

All posters will be on display at one time with authors present at their poster(s) at staggered times (see Poster Schedule below). Presenters in Session "A" will be at their poster(s) on Monday and presenters in Session "B" will be at their posters on Tuesday. If you are presenting more than one poster during the time that authors are present please leave a note to indicate the other poster board number(s) at which you can be found.

Session A

Set up 7:00 – 9:00 a.m. Sunday, August 1
 Authors Present 3:30 – 5:30 p.m. Monday, August 2
 Take Down 10:00 – 11:00 a.m. Wednesday, August 4

Session B

Set up 7:00 – 9:00 a.m. Sunday, August 1
 Authors Present 3:30 – 5:30 p.m. Tuesday, August 3
 Take Down 10:00 – 11:00 a.m. Wednesday, August 4

 – On CD-Rom. Available at the APS PRESS bookstore.

Biology of Plant Pathogens
Bacteria—Systematics, Evolution, Ecology

- 1A New association of a toxigenic *Rathayibacter* sp. and *Anguina woodi* in *Ehrharta villosa* var. *villosa* in South Africa. I.T. Riley (1), A. Swart (2), E. Postnikova (3), I. Agarkova (3) A.K. Vidaver (3), and N.W. SCHAAD (4). (1) University of Adelaide, Glen Osmond, SA, Australia; (2) Plant Protection Research Institute, South Africa; (3) University of Nebraska, Lincoln, NE; (4) USDA-ARS, Ft. Detrick, MD
- 2A Identification of *Rathayibacter rathayi* in Oregon and Maryland. E. POSTNIKOVA (1), I. Agarkova (1), I.T. Riley (2), S. Alderman (3), C.M. Ocambe (4), A.K. Vidaver (1), and N.W. Schaad (5). (1) University of Nebraska, Lincoln, NE; (2) University of Adelaide, Australia; (3) USDA-ARS, Corvallis, OR; (4) Oregon State University, Corvallis, OR; (5) USDA-ARS, Ft. Detrick, MD
- 3A  Development of methods to distinguish between oleander leaf scorch and Pierce's disease strains of *Xylella fastidiosa*. R. HERNANDEZ-MARTINEZ, C.K. Dumeyno and D.A. Cooksey. University of California, Riverside, CA
- 4A  *Xylella fastidiosa* from grapevine shows decreased susceptibility to antibiotics as a biofilm compared to planktonic growth in vitro. L.L.R. MARQUES (1), G.P. Manfio (2), E. Lee (1), H. Ceri (1), and M.E. Olson (1). (1) University of Calgary, Calgary, AB, Canada; (2) CPQBA/UNICAMP, Campinas, SP, Brazil
- 5A PCR-based systems for the detection, differentiation and quantification of *Xylella fastidiosa* strains. M. FRANCIS (1), E. Civerolo (2), and H. Lin (2). (1) University of California, Davis, CA; (2) USDA-ARS, Parlier, CA
- 6A Phylogenetic analysis of Kentucky *Xylella fastidiosa* strains. J.N. MUNDELL, J.R. Hartman, and C.L. Schardl. University of Kentucky, Lexington, KY
- 7A  Bacterial leaf scorch of oak in New Jersey: Incidence and economic impact. A.B. GOULD, G. Hamilton, M. Vodak, J. Grabosky, and J. Lashomb. Rutgers University, New Brunswick, NJ
- 8A  Etiology of damping off or decline on bean in Zanjan Province, eastern north of Iran. H. SAREMI and F. Farrokhi. Zanjan University, Zanjan, Iran

9A

Invasion, transmission and adaptation of new race strains of *Ralstonia solanacearum*, causal pathogens of bacterial wilt of Zingiberaceae plants in Japan. K. TSUCHIYA, H. Sawada, T. Yoshida and M. Takahashi. National Institute for Agro-Environmental Sciences, Kannondai, Tsukuba, Japan

10A 

Epiphytic survival of *Erwinia tracheiphila* on *Cucumis melo*. E.E. CROMER, S.H. Helland, D.S. Mueller, P.D. Dixon, and M.L. Gleason. Iowa State University, Ames, IA

11A 

Cytochrome *b561*-like genes are useful in identification of *Xanthomonas* strains. Y.P. DUAN and D.W. Gabriel. University of Florida, Gainesville, FL

