELL and M. Mazzola. USDA-ARS, Wenatchee, WA

- 237 Wheat genotype-specific induction of soil suppressiveness to *Rhizoctonia solani*. M. MAZZOLA and Y.-H. Gu. USDA-ARS, Wenatchee, WA

Seed Pathology

- 238 Ability of an ELISA-based seed health test to detect *Erwinia stewartii* in maize seed treated with fungicides and insecticides. P.M. MICHENER (1), J.K. Pataky (1), C.C. Block (2), L.M. Shepherd (3) and D.C. McGee (3). (1) University of Illinois, Urbana; (2) USDA-ARS and (3) Iowa State University, Ames
- 239 Silver nitrate completely decontaminates slash pine seed. A.M. DINER. USDA Forest Service, University of Florida, Gainesville
- 240 Role of watermelon blossoms in seed infection by *Acidovorax avenae* subsp. *citrulli*. R.R. WALCOTT (1), A.C. Castro (1) and R.D. Gitaitis (2). University of Georgia, (1) Athens and (2) Tifton
- 241 The effect of low dose ultraviolet light-C seed treatment on induced resistance in cabbage to black rot *Xanthomonas campestris* pv. *campestris*. J.E. Brown (1), T.Y. Lu (1), C. STEVENS (2), V.A. Khan (2), J.Y. Lu (2), C.L. Wilson (3), D.J. Collins (1), M.A. Wilson (4), E.C.K. Igwegbe (2), E. Chalutz (5), and S. Drobny (5). (1) Auburn University, Auburn, AL; (2) Tuskegee University, Tuskegee, AL; (3) USDA-ARS, Kearneysville, WV; (4) Southeast Missouri State University, Cape Girardeau; (5) ARO, Bet Dagan, Israel

Viruses

Differentiation, Diversity, Detection

- 242 Heat treatment as a virus diagnostic tool. L.C. LANE. University of Nebraska, Lincoln
- 243 Development of reliable and sensitive detection methods for the diagnosis of major viruses and viroids infecting vegetables, grape and citrus in Tunisia. F. Gorsane, I. Fekih-Hassen, A. Elleuch, F. Djilani, L. Jandoubi, M. Marrakchi and H. FAKHFAKH. Faculty of Sciences of Tunis, Tunisia
- 244 Detection of *Tomato yellow leaf curl virus* and *Tomato yellow leaf curl Sardinia virus* with a general probe and species specific probes in tomato samples from Agadir, Morocco. M. SEDEGUI (1), M.K. Nakhla (2), T.A. Evans (3), and D.P. Maxwell (2). (1) Ministry of Agriculture, Rabat, Morocco; (2) University of Wisconsin, Madison; (3) University of Delaware, Newark
- 245 Molecular methods for detection of *Banana bunchy top virus* from banana tissues and viruliferous banana aphids. A.A. SHALABY (1), A.A. Rezk (1), M.K. Nakhla (2), S. El-Deeb (3), F. Abo El-Abbas (3), M. El-Hammady (3), H.M. Mazyad (1), and D.P. Maxwell (2). (1) Agricultural Research Center, Giza,

- Egypt; (2) University of Wisconsin, Madison; (3) Ain Shams University, Cairo, Egypt
- 246 Isolation, identification, and detection of undescribed sweetpotato viruses. S.L. New, J.A. Abad, and J.W. MOYER. North Carolina State University, Raleigh
- 247 Specific detection and quantification of plum pox potyvirus by real-time fluorescent RT-PCR. D.J. Sherman, W.L. SCHNEIDER, A.L. Stone, V.D. Damsteegt, R.D. Frederick. USDA-ARS, Fort Detrick, MD
- 248 Detection of three potato viruses by multiplex reverse transcription-polymerase chain reaction in a single reaction. A.A. SHALABY (1), M.K. Nakhla (2), A.M. Soliman (1), D.P. Maxwell (2), A. Hadidi (3), and H.M. Mazyad (1). (1) Agricultural Research Center, Giza, Egypt; (2) University of Wisconsin, Madison; (3) NIH, Bethesda, MD
- 249 Recent occurrence trends of RSV and its detection using RT-PCR. B.C. LEE (1), D.Y. Kwak (1), Y.K. Hong (1), D.C. Lee (1), S.C. Kim (1) and K.W. Lee (2). (1) National Yeongnam Agricultural Experiment Station, Milyang, Korea; (2) Kyungpook National University, Taegu, South Korea
- 250 Mixed infection of papaya ringspot virus, zucchini yellow mosaic virus and papaya bunchy top affecting papaya (*Carica papaya L.*) in Puerto Rico. M. FERWERDA-LICHA. USDA-ARS, Mayaguez, PR
- 251 Automation of *Tomato spotted wilt virus* inoculation. B. Mandal (1), A.S. CSINOS (1), H.R. Pappu (2), N. Martinez-Ochoa (1) and A.K. Culbreath (1). (1) University of Georgia, Tifton; (2) USDA-APHIS, Riverdale, MD
- 252 A new experimental host for plant viruses. S. ADKINS and E.N. Roskopf. USDA-ARS, Fort Pierce, FL
- 253 Susceptibility of peanut and sunflower to *Impatiens necrotic spot virus*. B. Mandal (1), H.R. Pappu (2), and A.K. CULBREATH (1). (1) University of Georgia, Tifton; (2) USAD-APHIS, Riverdale, MD

Viruses

Genetics, Molecular Biology, Cell Biology

- 254 Effects of two soil-borne viruses of sugarbeet and their fungal vector, *Polymyxa betae*, on virus accumulation and plant growth in sugarbeet. G.C. Wisler (1), R.T. Lewellen (2), J.L. Sears (2), J. Wasson (2), H.-Y. Liu (2), and W.M. WINTERMANTEL (2). (1) University of Florida, Gainesville; (2) USDA-ARS, Salinas, CA
- 255 Systemic infection of plants with bipartite *Tobacco mosaic virus* transient expression vectors. D.J. LEWANDOWSKI, E. Knapp, and G. Danyluk. University of Florida, Lake Alfred
- 256 Yellow dwarf virus quantification by real-time PCR during disease development in resistant and susceptible plants. B. Balaji (1), D.B. Bucholtz (2), and J.M. ANDERSON (2). (1) Purdue University and (2) USDA-ARS, West Lafayette, IN
- 257 Epidemiology, detection, and management of tomato ringspot virus and *Xiphinema americanum* in red raspberry. J.N. PINKERTON, J. Kraus and R.R. Martin. USDA-ARS, Corvallis, OR
- 258 Use of phage display for isolation of potential geminivirus resistance genes. S.F. HANSON, B.N. Milde, and D.P. Maxwell. University of Wisconsin, Madison

Poster Session B • Tuesday and Wednesday, July 30 and 31

Presiding: Darin Eastburn, University of Illinois, Urbana, and
Jeffrey B. Jones, University of Florida, Gainesville

Bacterial

Genetics, Molecular Biology, Cell Biology

- 1 Impact of cell stress on the efficacy of *phlA*-based quantitative competitive PCR in biocontrol *Pseudomonas fluorescens* CHA0. F. Rezzonico (1), Y. MOËNNE-LOCCOZ (2) and G. Defago (1). (1) Institute of Plant Sciences, Zürich, Switzerland; (2) Université Claude Bernard, Villeurbanne, France
- 2 Negative signaling among rhizobacteria. J.E. MORELLO, E.A. Pierson and L.S. Pierson III. University of Arizona, Tucson
- 3 Differential regulation of chitinases and glucanases mediated by a CLP regulator in *Lysobacter enzymogenes*. J.-M. ZHOU (1), R.M. Reedy (1), G. Yuen (2) and D.Y. Kobayashi (1). (1) Rutgers University, New Brunswick, NJ; (2) University of Nebraska, Lincoln
- 4 *ropA*, a negative regulator of phenazine biosynthesis in *Pseudomonas aureofaciens* 30-84. C.A. WHISTLER (1) and L.S. Pierson III (2). (1) University of Hawaii, Honolulu; (2) University of Arizona, Tucson
- 5 Visualizing PhcA-regulated virulence gene expression of *Ralstonia solanacearum* using transcriptional fusions expressing green fluorescent protein (GFP). H. LIU, Y. Kang, and T.P. Denny. University of Georgia, Athens
- 6 Identification of novel *hrp*-regulated genes through functional genomic analysis of the *Pseudomonas syringae* pv. *tomato* DC3000 genome. J. ZWIESLER-VOLLICK (1), A.E. Plovanich-Jones (1), K. Nomura (1), S. Bandyopadhyay (1), V. Joardar (2), B.N. Kunkel (2), and S.Y. He (1). (1) Michigan State University, East Lansing; (2) Washington University, St. Louis, MO
- 7 Detoxification of the toxin cercosporin by the bacterium *Xanthomonas campestris*. T.V. TAYLOR, T.K. Mitchell, and M.E. Daub. North Carolina State University, Raleigh
- 8 Construction of pMEK12 for expressing Syr proteins in *Pseudomonas syringae* required for syringomycin production. S.-E. LU (1), B.K. Scholz-Schroeder (2), and D.C. Gross (1). (1) Texas A&M University, College Station; (2) Washington State University, Pullman
- 9 Genomic fingerprinting of *Rathayibacter* species by amplified fragment length polymorphism. I.V. AGARKOVA (1), A.K. Vidaver (1), E. Postnikova (2), and N.W. Schaad (2). (1) University of Nebraska, Lincoln; (2) USDA-ARS, Fort Detrick, MD
- 10 Diversity among *Xanthomonas axonopodis* pv. *phaseoli* strains infecting common bean from different geographical areas. G. MAHUKU, C. Jara, M.A. Henriquez and J. Cuasquer. Centro Internacional de Agricultura Tropical, Cali, Colombia

- 11 Generation of non-pathogenic mutants of *Acidovorax avenae* subsp. *citrulli* by chemical and insertional mutagenesis. G.V. Minsavage and J.B. JONES. University of Florida, Gainesville
- 12 *Xanthomonas campestris* pv. *campestris* extracellular polysaccharide is required for natural host infection as well as virulence. A.R. POPLAWSKY and W. Chun. University of Idaho, Moscow

Bacteria

Systematics, Evolution, Ecology

- 13 Antibiotic-producing *Pseudomonas* spp. in Ohio soils: Potential for root disease suppression. B.B. MCSPADEN GARDENER and E. Lutton. Ohio State University, Wooster
- 14 Phylogeny of hydrogen cyanide synthase biosynthetic genes in biocontrol fluorescent pseudomonads. A. Ramette (1), M. Frapolli (1), Y. MOËNNE-LOCCOZ (2), and G. Defago (1). (1) Institute of Plant Sciences, Zürich, Switzerland; (2) Université Claude Bernard, Villeurbanne, France
- 15 Correlation of soil eubacterial diversity with variation in farming system and time; *Burkholderia* as a model system. D.C. FARGO and F.J. Louws. North Carolina State University, Raleigh
- 16 Human pathogen safety issues with compost extracts. B. DUFFY, S. Ravva, and L. Stanker. USDA-ARS, Albany, CA
- 17 The heat-shock gene *groEL* as a phylogenetic marker for *Xanthomonas* spp. L.L.R. MARQUES (1), Y.B. Rosato (2) and G.P. Manfio (3). (1) University of Calgary, Calgary, AB, Canada; (2) CBMEG and (3) CPQBA - UNICAMP, Campinas, SP, Brazil
- 18 *Ralstonia solanacearum* Biovar 2, Race 3 in geraniums imported from Guatemala to Pennsylvania in 1999. S.H. KIM (1), T.N. Olson (1) and N.W. Schaad (2). (1) Pennsylvania Dept. of Agriculture, Harrisburg; (2) USDA ARS, Ft. Detrick, MD
- 19 Mutagenic DNA repair in *Pseudomonas* spp. and its effect on ecological fitness. S. ZHANG and G.W. Sundin. Texas A&M University, College Station

Biological Control

- 20 **WITHDRAWN:** Detection of double stranded RNA in California isolates of *Botryosphaeria dothidea* from pistachio. W.-Q. CHEN (1,2) and T.J. Michailides (1). (1) University of California-Davis, Parlier; (2) Northwest Sci-Tech University of Agriculture and Forestry, Yangling, Shaanxi, China
- 21 Hypovirulence-associated dsRNA from *Sclerotinia homoeocarpa* is conspecific with *Ophiostoma mitovirus 3a-OnuLd*. F. DENG, R. Xu, M.S. Melzer, and G.J. Boland. University of Guelph, Guelph, ON, Canada

Poster Session B • Tuesday and Wednesday, July 30 and 31

- 22 Mycofumigation for control of soilborne diseases. E. GRIMME, A.M. Stinson, N.K. Zidack, B.J. Jacobsen and G.A. Strobel. Montana State University, Bozeman
- 23 Control of postharvest diseases of apple by the volatile-producing fungus *Muscodora albus*. J. MERCIER and D. Manker. AgraQuest Inc., Davis, CA
- 24 Detection of root-associated microbes that produce compounds active against plant-parasitic nematodes. S.L.F. MEYER, D.P. Roberts, J.K. Nitao, and D.J. Chitwood. USDA-ARS, Beltsville, MD
- 25 Evaluating the efficacy of *Arthrobotrys oligospora* to reduce plant parasitic nematodes in putting greens. J.E. WOODWARD, N.R. Walker, J.W. Dillwith, D.L. Martin, and H. Zhang. Oklahoma State University, Stillwater
- 26 Novel nematicidal activities from *Laetiporus sulphureus* and *Ganoderma lucidum*. L. ROBLES (1), W. Chun (1), and B. Hiromoto (2). (1) University of Idaho, Moscow, ID; (2) Owner, ABR, LL
- 27 *Dactylella pseudoclavata*, a new nematode-trapping fungus from China. Z.Q. Miao (1), S.D. Li (1), M.X. He (1), and X.Z. LIU (2). Chinese Academy of Agriculture Sciences, Beijing, China
- 28 Microscopic evaluation of phyllosphere colonization by a biofilm-forming biocontrol agent. T.M. SECHLER, W.F. Mahaffee, C.M. Press, M.M. Roche, J.A. DiLeone, and A.H. Soeldner. USDA-ARS, Corvallis, OR
- 29 Characterization of the biofilm phenotype of *Burkholderia* sp., FP62 and its role in biocontrol. M.M. ROCHE, W.F. Mahaffee, C.M. Press, T.M. Sechler, and A.L. Davis. USDA-ARS, Corvallis, OR
- 30 Use of adjuvants to enhance biocontrol efficacy. W.F. MAHAFFEE, T.M. Sechler, and S.J. Scheuerell. USDA-ARS, Corvallis, OR
- 31 Growth of *Gaeumannomyces graminis* var. *tritici* is inhibited by *Brassica* spp. Mulches. T.S. BREEDEN, B.H. Ownley, D.R. West, and C.E. Sams. University of Tennessee, Knoxville
- 32 Green manure crops and soil solarization effects on *Aphanomyces cochlioides*. J.R. BRANTNER (1), C.E. Windels (1), and A.T. Dyer (2). (1) University of Minnesota, Crookston; (2) University of Minnesota, St. Paul
- 33 Discovery and scale-up of freeze-drying protocols for biomass of *Fusarium* head blight antagonist *Cryptococcus nodaensis* OH 182.9 (NRRL Y-30216). D.A. SCHISLER and J.E. VanCauwenberge. USDA-ARS, Peoria, IL
- 34 Potential for integrated management of Sclerotinia blight on peanut with Fluazinam and the biocontrol agent *Coniothyrium minitans*. D.E. PARTRIDGE, J.E. Bailey, and D.L. Jordan. North Carolina State University, Raleigh
- 35 Biocontrol of *Pythium* spp. on alfalfa using native fluorescent *Pseudomonas*. N. ALTIER (1), C. Pérez (2), F. Ducamp (2), L. De La Fuente (3,4), N. Bajsa (3), L. Quagliotto (3), and A. Arias (3). (1) INIA Las Brujas, Las Piedras, Uruguay; (2) EEMAC, UDELAR; (3) IIBCE; (4) Fac. Ciencias, UDELAR
- 36 *In vitro* evaluation of the efficacy of Serenade® and other new biopesticide candidates in controlling grape canker disease caused by *Eutypa lata*. C. YUAN and S. O'Brien. AgraQuest Inc., Davis, CA
- 37 The effect of *Bacillus subtilis* and *Rhizobium* dry bean seed inoculation on bean root rot. C. ESTEVEZ de JENSEN, J.A. Percich, and P.H. Graham. University of Minnesota, St. Paul
- 38 Efficacy of biocontrol agents and resistance inducers against tomato bacterial spot in the greenhouse. A. OBRADOVIC (1), J.B. Jones (1), M.T. Momol (2), S.M. Olson (2), P. Pradhanang (2), and B. Balogh (1). University of Florida, (1) Gainesville and (2) Quincy
- 39 Evaluation of the multiple pathogen strategy for biological control of green foxtail. S.M. BOYETCHKO (1), G. Peng (1), K. Sawchyn (1), K. Byer (1), and R. Charudattan (2). (1) Agriculture and Agri-Food Canada, Saskatoon, SK; (2) University of Florida, Gainesville
- 40 Composted amendments alter soil microbial communities and suppress southern blight. M.T. LYONS (1), A.D. Peacock (2), D.C. White (2), and C.E. Sams (1). (1) University of Tennessee and (2) Center for Biomarker Analysis, Knoxville, TN