12A

Enhancement of the fluorescent pseudomonad population after amending the recirculating nutrient solution of hydroponically-grown plants with a nitrogen stabilizer. D. PAGLIACCIA (1), D. Merhaut (2), and M.E. Stanghellini (2). (1) Università degli Studi Della Tuscia, Viterbo, Italy; (2) University of California, Riverside, CA

Fungi—Systematics, Evolution, Ecology

13A 

DNA sequence analyses reveals the phylogenetic relationship of the *Eucalyptus* stem pathogen *Coniothyrium zuluense* within the genus *Mycosphaerella* and the polyphyletic nature of this group. M.N. CORTINAS (1), P.W. Crous (2), B.D. Wingfield (1), and M.J. Wingfield (1). (1) University of Pretoria, Pretoria, South Africa; (2) Centraalbureau voor Schimmelcultures, Uppsalaan, Utrecht, Netherlands

14A 

Molecular phylogenetic relationships among the anamorphic *Septoria* species from woody perennials. N. FEAU (1), R.C. Hamelin (2), and L. Bernier (1). (1) Laval University, Ste-Foy, QC, Canada; (2) Service Canadien des Forêts, Ste-Foy, QC, Canada

15A

Morphological and molecular analysis of *Trichoderma* isolates associated with the green mold epidemic of oyster mushroom in Korea. M.S. PARK (1), S.B. Kim (1), K.S. Bae (1), and S.H. Yu (2). (1) Korea Research Institute of Bioscience and Biotechnology, Yusong-gu, Daejon, Korea; (2) Chungnam National University, Daejeon, Korea

16A 

Differential cultivars and molecular markers segregate isolates of *Uromyces appendiculatus* into two distinct groups that correspond to the gene pools of their