Chemical Control

- 41 Evaluation of fungicide applications for management of *Cercospora* leaf spot on sugar beets. E.S. Blehm and R.M. HARVESON. University of Nebraska, Scottsbluff
- 42 Evaluation of Armicarb-100 for green mold control on Florida oranges. J.X. ZHANG. Florida Dept. of Citrus, Lake Alfred
- 43 Efficacy of strobilurin fungicides to control potato early blight in Wisconsin. N. ROSENZWEIG and W.R. Stevenson. University of Wisconsin, Madison
- 44 Efficacy of disinfectants in control of pathogens of greenhouse vegetables. R.F. CERKAUSKAS (1), L.W. Stobbs (2), R. Brown (1), and L. Van Driel (2). Agriculture and Agri-Food Canada, (1) Harrow, ON, and (2) Vineland Station, ON
- 45 Variation in fungicide sensitivity of *Colletotrichum acutatum* isolates from blueberries. J.M. Gillett, A.M.C. SCHILDER, and R.W. Sysak. Michigan State University, East Lansing
- 46 Effect of foliar applications of calcium on control of white mold on dry beans. L.E. DEL RIO, P.L. Gross, R.S. Lamppa, and J. Venette. North Dakota State University, Fargo
- 47 Insensitivity to mefenoxam in *Phytophthora capsici* isolates on pepper and squash in North Carolina. A.C. CAFÉ-FILHO and J.B. Ristaino. North Carolina State University, Raleigh

Poster Session B • Tuesday and Wednesday, July 30 and 31

- 48 Use of *Melaleuca alternifolia* oil for plant disease control. J.M. CAOLO-TANSKI (1), L.E. Hanson (2), A.L. Hill (2), and J.P. Hill (1). (1) Colorado State University and (2) USDA-ARS, Ft. Collins, CO
- 49 Control of citrus bacterial diseases by induced systemic resistance. J.H. GRAHAM (1), R.P. Leite, Jr. (2), and D.L. Drouillard (1). (1) University of Florida, Lake Alfred; (2) IAPAR, Londrina, Parana, Brazil
- 50 Cost benefit of spray programs for managing foliar pathogens of onions. D.B. LANGSTON, JR. (1), and G.E. Boyhan (2). University of Georgia, (1) Tifton and (2) Statesboro
- 51 Evolution of the resistance of *Botrytis cinerea* isolates to benzimidazole and dicarboximide in southwestern Spain. I. VALLEJO, M. Carbú, F.J. Fernández-Acero, L. Rebordinos and J.M. Cantoral. University of Cádiz, Puerto Real, Spain

Disease Detection

- 52 Detection of anthracnose race 73 on dry beans in Manitoba, Canada. L.E. DEL RIO (1), R.S. Lamppa (1), P.L. Gross (1), J. Prischmann (2), and B. Brolley (3). (1) North Dakota State University and (2) North Dakota State Seed Dept., Fargo; (3) Manitoba Agriculture and Food, Carman, MB, Canada
- 53 Spectral properties of sugar beets with rhizomania. K. STEDDOM, G. Heidel, D. Jones, and C.M. Rush. Texas Agricultural Experiment Station, Bushland
- 54 A new soil assay for *Synchytrium endobioticum*, the causal agent of potato wart. C.A. LEVESQUE (1), L.J. Ward (2), S.N. de Jong (1), S.H. De Boer (2), P.H.J.F. van den Boogert (3), and R.P. Baayen (4). (1) Agriculture and Agri-Food Canada, Ottawa, ON; (2) Canadian Food Inspection Agency, Charlottetown, PE; (3) Plant Res International and (4) Plant Protection Service, Wageningen, Netherlands
- 55 Detection and quantification of fairy ring disease on cranberry using remote sensing. P.V. OUDEMANS and M.G. Hughes. Rutgers University, Chatsworth, NJ
- 56 A protocol for rapid detection of *Cercospora beticola* in infected sugar beet tissues. R.T. LARTEY and S. Bucklin-Comiskey. USDA-ARS, Sidney, MT
- 57 Hop disease surveys in Argentina. B.A. PEREZ (1), D. Barreto (1,2), E. Martinez (3), A. Leibrecht (4). (1) INTA and (2) Buenos Aires University, Buenos Aires, Argentina; (3) INTA, El Bolson, Argentina; (4) Camara Lupulera, Rio Negro, Argentina
- 59 Molecular mapping of *Septoria tritici* leaf blotch resistance in wheat. T. ADHIKARI, J.M. Anderson, and S.B. Goodwin. USDA-ARS, Purdue University, West Lafayette, IN
- 60 A race for a novel host-selective toxin. V.A. Manning, I. Pandelova, L.M. CIUFFETTI. Oregon State University, Corvallis
- 61 **WITHDRAWN:** Granular application of *Aspergillus flavus* as an inoculation technique of corn in the field. G.L. WINDHAM (1), W.P. Williams (1), P.M. Buckley (1) and H.K. Abbas (2). (1) USDA-ARS, Mississippi State, MS, and (2) USDA-ARS, Stoneville, MS
- 62 Biological diversity of *Gibberella zeae* from Nepal: genotypes, virulence, and toxins. A.E. DESJARDINS (1), R.D. Plattner (1) and A.M. Jarosz (2). (1) USDA-ARS, Peoria, IL; (2) Michigan State University, East Lansing
- 63 Root disease severity and root-infecting pathogens associated with dryland wheat and barley in southeastern Idaho. C.A. BRADLEY, C.A. Strausbaugh, and R.L. Forster. University of Idaho, Kimberly
- 64 Development of Rhizoctonia root rot of barley in soils from conventional and no-till fields. K.L. SCHROEDER (1) and T.C. Paulitz (2). (1) Washington State University and (2) USDA-ARS, Pullman, WA
- 65 Root-lesion nematode populations from dryland field crops in a semiarid environment. R.W. SMILEY (1), K. Merrifield (2), and R.E. Ingham (2). Oregon State University, (1) Pendleton and (2) Corvallis

Diseases

Field and Fiber Crops

- 66 Effect of desert corn flea beetle on sudangrass bacterial leaf blotch severity. T.A. TURINI (1), H.R. Azad (2), D.A. Cooksey (2), M.D. Rethwisch (3) and M.R. Ambrozio (1). (1) University of California, Holtville; (2) University of California, Riverside; (3) University of California Cooperative Extension, Moreno Valley
- 67 Effects of spring burning and fungicide applications on big bluestem and its pathogens in a tallgrass prairie and a monoculture. G.W. MORGAN, K.A. Garrett, T.C. Todd, and N.A. Tisserat. Kansas State University, Manhattan
- 68 Preventing pollination increases yield of cuitlacoche, *Ustilago maydis*. J.K. PATAKY. University of Illinois, Urbana
- 69 Host specific differences in preharvest grain infection by toxigenic fungi in dryland pearl millet and corn. J.P. WILSON (1), W.W. Hanna (1), D.M. Wilson

Diseases

Cereals

- 58 Development of molecular markers linked to scald resistance genes derived from wild barley, *Hordeum*

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- (2), and A.E. Coy (2). (1) USDA-ARS and (2) University of Georgia, Tifton
- 70 Effect of temperature and relative humidity on sporulation of *Cercospora zeae-maydis* on diseased leaves of maize. P.A. PAUL and G.P. Munkvold. Iowa State University, Ames
- 71 Interaction of gray leaf spot and European corn borer on stalk rot of corn. K.K. BAHK and A.P. Grybauskas. University of Maryland, College Park
- 72 Transformation of sugar beet with a Cercosporin export gene, *cfp*. L.D. KUYKENDALL (1), T.M. Stockett (1) and J.W. Saunders (2). (1) USDA-ARS, Beltsville, MD; (2) Michigan State University, East Lansing
- 73 Diseases of shade-grown medicinal herbs. R.D. REELEDER. Agriculture and Agri-Food Canada, London, ON
- 74 Characterization of Californian and Australian isolates of *Fusarium oxysporum* f.sp. *vasinfectum*. Y. KIM and R.M. Davis. University of California, Davis
- 75 Genotype distribution and cultivar preference of *Phialophora gregata*. D. MALVICK (1), W. Chen (2), and C. Grau (3). (1) University of Illinois and (2) Illinois Natural History Survey, Urbana; (3) University of Wisconsin, Madison
- 76 Pythium stem canker on grain amaranth. C.C. BLOCK (1), J.W. Van Roekel (1), and L. Robertson (2). (1) USDA-ARS, Iowa State University, Ames; (2) North Carolina State University, Raleigh
- 77 Effect of soybean planting date on incidence of *Bean pod mottle virus*. L. GIESLER, A. Ziems, and T. Hunt. University of Nebraska, Lincoln
- 78 Effect of soil pH on symptom development and pathogen reproduction of *Phialophora gregata* in soybean. N.C. KURTZWEL, A.E. Kinziger and C.R. Grau. University of Wisconsin, Madison
- 79 The effect of crop sequence on root-rot severity and yield in irrigated dry bean. J.E. KURLE, C. Estevez de Jensen, and J.E. Percich. University of Minnesota, St. Paul
- 80 Effect of calcium on peanut pod breakdown caused by *Sclerotium rolfsii*. C. SAUDE and H.A. Melouk. Oklahoma State University, Stillwater
- 84 Effect of powdery mildew infection of 'Bing' sweet cherries on surface pitting. R.A. SPOTTS and L.A. Cervantes. Oregon State University, Hood River
- 85 A method for screening prunus cultivars for resistance to gummosis, shot hole and rust. C.C. REILLY and T.G. Beckman. USDA-ARS, Byron, GA
- 86 Relationship between Botryosphaeria blight severity and changes in carbohydrate content in pistachio. N. NTAHIMPERA, D.G. Felts, and T.J. Michailides. University of California-Davis, Parlier
- 87 Temperature and wetness duration requirements for almond anthracnose development on leaves and blossoms. J. DIEGUEZ-URIBEONDO, H. Förster, and J. Adaskaveg. University of California, Riverside
- 88 The use of remote sensing to monitor efficacy of control of soilborne pathogens of strawberry. F.N. MARTIN. USDA-ARS, Salinas, CA
- 89 Management of soilborne pests in strawberry and vegetable plasticulture systems. L.M. FERGUSON (1), F.J. Louws (1), G.E. Fernandez (2), D.C. Sanders (1), D.W. Monks (1), Z. Pesic-VanEsbroeck (1), E.B. Poling (1), P.M. Brannen (3), J.P. Smith (4), C.D. Safley (1), and O.B. Sydorovych (1). (1) North Carolina State University, Raleigh; (2) North Carolina State University, Plymouth; (3) University of Georgia, Athens; (4) Clemson University, Lexington, SC
- 90 Validation of a strawberry powdery mildew risk model. L.E. HOFFMAN, T.C. Miller, K.J. Dell, and W.D. Gubler. University of California, Davis, CA
- 91 Predominance and pathogenicity of fungi and stramenopiles associated with Black Root Rot of strawberries. Z.G. Abad, F.J. LOUWS, G.E. Fernandez, and L.M. Ferguson. North Carolina State University, Raleigh
- 92 *Phomopsis vaccinii* as a probable causal agent of upright dieback of cranberry. N.J. CATLIN and F.L. Caruso. University of Massachusetts, East Wareham
- 93 Identification of the causal agent of fairy ring disease on cranberry. P.V. OUDEMANS (1), C. Constantelos (1), L. Wasilwa (1), J. Polashock (1), F.V. Caruso (2) and L.M. Carris (3). (1) Rutgers University, Chatsworth, NJ; (2) University of Massachusetts, East Wareham; and (3) Washington State University, Pullman
- 94 Effect of buried drip irrigation on reducing fungal fruit decay in fig orchards. M.A. DOSTER, T.J. Michailides, and D.A. Goldhamer. University of California-Davis, Parlier
- 95 Chinese wingnut rootstocks for English walnut: Resistance to *Phytophthora* and graft compatibility. G.T. BROWNE (1), J.A. Grant (2), and H.E. Becherer (1). (1) USDA-ARS, University of California, Davis; (2) University of California Cooperative Extension, Stockton
- 96 Susceptibility of *Vaccinium* to *Phytophthora ramorum*, cause of sudden oak death. J.L. PARKE (1), R.G. Linderman (2), E.M. Hansen (1). (1) Oregon State University and (2) USDA-ARS, Corvallis, OR
- Diseases**
-
- Fruits and Nuts**
- 81 Fungicide sensitivity differs among newly discovered fungi in the sooty blotch and flyspeck complex on apples. T.L. BARRETT, J.C. Batzer, M.L. Gleason, and P.M. Dixon. Iowa State University, Ames
- 82 *Nodulisporium* sp. implicated in death of branches on lemon trees in Arizona. M.E. MATHERON and M. Porchas. University of Arizona, Yuma
- 83 Fluorescence microscopy of leaves from five citrus cultivars affected by greasy spot disease. M. SKARIA and H. Miao. Texas A&M University, Weslaco

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Diseases

Ornamentals

- 97 Evaluation of mulch type and placement for management of crown rot of hosta. B.A. EDMUNDS, M.L. Gleason, and S.N. Wegulo. Iowa State University, Ames
- 98 Wood chip mulch as a source of *Verticillium dahliae*. G.L. FOREMAN, D.I. Rouse, and B.D. Hudelson. University of Wisconsin, Madison
- 99 Controlling powdery mildew in flowering dogwood with a bicarbonate salt and household soaps. M.T. MMBAGA. Tennessee State University, McMinnville
- 100 Effect of temperature on the daylily rust pathogen, *Puccinia hemerocallidis*. D.S. MUELLER (1), J.L. Williams-Woodward (2), and J.W. Buck (1). University of Georgia, (1) Griffin and (2) Athens
- 101 Identification of Myrothecium leaf spot resistance in *Synгонium* species and cultivars. D.J. NORMAN, R.J. Henny, J.M.F. Yuen, and T.A. Mellich. University of Florida, Apopka

Diseases

Turfgrasses

- 102 Efficacy of fungicides on the control of snow molds in turfgrass. T.H. CHANG, J. Gregos and G. Jung. University of Wisconsin, Madison
- 103 Comparison of pink snow mold incidence within a mixed stand of annual bluegrass and creeping bentgrass. P.J. DWYER, A.N. Kravchenko, and J.M. Vargas. Michigan State University, East Lansing
- 104 Occurrence of ring nematode on creeping bentgrass putting greens in Alabama. A.K. HAGAN, K. McLean, and M.E. Rivas-Davila. Auburn University, Auburn, AL
- 105 Effects of sand particle size on populations of the ring nematode, *Criconeimella ornata*. N.R. WALKER and D.L. Martin. Oklahoma State University, Stillwater

Diseases

Vegetables



- 106 Effect of foliar applications of neem oil and fish emulsion on bacterial spot disease and yield of tomatoes and peppers. P.A. ABBASI, D.A. Cuppels, and G. Lazarovits. Agriculture and Agri-Food Canada, London, ON
- 107 Varietal resistance evaluation for control of Phytophthora blight of pepper. S.A. Johnston, W.L. Kline, M.L. FOGG, and M.D. Zimmerman. Rutgers University, Bridgeton, NJ
- 108 Association of zebra-stem symptoms on processing tomato with the *Pto* gene. M.D. RICKER. Sunseeds Co., Acampo, CA

- 109 Reaction of crucifer germplasm to bacterial pathogens. Y.F. Zhao, J.P. DAMICONE, M.E. Trent, and C.L. Bender. Oklahoma State University, Stillwater
- 110 Reactions of *Rp1-D*-resistant and non-*Rp* sweet corn to *Rp1-D*-virulent *Puccinia sorghii*. M.A. CAMPAÑA, J.K. Pataky, and P.M. Michener. University of Illinois, Urbana
- 111 Leaf spot of spinach seed crops in Washington state. L.J. DU TOIT and M.L. Derie. Washington State University, Mount Vernon
- 112 Crop rotation for Verticillium wilt management in conventional and organic strawberry. Z. KABIR (1), K.V. Subbarao (1), F.N. Martin (1), S.T. Koike (2). (1) University of California-Davis/USDA and (2) University of California Cooperative Extension, Salinas
- 113 Sclerotial survival of *S. minor* and *S. sclerotiorum* in California. B.M. WU and K.V. Subbarao. University of California-Davis, Salinas
- 114 Characterization of *Phytophthora capsici* in south Florida. A.M. TOHAMY, R.R. Urs and P.D. Roberts. University of Florida, Immokalee
- 115 Endophytic activity of *Aspergillus niger* in onion. J.W. TUFFLEY and J.W. Lorbeer. Cornell University, Ithaca, NY
- 116 Population dynamics of *Burkholderia cepacia* in organic soil. J.S. HAUDENSHIELD, N.A. Gundersheim, G.L. Mark, and J.W. Lorbeer. Cornell University, Ithaca, NY
- 117 Resistance to azoxystrobin in the gummy stem blight pathogen in Georgia. K.L. STEVENSON (1), D.B. Langston, Jr. (2), and K.W. Seebold. University of Georgia, (1) Athens and (2) Tifton
- 118 Baseline information on the current status of IPM adoption among carrot growers in Wisconsin. P.M. ROGERS and W.R. Stevenson. University of Wisconsin, Madison
- 119 A virus disease epidemic of snap bean occurring in the Great Lakes region of the United States. R.C. LARSEN (1), C.R. Grau (2), K.C. Eastwell (3), A.M. Mondjana (2), P.N. Miklas (1), and W.R. Stevenson (2). (1) USDA-ARS, Prosser, WA; (2) University of Wisconsin, Madison; (3) Washington State University, Pullman