Posters

- common bean hosts. M.A. PASTOR-CORRALES and M.C. Aime. USDA-ARS, Beltsville, MD
- 17A Glyceraldehyde-3-phosphate dehydrogenase genes in *Phaeosphaeria nodorum* and *P. avenaria* species. P.P. UENG (1), E. Reszka (2), and K.R. Chung (3). (1) USDA-ARS, Beltsville, MD; (2) PBAI, Radzikow, Poland; (3) University of Florida, Lake Alfred, FL
- 18A Evolution of fungal pathogenicity on plant: Model studies with *Alternaria* species and *Arabidopsis thaliana*. S.G. HONG and B.M. Pryor. University of Arizona, Tucson, AZ
- 19A A new species of *Fusicoccum* causing a canker disease of Pacific madrone. M. ELLIOTT (1), A. Rossman (2), D. Farr (2), and R.L. Edmonds. (1) University of Washington, Seattle, WA; (2) USDA-ARS, Beltsville, MD
- 20A Withdrawn
- 21A Population structure of *Phyllosticta telopeae*, a foliar pathogen of Waratah (*Telopea speciosissima*) in production and natural ecosystems in NSW. S.A. PETERSON, B.A. Summerell, and L.W. Burgess. University of Sydney, Sydney, NSW, Australia
- 22A Two putative new species of *Pythiogeton* associated with Cypress and English Ivy in North Carolina. H.V. SILVA-ROJAS (1,2), T.C. Creswell (1), J.L. Phillips (1), J.A. Abad (1), and Z.G. Abad (1). (1) North Carolina State University, Raleigh, NC; (2) IREGEP Colegio de Postgraduados, Montecillo, México
- 23A Methods combining slow desiccation and slow freezing provide robust -80 C storage for agar-grown cultures of diverse fungi. P.J. ZAMBINO. USDA Forest Service, Moscow, ID
- 24A Evolutionary relationship between sympatric microcyclic and macrocyclic forms of *Tranzschelia* spp. M.E. ORDONEZ (1), L.J. Szabo (1,2), and J.V. Groth (1). (1) University of Minnesota, St. Paul, MN; (2) USDA-ARS, St. Paul, MN
- 25A Synnema and sclerotium production in *Aspergillus caelatus* and the influence of substrate composition on their development in selected strains. C.E. McALPIN. USDA-ARS, Peoria, IL
- 26A Influence of substrate and environmental factors on growth and sporulation of *Potentiomyces pyri*. C.L. XIAO and J.W. Sitton. Washington State University, Wenatchee, WA
- 27A The biotechnological method against weeds and illegal sowing of *Papaver somniferum* L. L.A. GLUKHOVA, A.A. Abdurakimov, and I.A. Orlova. Institute of Genetics & Plant Experimental Biology, Tashkent, Uzbekistan Republic
- 28B The use of mitochondrial DNA for clarifying phylogenetic relationships and isolate identification with the genus *Phytophthora*. F.N. MARTIN (1) and P. Tooley (2). (1) USDA-ARS, Salinas, CA; (2) USDA-ARS, Ft. Detrick, MD
- 29B Fatty acid methyl ester profile analysis of *Phytophthora cactorum*. L.A. HARRISON, M.B. Riley, and S.N. Jeffers. Clemson University, Clemson, SC
- 30B Cyclic production of sporangia and zoospores by *Phytophthora capsici* on pepper roots in hydroponic culture. C.J. NIELSEN, D.M. Ferrin and M.E. Stanghellini. University of California, Riverside, CA
- 31B Population history of *Phytophthora infestans* inferred from nuclear and mitochondrial DNA sequences. L. GOMEZ, J. Thorne, I. Carbone, and J.B. Ristaino. North Carolina State University, Raleigh, NC
- 32B A survey of *Pythium* species in Taiwan. H.H. HO. State University of New York, New Paltz, NY
- 33B Integrating morphological and molecular characterization for the identification of *Pythium* species: The case of *Pythium christmatum* from Fraser fir and *Pythium pseudointermedium* from corn. Z.G. ABAD, J. Phillips, and J.A. Abad. North Carolina State University, Raleigh, NC
- 34B The effect of osmotic water potential on growth and reproduction of *Monosporascus cannonballus*. D.M. FERRIN and M.E. Stanghellini. University of California, Riverside, CA
- 35B HPLC-MS analysis of type-A trichothecene-producing Fusaria for correspondence between toxin profiles and molecular phylogenetic groups. N.C. ZITOMER (1), D.M. Geiser (1), D.D. Archibald (1), T.J. Ward (2), K. O'Donnell (2), A.D. Jones (1), M.M. Jimenez-Gasco (1), and G.A. Kuldau (1). (1) Pennsylvania State University, University Park, PA; (2) USDA-ARS, Peoria, IL
- 36B High diversity and evidence of recombination in south temperate samples of *Sclerotinia sclerotiorum*. G. MALVAREZ and L.M. Kohn. University of Toronto, Mississauga, ON, Canada
- 37B Comparative survival of conidia of eight species of dematiaceous hyphomycetes in soil. R.G. PRATT. USDA-ARS, Mississippi State, MS
- 38B *Pyrenophora tritici-repentis* races in the Czech Republic and Poland. S. ALI (1), J. Sarova (2), and W. Wakulinsky (3). (1) North Dakota State University, Fargo, ND; (2) Research Institute of Crop Production, Prague, Czech Republic; (3) Agriculture University of Warsaw, Warsaw, Poland
- 39B Taxonomic diversity of Erysiphales (powdery mildew fungi) in the Pacific Northwest. D.A. GLAWE. Washington State University, Puyallup, WA
- 40B Preliminary studies of signaling and sporulation in *Uncinula necator*. D.M. Gadoury (1), L.M. WAKEFIELD (1), R.C. Seem (1), L. Cadle-Davidson, and I.B. Dry (2). (1) Cornell University, Geneva, NY; (2) CSIRO, Glen Osmond, SA, Australia
- 41B Comparison of fungi in sooty blotch and flyspeck apple disease complex in Shaanxi Province China and U.S. based on ribosomal DNA. G.Y. Sun (1), J.C. Batzer (2), R. Zhang (1), Y.M. Zhang (1), and M.L.