Epidemiology

- 120 Plants, pathogens, and people: A web site designed to introduce students to important plant diseases. D.M. EASTBURN and C.J. D'Arcy. University of Illinois, Urbana
- 121 Storage of fungal spores on petroleum jelly. M.G. BOOSALIS, J.E. Partridge, R. Higgins, K. Powers, and J.R. Steadman. University of Nebraska, Lincoln
- 122 Variation in leaf wetness duration within apple tree canopies. J.C. BATZER, M.L. Gleason, K.J. Koehler, and S.E. Taylor. Iowa State University, Ames


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- 123 Estimation of leaf wetness status using a binary logistic regression model. P.A. PAUL and G.P. Munkvold. Iowa State University, Ames
- 124 Development and use of degree-day models to improve management of corn flea beetles in the Stewart's disease pathosystem on corn. P.D. ESKER and F.W. Nutter, Jr. Iowa State University, Ames
- 125  Quantifying the acquisition and transmission periods of the corn flea beetle for effective management of Stewart's disease. B. MENELAS and F.W. Nutter, Jr. Iowa State University, Ames
- 126  Development of a sorghum ergot (*Claviceps africana*) prediction model for hybrids in northern Mexico. N. MONTES (1), G. Odvody (2), H. Williams (3) and T. Isakeit (1). (1) Texas A&M University, College Station; (2) Texas Agricultural Experiment Station, Corpus Christi; (3) INIFAP, Tam., Mexico
- 127 Local focus expansion rates in grass stem rust estimated with nonparametric spatial analysis. W.F. PFENDER and G. Whittaker. USDA-ARS, Corvallis, OR
- 128 *MARYBLT*: Can there be improvements? M.M. DEWDNEY (1), A.R. Biggs (2), G. Lightner (2), and W.W. Turechek (1). (1) Cornell University, Geneva, NY; (2) West Virginia University, Kearneysville
- 129 Field validation studies on a disease predictive model for Phomopsis cane and leaf spot of grape. O. Erincik, L.V. Madden, L.L. WILSON, and M.A. Ellis. Ohio State University, Wooster
- 130 Analysis of temporal and spatial dynamics of mycosphaerella blight in field pea. J.X. ZHANG (1), W.G.D. Fernando (1) and A.G. Xue (2). (1) University of Manitoba, Winnipeg, MB, Canada; (2) Agriculture and Agri-Food Canada, Ottawa, ON
- 131 Managing potato late blight at the center of origin: integrating durable resistance with a decision support system. N.J. GRÜNWALD (1) and W.E. Fry (2). (1) USDA-ARS, Prosser, WA; (2) Cornell University, Ithaca, NY
- 132 Refinement of DMCast, a predictor of grapevine downy mildew (*Plasmopara viticola*). M.M. KENNELLY (1), R.C. Seem (1), D.M. Gadoury (1), W.F. Wilcox (1), and P.A. Magarey (2). (1) Cornell University, Geneva, NY; (2) South Australian Research and Development Institute, Loxton, SA, Australia
- 133 Some hydrodynamics characteristics of splash droplet formation and dispersal. S. SAINT-JEAN (1,2), J.K. Hacker (1), and L.V. Madden (1). (1) Ohio State University, Wooster; (2) INRA-EGC, Thiverval-Grignon, France
- 133a Septoria leaf spot intensity, defoliation, and yield loss relationships in southern blueberries. P.S. OJIAMBO, H. Scherm, and P.M. Brannen. University of Georgia, Athens
- Forest Pathology**
- 134 Pathogens of *Prosopis* species in Mexico and Texas. C.L. LENNOX and M. Serdani. Plant Protection Research Institute, Stellenbosch, South Africa
- 135 Sensitivity of *Ceratocystis fimbriata* f. sp. *platani* and *Botryosphaeria rhodina* to triazole fungicides. A.D. WILSON, T.D. Leininger, and C.S. Oberle. USDA Forest Service, Stoneville, MS
- 136 The invasion of an exotic dodder in Houston, TX. D. APPEL (1), K. Camilli (2), T. Kurdyla (1), and C.A. Hientze (3). (1) Texas A&M University, College Station; (2) Texas Forest Service, Austin; (3) City of Houston, Houston
- 137 Use of aggregation pheromones of sap beetles to study overland transmission of *Ceratocystis fagacearum*. J.F. Kyhl (1), J. JUZWIK (2), R.J. Bartelt (3), and S.J. Seybold (1). (1) University of Minnesota and (2) USDA Forest Service, St. Paul, MN; (3) USDA-ARS, Peoria, IL
- 138 Prescribed burning effects on urban woodlands and *Armillaria*. K.A. JACOBS (1), M.-S. Kim (2), P. Gallegos (1) and M.L. Bowles (1). (1) Morton Arboretum, Lisle, IL; (2) University of Idaho, Moscow
- 139 *Cylindrocarpon* species and other fungi isolated from bark of beech in the advancing and killing fronts of the beech bark disease epidemic in Michigan. G.C. ADAMS. Michigan State University, East Lansing
- 140 Carbohydrates for rapid indefinite axenic growth of the fusiform rust fungus. A.M. DINER. USDA Forest Service, University of Florida, Gainesville
- 141 Another canker-causing *Phytophthora* from California and Oregon forest trees. J.M. Davidson (1), M. Garbelotto (2), E.M. Hansen (3), P. REESER (3), D.M. Rizzo (1). (1) University of California, Davis; (2) University of California, Berkeley; (3) Oregon State University, Corvallis
- 142 Molecular phylogenetic relationships among *Septoria* species from woody perennials and development of markers for species identification by PCR. N. FEAU (1), R.C. Hamelin (2), and L. Bernier (1). (1) Université Laval, Quebec, QC, Canada; (2) Canadian Forest Service, Ste-Foy, QC, Canada
- 143 Screening for sycamores that may be tolerant to leaf scorch disease caused by *Xylella fastidiosa*. C.J. CHANG (1), T.D. Leininger (2), and K.O. Britton (3). (1) University of Georgia, Griffin; (2) USDA Forest Service, Stoneville, MS; (3) USDA Forest Service, Athens, GA
- 144 Predicting forest ecosystems at risk to invasion of exotic forest pathogens in the USA. S.D. COHEN. USDA APHIS, University of Minnesota, St. Paul
- 145 Isolation of fungi from unprocessed *Pinus radiata* chips exported from Chile to the United States. J.A. MICALES and H.H. Burdsall, Jr. USDA Forest Service, Madison, WI

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Fungi

Genetics, Molecular Biology, Cell Biology

- 146 Mapping chromosome 7 specific ESTs of *Magnaporthe grisea*. J. DENG (1), H. Zhu (2), W. Choi (1), R.A. Dean (1). (1) North Carolina State University, Raleigh; (2) Yale University, New Haven, CT
- 147 Expressed sequence tags analysis from germinating ure-diniospores of the plant pathogen *Phakopsora pachyrhizi*. M.L. POSADA and R.D. Frederick. USDA-ARS, Fort Detrick, MD
- 148 Characterization of internal transcribed spacers from the black knot pathogen *Dibotryon morbosum* and gall related fungi on *Prunus* species. C. Chen, W.G.D. FERNANDO and W.R. Remphrey. University of Manitoba, Winnipeg, MB, Canada
- 149 Transformation of *Pyrenophora teres*. T.M. BECKER, C.M. Donohue, S. Neate, and J.B. Rasmussen. North Dakota State University, Fargo
- 150 Molecular basis of Verticillium wilt: From Arabidopsis to crop plants. P. RAUYAREE (1), S. Kang (1), M. Ospina-Giraldo (1), R.G. Bhat (2), K.V. Subbarao (2), and K. Dobinson (3). (1) Pennsylvania State University, University Park; (2) University of California-Davis, Salinas; (3) Agriculture and Agri-Food Canada, London, ON
- 151 Trapping for *in planta* expressed genes in *Magnaporthe grisea*. L. LI, C.Y. Xue, and J.R. Xu. Purdue University, West Lafayette, IN
- 152  Differential expression of genes in *Fusarium graminearum* strains with low and high virulence for wheat. R.S. GOSWAMI (1), F. Trail (2), J.R. Xu (3), and H.C. Kistler (4). (1) University of Minnesota, St. Paul; (2) Michigan State University, East Lansing; (3) Purdue University, West Lafayette, IN; (4) USDA-CDL, St. Paul, MN
- 153 Cercosporin biosynthesis by *Cercospora zeaе-maydis*: Expression of genes involved in lipid metabolism and secondary metabolism. W.B. SHIM and L.D. Dunkle. USDA-ARS, Purdue University, West Lafayette, IN
- 154 Differential gene expression in dimorphism in *Ustilago maydis*. M.D. GARCIA-PEDRAJAS, D.L. Andrews and S.E. Gold. University of Georgia, Athens
- 155 Gene expression analysis in a wild type and Fada mutant of *Aspergillus flavus*. K.A. SCHEIDEGGER (1), G.R. Obrian (1), N.P. Keller (2), and G.A. Payne (1). (1) North Carolina State University, Raleigh; (2) University of Wisconsin, Madison
- 156 Mutants of *Fusarium verticillioides* impaired in fumonisin biosynthesis. J.E. FLAHERTY and C.P. Woloshuk. Purdue University, West Lafayette, IN
- 157 Reconciling meiotically and molecularly defined fumonisin biosynthetic genes in *Gibberella moniliformis*. R.H. Proctor, A.E. DESJARDINS, and R.D. Plattner. USDA-ARS, Peoria, IL

- 158 A requirement for 2-methylcitrate synthase for Sterigmatocystin biosynthesis and sexual development in *Aspergillus nidulans*. Y. ZHANG (1), M. Brook (2), and N.P. Keller (1). (1) University of Wisconsin, Madison; (2) Philipps University, Marburg, Germany
- 159 Chemical and genetic analyses of pigment biosynthesis in the chestnut blight fungus. T.M. SIRVENT (1), H. McLane (1), C. Tsang (1), S. Krasnoff (2), D.M. Gibson (2), and A.C.L. Churchill (1). (1) Boyce Thompson Institute and (2) USDA-ARS, Ithaca, NY
- 160 Analysis of the multiple copy host-selective toxin gene, *ToxB*, from *Pyrenophora tritici-repentis*. J.P. MARTINEZ, N.W. Oesch, and L.M. Ciuffetti. Oregon State University, Corvallis
- 161 Analysis of candidate genes at the *Vf* apple scab resistant locus. M. AFUNIAN (1,2), P. Goodwin (1) and D. Hunter (1). (1) University of Guelph, Guelph, ON, Canada; (2) Plant Pests and Diseases Research Institute, Tehran, Iran
- 162 The mechanism of forcible ascospore discharge in *Gibberella zeaе*. C. KWON and F. Trail. Michigan State University, East Lansing
- 162a Molecular and pathological characterization of rice sheath blight pathogen isolates from Arkansas using rDNA-internal transcribed spacer sequences. P. SINGH (1,2), Y. Jia (1), R. Cartwright (2), F.N. Lee (2), and G.C. Eizenga (1). (1) USDA-ARS and (2) University of Arkansas, Stuttgart, AR

Fungi

Systematics, Evolution, Ecology

- 163 ITS ribosomal DNA Phylogeny of *Gaeumannomyces graminis*. H.M. FOULY. University of Illinois, Urbana
- 164 Phylogeny of *Gaeumannomyces graminis* based on sequence insertions in the small subunit rDNA. H.M. FOULY and H.T. Wilkinson. University of Illinois, Urbana
- 165 Phylogenetic analyses of *Magnaporthe grisea* based on internal transcribed spacer and translation elongation factor sequences. Y. TIAN (1), S.B. Goodwin (2), and M. Levy (1). (1) Purdue University and (2) USDA-ARS, Purdue University, West Lafayette IN
- 166 Molecular evolution of the *Avr-Pita* gene family in *Magnaporthe grisea*. C.H. KHANG (1), S. Kang (1), and B. Valent (2). (1) Pennsylvania State University, University Park; (2) Kansas State University, Manhattan
- 167 Allozyme and DNA sequence analysis of *Ceratocystis fimbriata* isolates reveal geographic groupings and host associated lineages. J.A. JOHNSON, C.J. Baker, T.C. Harrington, and J.D. Nason. Iowa State University, Ames
- 168 Molecular characterization and phylogenetic analysis of *Colletotrichum* species using a 1 kb intron of glutamine synthetase gene (GS) and 200 bp intron of

- glyceraldehyde phosphate dehydrogenase gene (GPDH). B. Liu, J.C. Guerber, and J.C. CORRELL. University of Arkansas, Fayetteville
- 169 Molecular phylogenetic relationships among *Embellisia*, *Nimbya*, to *Alternaria* and related genera based upon analysis of ITS, mt SSU and *gpd* sequences. D.M. BIGELOW, C.E. Michoski, and B.M. Pryor. University of Arizona, Tucson
- 170 Phylogenetic analysis of the *Puccinia andropogonis* complex. L.J. SZABO and A.P. Roelfs. USDA-ARS, St. Paul, MN
- 171 A multilocus gene genealogy of *Pyricularia oryzae* to identify the origin of rice infecting populations. B.C. COUCH and L.M. Kohn. University of Toronto, Mississauga, ON, Canada
- Host Resistance**
- 172 Field assessment of partial resistance to *Puccinia tritici-na* in recombinant inbred lines from wheat cross CI 13227 x Suwon 92. G. SHANER and G. Buechley. Purdue University, West Lafayette, IN
- 173 Temperature-sensitive reaction to *Stagonospora nodorum* in winter wheat. Y.K. KIM and W.W. Bockus. Kansas State University, Manhattan
- 174 Evaluation of drought tolerance and relationship with aflatoxin contamination. B.Z. GUO (1), Y. Cao (2), A.E. Coy (2), R.D. Lee (2), C.C. Holbrook (1), and R.E. Lynch (1). (1) USDA-ARS and (2) University of Georgia, Tifton
- 175 Managing the race structure of the tobacco black shank pathogen with variety rotation. M.J. SULLIVAN, T.A. Melton, and H.D. Shew. North Carolina State University, Raleigh
- 176 The effects of plant architecture in canola on sclerotinia stem rot (*Sclerotinia sclerotiorum*) avoidance. C.J. JURKE (1) and W.G.D. Fernando (2). (1) Advanta Canada Inc. and (2) University of Manitoba, Winnipeg, MB, Canada
- 177 Intercropping with tomato resistant variety 'Juliet' reduces early blight on susceptible variety 'Brandywine'. L.J. SMITH and J. Kotcon. West Virginia University, Morgantown
- 178 Rice germplasm reaction to a Venezuelan isolate of the sheath blight pathogen. N.J. DELGADO, H.A. Rodriguez, and M.C. Ramon. Instituto Nacional de Investigaciones Agricolas, Araure, Venezuela
- 179 Comparison of soybean differential reactions following inoculation with four races of *Phytophthora sojae* from Ohio and Indiana. H. JIA (1), A.E. Dorrance (1), T.L. Richards (2), T.S. Abney (2). (1) Ohio State University, Wooster; (2) USDA-ARS, Purdue University, West Lafayette, IN
- 180 Efforts to develop *Agrobacterium*-mediated germ-line transformation of soybean. M.A. MCGILL (1), S. Clough (2), C. Desfeux (2), K. Schroeder (1), and A.F. Bent (1,2). (1) University of Wisconsin, Madison; (2) University of Illinois, Urbana
- 181 An excised-leaf inoculation technique for evaluating host-pathogen interactions of dematiaceous hyphomycetes on bermudagrass. R.G. PRATT. USDA-ARS, Mississippi State, MS
- 182 Effect of pre-treatment with benzoic acid on disease development on stems of *Banksia attenuata* inoculated with *Phytophthora cinnamomi*. M.G. WILLIAMS (1), T. Senaratna (1,2) and K. Sivasithamparam (1). (1) University of Western Australia, Nedlands, WA, Australia; (2) Kings Park and Botanic Garden, West Perth, WA, Australia.
- 183 Response of hairy roots of different soybean genotypes to *Fusarium solani* f. sp. *glycines*. S. LI (1), A. Lygin (1), O. Zernova (1), V. Lozovaya (1), G. Hartman (1,2) and J. Widholm (1). (1) University of Illinois and (2) USDA-ARS, Urbana, IL
- 184 Genomic approach to analyze the defense gene expression during the rice and rice blast interaction. C. JAN-TASURIYARAT (1), G. Lu (1), B. Zhou (1), E. Mazur (1), H. Kim (2), Y. Yu (2), R. Wing (2), and G.L. Wang (1). (1) Ohio State University, Columbus; (2) Clemson University, Clemson, SC
- 185 The effect of a North Carolina isolate of tomato spotted wilt virus on symptom development and gene expression in resistant and non-resistant cultivars of pepper. M.E. VIGIL (1), B. Bailey (2), and M.A. Smith (1). (1) North Carolina A&T State University, Greensboro; (2) USDA-ARS, Beltsville, MD
- 186 Identification of a promoter region from *Citrus yellow mosaic virus*. Q. HUANG and J.S. Hartung. USDA-ARS, Beltsville, MD
- 186a Protection from tomato late blight conferred through prosystemin-antimicrobial-peptide fusions. R.W. Jones (1), M. Ospina-Giraldo (1), and T. Clemente (2). (1) USDA-ARS, Beltsville, MD; (2) University of Nebraska, Lincoln
- Host-Parasite Relations**
- Biochemistry, Molecular Biology, Cell Biology**
- 187 Functional analysis of the 3'-termini of avirulence genes from two *Xanthomonas* species. G. PONCIANO (1), H. Ishihara (2), S. Tsuyumu (2), J.E. Leach (1). (1) Kansas State University, Manhattan; (2) Shizuoka University, Shizuoka, Japan
- 188 Association of candidate defense response and resistance genes with quantitative blast resistance loci in rice. S.W. LEE (1,2), S.S. Han (2), C.Y. Soon (2), S.H. Choi (2), C.H. Kim (2), and J.E. Leach (1). (1) Kansas State University, Manhattan; (2) NIAST, Suwon, Korea
- 189 RAPD markers for the *Cr* gene for resistance to *Cronartium ribicola* in *Ribes nigrum*. D.D. PICTON (1), K.E. Hummer (2), J.D. Postman (2). (1) Oregon State University and (2) USDA-ARS, Corvallis, OR


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- 190 Characterization of defense-related genes in soybean. M.Y. GRAHAM and T.L. Graham. Ohio State University, Columbus
- 191 HR induction in tobacco by *Erwinia amylovora* requires DspE in addition to a harpin. C.-S. OH, W.-S. Kim, and S.V. Beer. Cornell University, Ithaca, NY
- 192 Salicylic acid-induced priming for potentiated responses to Fusarium infection in *Asparagus officinalis*. C.Y. HE and D.J. Wolyn. University of Guelph, Guelph, ON, Canada
- 193 Protein analysis in resistant and susceptible dogwood cultivars challenged with *Microsphaera pulchra*. F.J. AVILA (1), M.T. Mmbaga (1), and L. Myles (2). Tennessee State University, (1) McMinnville and (2) Nashville
- 194 A galactosyl diacylglycerol from cucumber leaves inhibits the development of gray mold caused by spores of *Botrytis cinerea*. J.-H. Park, J.-C. KIM, G.J. Choi, H.T. Kim, and K.Y. Cho. Korea Research Institute of Chemical Technology, Taejon, Korea
- 195 Antifungal glycoproteins in red-light irradiated broad-bean leaflets. S.Z. ISLAM (1), Y. Honda (2), Y. Sawa (2), and M. Babadoost (1). (1) University of Illinois, Urbana; (2) Shimane University, Matsue, Japan
- 196 Induction of systemic defense potentiation in soybean. C.T. LARUE and T.L. Graham. Ohio State University, Columbus
- 197 Functional analysis of RPS2 interaction with putative partners in disease resistance signal transduction. B.F. Quirino, J.H. Ham, B.B. Bonacci and A.F. BENT. University of Wisconsin, Madison
- 198 Identification and characterization of a *PACC*-like gene in *Fusarium verticillioides*. J.E. FLAHERTY and C.P. Woloshuk. Purdue University, West Lafayette, IN
- 199 Pathogen colonization and chitinase accumulation in soybeans with tolerance to Phytophthora root rot. K. LUCE, A. Karr, and J. English. University of Missouri, Columbia
- 200 Analysis of grapevine xylem sap for evidence of host cell wall degrading enzymes associated with colonization by *Xylella fastidiosa*. M.C. ROPER, L.C. Greve, J. Labavitch, and B. Kirkpatrick. University of California, Davis
- 201 Purification and characterization of polygalacturonase from apple tissue infected by *Colletotrichum acutatum*. E. PARK, J.L. McEvoy, and W.S. Conway. USDA, Beltsville, MD
- 202 *Rhizopus oryzae* produces macerating enzymes in infected mulberry roots. S. YOSHIDA (1), S. Tsuyumu (2), T. Tsukiboshi (1), H. Shinohara (1) and S. Tsushima (1). (1) National Institute for Agro-Environmental Sciences, Tsukuba, Japan; (2) Shizuoka University, Shizuoka, Japan
- 202a The relationship of the rice blast resistance genes *Pi-ta* and *Pi-ta²*. Y. Jia (1), Z. WANG (1,2), and R. Fjellstrom (3). (1) USDA-ARS, Stuttgart, AR; (2) Zhejiang University, Hangzhou, China; (3) USDA-ARS, Beaumont, TX

Nematodes

Genetics, Molecular Biology, Cell Biology


- 203 Vegetative and sporulating structures of *Pasteuria penetrans* from *in vitro* production. J.F. Gerber (1), T.E. Hewlett (2), M.L. SMITHER-KOPPERL (2), and J.H. White (2). (1) CDG Laboratories, Inc. and (2) Entomos, LLC, Gainesville, FL
- 204 Detection of *Pasteuria penetrans* in soil with *Pasteuria* specific PCR. Y.P. Duan (1), W. Hammer (2), Y. Huang (2), T.E. Hewlett (3), M.L. SMITHER-KOPPERL (3), J.H. White (3) and A. Ogram (1). (1) University of Florida, Gainesville; (2) Walt Disney World, Lake Buena Vista, FL ; and (3) Entomos, LLC, Gainesville, FL
- 205 AFLP markers associated with virulence of *Heterodera glycines* on resistant soybean. A.L. COLGROVE (1), T.L. Niblack (2). (1) University of Missouri, Columbia; (2) University of Illinois, Urbana
- 206 Intraspecific variation of ITS rDNA among geographical isolates of the soybean cyst nematode *Heterodera glycines*. Y. XU (1), S. Bekal (2), A. Colgrove (2) and T.L. Niblack (2). (1) Heilongjiang Institute of Agricultural Modernization, Harbin, China; (2) University of Illinois, Urbana
- 207 The effect of soil pH on soybean cyst nematode reproduction. D.R. MILLER and S.Y. Chen. University of Minnesota, Waseca
- 208 Polymorphism of the newly cloned chorismate mutase of the soybean cyst nematode, *Heterodera glycines*, among the virulent and avirulent resistance-breaking inbred lines. S. BEKAL, K.N. Lambert, and T.L. Niblack. University of Illinois, Urbana
- 209 Assessment of sugarcane soils suppressive or conducive to ectoparasitic nematode damage. D. Rime (1,2), S. Nazaret (1), F. Gourbiere (1), R. Bally (1), P. Cadet (2), and Y. MOËNNE-LOCCOZ (1). (1) Université Claude Bernard, Villeurbanne, France; (2) SASEX and IRD, Mount Edgecombe, KwaZulu Natal, South Africa
- 210 The effect of root tip exudates on nematode behavior. J. DECKER, X. Zhao, M. Schmitt, M.A. McClure, and M. Hawes. University of Arizona, Tucson
- 211 Plant parasitic nematodes identified from North Dakota potato fields. P.A. MASON. North Dakota State University, Fargo
- 212 Spatial distribution of *Pratylenchus crenatus* in a carrot field and effect on yield and quality. F.S. HAY and S.J. Pethybridge. University of Tasmania, Burnie, Tasmania, Australia
- 213 **WITHDRAWN:** Impact of *Meloidogyne gramminicola* on yield of lowland rainfed rice in Bangladesh. J.L. PADGHAM (1), G.S. Abawi (1), J.M. Duxbury (1), and M.A. Mazid (2). (1) Cornell University, Ithaca, NY; (2) Bangladesh Rice Research Institute, Rajshahi, Bangladesh

- 214  Evaluation of two biologically derived nematicides for control of lesion nematode, *Pratylenchus* sp., and effects on predatory nematodes in organically managed soils. K.A. SALINAS and J.B. Kotcon. West Virginia University, Morgantown

Phyllosphere Microbiology and Ecology

- 215 *Bacillus* strains that have multiple mechanisms for antagonism of *Xanthomonas*. A.R. POPLAWSKY and W. Chun. University of Idaho, Moscow
- 216 Aspects of UVR sensitivity and survival strategies of relevance to phyllosphere bacteria. J.L. JACOBS (1), C.D. Miller (2), T.L. Carter (1), A.J. Anderson (2), and G.W. Sundin (1). (1) Texas A&M University, College Station; (2) Utah State University, Logan
- 217 The effects of fungicides on the yeast populations of creeping bentgrass. J.W. BUCK and L.L. Burpee. University of Georgia, Griffin
- 218 Effects of strawberry plant extracts on conidiation and appressorial production by *Colletotrichum acutatum*. L.F.S. LEANDRO, M.L. Gleason, S.N. Wegulo, and F.W. Nutter, Jr. Iowa State University, Ames
- 219 Survival and dispersal of *Colletotrichum acutatum* on strawberry leaves under field conditions. K.A. WISE, L.F.S. Leandro, S.N. Wegulo, and M.L. Gleason. Iowa State University, Ames
- 220 Differential growth on veinal and non-veinal sites by *Aureobasidium pullulans* on apple leaves. M.J. MCGRATH, R.N. Spear, and J.A. Andrews. University of Wisconsin, Madison
- 221 Population biology of *Aureobasidium pullulans* on apple leaves. R.N. SPEAR, E.V. Nordheim, and J.H. Andrews. University of Wisconsin, Madison

Population Genetics

- 222  Genetic structure of *Phytophthora infestans* populations from Costa Rica. L. GOMEZ (1), A.C. Café-Filho (1), and J.B. Ristaino (1). North Carolina State University, Raleigh
- 223 The mitochondrial DNA haplotype of *Phytophthora infestans* in 19th century herbarium specimens revealed. K.J. MAY and J.B. Ristaino. North Carolina State University, Raleigh
- 224 Molecular analysis of European and North American isolates of *Spongospora subterranea* f. sp. *subterranea*, the cause of powdery scab of potatoes. X.S. QU and B.J. Christ. Pennsylvania State University, University Park
- 225 A new race of *Pyrenophora tritici-repentis* that produces a putative host-selective toxin. S. ALI, H. Ling, S. Meinhardt, and L. Francl. North Dakota State University, Fargo

Postharvest Pathology and Mycotoxicology

- 226 Pathogenicity and infection courts of *Phacidiopycnis piri* in pears. C.L. XIAO and R.J. Boal. Washington State University, Wenatchee
- 227 Effect of calcium, nitrogen, and potassium fertilization on white mold of stored carrots. R.W. STACK, L.J. Cihacek, C.W. Lee, and J.M. Hansen. North Dakota State University, Fargo
- 228 PCR-detection of fumonisin- and trichothecene-producing *Fusarium* species. B.H. BLUHM, J.E. Flaherty, and C.P. Woloshuk. Purdue University, West Lafayette, IN
- 229 *Aspergillus* and *Arabidopsis*, elucidating the role of the host in mycotoxin production. T.M. HAMMOND, J.H. Ham, and N.P. Keller. University of Wisconsin, Madison
- 230 A bioassay for photosensitizing perylenequinone cercosporin of *Cercospora beticola*. R.T. LARTEY and T. Caesar-TonThat. USDA-ARS, Sidney, MT
- 230a Ribotyping as a means to delineate groups within the biocontrol bacterium *Bacillus mojavensis*. C.W. BACON and D.M. Hinton. USDA-ARS, Athens, GA

Rhizosphere Microbiology and Ecology

- 231 Mutation of a *cyaA* homologue in *Enterobacter cloacae* results in reduced colonization of cucumber but does not affect biocontrol of damping-off. D.P. ROBERTS (1), S.M. Lohrke (1), L. McKenna (1), C.J. Baker (1), W. Li (2), P.D. Dery (1), and J.S. Buyer (1). (1) USDA-ARS, Beltsville, MD; (2) Hubei University, Wuhan, People's Republic of China
- 232 Mutation of an *sdhA* homologue in *Enterobacter cloacae* results in reduced colonization of cucumber but does not affect biocontrol of damping-off. S.M. LOHRKE (1), L. McKenna (1), C.J. Baker (1), S. Liu (2), P.D. Dery (1), J.S. Buyer (1), and D.P. Roberts (1). (1) USDA-ARS, Beltsville, MD; (2) Chinese Academy of Agricultural Science, Wuhan, People's Republic of China
- 233 Antibiotic, genetic, and nutrient utilization characteristics among a collection of Streptomycetes. A.L. DAVELOS, D. Johnson, L.L. Kinkel. University of Minnesota, St. Paul
- 234 Influence of time of planting on the isolation frequency of *Pythium* spp, *Theilaviopsis basicola* and *Rhizoctonia solani* on cotton. N.G. GOMAA and C. Rothrock. University of Arkansas, Fayetteville
- 235 Use of a commercial paint shaker to extract fungal DNA from soil. R.D. REELEDER (1), B. Capell (1), L. Tomlinson (1), J. Miller (1), and W. Hickey (2). (1) Agriculture and Agri-Food Canada, London, ON; (2) University of Wisconsin, Madison

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- 236 Genes for pea pathogenicity and a catabolic gene for a pea root exudate are located on the same “conditionally dispensable” chromosome in *Nectria haematococca*. M.C. RODRIGUEZ and H.D. VanEtten. University of Arizona, Tucson

Viruses


Differentiation, Diversity, Detection

- 237 Plant viruses detected in Alaskan *Streptopus amplexifolius*. N.L. ROBERTSON. USDA-ARS, Palmer, AK
- 238 A shift in the strains of sorghum mosaic virus causing mosaic in Louisiana sugarcane. M.P. GRISHAM and Y.-B. Pan. USDA-ARS, Houma, LA
- 239 Diversity in the RNA-2 genome of pecluviruses causing peanut clump disease in West Africa and India. R.A. NAIDU (1,3), S.A. Sawyer (2), and C.M. Deom (1). (1) University of Georgia, Athens; (2) Washington University, St. Louis, MO; (3) previously at ICRISAT, Patancheru, India
- 240 Molecular evidence for multiple origins of decline isolates of CTV in Florida. M.E. HILF. USDA-ARS, Ft. Pierce, FL
- 241 A low titer RNA entity in a *Citrus tristeza virus* - infected Mexican lime plant with similarities to *oat blue dwarf virus* and grapevine fleck virus. C.M. HERRON (1) B.M. da Graça (1) J.V. da Graça (1) R.G. Shatters, Jr. (2) and T.E. Mirkov (1). (1) Texas A&M University, Weslaco; (2) USDA-ARS, Ft. Pierce, FL
- 242 Isolation and characterization of a new closterovirus from grapevine. A. ROWHANI (1), Y.P. Zhang (1), D.A. Golino (1), and J.K. Uyemoto (2). (1) University of California and (2) USDA-ARS, University of California, Davis
- 243 Partial nucleotide sequence and molecular detection of a putative new grapevine leafroll associated virus. R. ALKOWNI, A. Rowhani, and D.A. Golino. University of California, Davis
- 244 Molecular characterization of Indian citrus tristeza virus isolates. A. ROY (1), P. Ramachandran (2) and R.H. Brlansky (1). (1) University of Florida, Lake Alfred; (2) Advanced Center for Plant Virology, IARI, New Delhi, India
- 245 Molecular characterization of genetically distinct strains of *Bean pod mottle virus*. H. GU, C. Zhang, and S.A. Ghabrial. University of Kentucky, Lexington
- 246 Partial characterization of a virus serologically related to Johnsongrass mosaic virus. D.L. SEIFERS (1), S. Haber (2), W. Ens (3), Y.-M. She (3,4), K. Standing (3), and R. Salomon (5). (1) Kansas State University, Hays; (2) Agriculture and Agri-Food Canada, Winnipeg, MB; (3) University of Manitoba, Winnipeg, MB, Canada; (4) Hospital for Sick Children, Toronto, ON, Canada; (5) Volcani Center, Bet-Dagan, Israel

- 247 Incidence and identification of potential aphid vectors of *Soybean dwarf virus* in Illinois. B. HARRISON (1) and L.L. Domier (2). (1) University of Illinois and (2) USDA-ARS, University of Illinois, Urbana
- 248 Segregation and characterization of two components within CTV isolate SY568 by aphid transmission. J.J. VELAZQUEZ-MONREAL, D.M. Mathews, and J.A. Dodds. University of California, Riverside

Viruses

Genetics, Molecular Biology, Cell Biology

- 249  Maize chlorotic dwarf virus genome sequence and polyprotein cleavage. R. CHAOUCH (1,2), K. Willie (2), M.G. Redinbaugh (2) and S.A. Hogenhout (1). (1) Ohio State University and (2) USDA-ARS, Wooster, OH
- 250 Cloning and sequence analysis of the genome of beet mosaic potyvirus. L.G. NEMCHINOV and R.W. Hammond. USDA-ARS, Beltsville, MD
- 251 Small RNA production and transgene methylation in gene silenced transgenic plants expressing sequence of red clover necrotic mosaic virus. Z. WENG and Z. Xiong. University of Arizona, Tucson
- 252 Introduction of the Tomato Spotted Wilt Virus nucleocapsid gene into a runner-type peanut. K. CHENAULT. USDA-ARS, Stillwater, OK
- 253 Development of transgenic ringspot virus-resistant papaya for Florida. M.J. DAVIS and Z. Ying. University of Florida, Homestead
- 254 Field evaluation of tomato experimental lines and hybrids for resistance to begomoviruses in Guatemala. L. MEJIA, R.E. Teni (1), H. Czosnek, F. Vidavski (2), A. Bettilyon, M.K. Nakhla, and D.P. Maxwell (3). (1) Universidad de San Carlos, Guatemala; (2) Hebrew University of Jerusalem, Rehovot, Israel; (3) University of Wisconsin, Madison
- 255 New method for screening cowpea germ plasm for resistance to *cucumber mosaic virus*. A.G. GILLASPIE, JR. USDA-ARS, Griffin, GA
- 256 Survey for faba bean and lentil and chickpea viruses in 2000-2001 growing season in Egypt. L.R. RIZKALLA. Plant Pathology Research Institute, Giza, Egypt
- 257 Nematode transmission: An effective method for screening blackberry germplasm for resistance to *Tobacco ringspot virus*. R.C. GERGERICH, S.J. Troxell, and S.L. Wickizer. University of Arkansas, Fayetteville