- GLEASON (2). (1) Northwest Sci-Tech University of Agriculture and Forestry, Yangling, Shaanxi, China; (2) Iowa State University, Ames, IA
- 42B Specific PCR primers to identify sooty blotch and flyspeck fungi on apple in the Midwest U.S. G.Y. Sun (1), L.F. Leandro (2), J.C. Batzer (2), T.C. Harrington (2), and M.L. GLEASON (2). (1) Northwest Sci-Tech University of Agriculture and Forestry, Yangling, Shaanxi, China; (2) Iowa State University, Ames, IA
- 43B Temperature optima for mycelial growth of newly discovered fungi in the sooty blotch and flyspeck complex on apples. S.M. HERNANDEZ (1), J.C. Batzer (1), M.L. Gleason (1), D.S. Mueller (1) P.M. Dixon (1), V. Best (2), and P.S. McManus (2). (1) Iowa State University, Ames, IA; (2) University of Wisconsin, Madison, WI
- 44B Conidial germination of three fungi in the sooty blotch and flyspeck complex. K.D. TENTINGER, J.C. Batzer and M.L. Gleason. Iowa State University, Ames, IA
- Postharvest Pathology and Mycotoxicology**
- 45A Control of blue mold of apple with *Metschnikowia pulcherrima* and sodium bicarbonate using a small scale bin drencher. W.J. JANISIEWICZ (1), D.L. Peterson (1), K.S. Yoder (2), and S.S. Miller (1). (1) USDA-ARS, Kearneysville, WV; (2) Virginia Polytechnic Institute and State University, Winchester, VA
- 46A Improving biocontrol using antagonist mixtures with heat and/or sodium bicarbonate to control postharvest decay of apple fruit. W.S. CONWAY (1), B. Leverenz (1), W.J. Janisiewicz (2), R.A. Saftner (1), and M.J. Camp (1). (1) USDA-ARS, Beltsville, MD; (2) USDA-ARS, Kearneysville, WV
- 47A Post-harvest removal of sooty blotch and flyspeck on apples by combining dipping and brushing treatments. S.M. HERNANDEZ, J.C. Batzer, M.L. Gleason, D.S. Mueller, and P.M. Dixon. Iowa State University, Ames, IA
- 48A The potential of curing for green mold control of Florida citrus fruit. J.X. ZHANG and P. Swingle. Florida Department of Citrus, Lake Alfred, FL
- 49A Effect of fungicide treatments and storage temperature on postharvest symptom development of citrus black spot caused by *Guignardia citricarpa*. J.P. AGOSTINI (1), N.A.R. Peres (2), J.E. Adaskaveg (3), and L.W. Timmer (4). (1) INTA, Montecarlo, Misiones, Argentina; (2) University of Florida, Dover, FL; (3) University of California, Riverside, CA; (4) University of Florida, Lake Alfred, FL
- 50B Fungi and mycotoxins associated with pearl millet from 1996 to 2002. Z. JURJEVIC (1), D.M. Wilson (1), J.P. Wilson (2), and M. Coulibaly (1). (1) University of Georgia, Tifton, GA; (2) USDA-ARS, Tifton, GA
- 51B Effect of heat stress on aflatoxin and fumonisin production in corn (*maize, Zea mays*) in Arkansas. H.K. ABBAS (1), W.T. Shier (2), and R.D. Cartwright (3). (1) USDA-ARS, Stoneville, MS; (2) University of Minnesota, Minneapolis, MN; (3) University of Arkansas, Little Rock, AR
- 52B Development of a liquid chromatographic method for determination of two classes of mycotoxins in maize silage. G.A. KULDAU, M.A. Mansfield, D.D. Archibald, and A.D. Jones. Pennsylvania State University, University Park, PA
- 53B Occurrence and phytotoxicity of fumonisin B₁ associated with cowpea seed. Q. KRITZINGER (1), T.A.S. Aveling (1), W.F.O. Marasas (2), J.P. Rheeder (2), and L. van der Westhuizen (2). (1) University of Pretoria, Pretoria, South Africa; (2) Medical Research Council, Tygerberg, South Africa
- 54B Post-harvest aflatoxin accumulation in transgenic peanut lines containing anti-fungal genes. K.D. CHENAULT (1), H.A. Melouk (1), and C.C. Holbrook (2). (1) USDA-ARS, Stillwater, OK; (2) USDA-ARS, Tifton, GA
- 55B Evaluation of postharvest treatment of table grapes with heated ethanol or water to control gray mold. F. MLIKOTA GABLER and J.L. Smilanick. USDA-ARS, Parlier, CA
- 56B Toxicity of aqueous ethanol at various temperatures to spores of postharvest pathogens. F.M. Gabler (1), M.F. Mansour (1), J.L. SMILANICK (1), and B.E. Mackey (2). (1) USDA-ARS, Parlier, CA; (2) USDA-ARS, Albany, CA
- 57B Influence of culture media and environmental factors on mycelial growth and pycnidial production of *Sphaeropsis pyriputrescens*. Y.K. KIM (1), C.L. Xiao (1), and J.D. Rogers (2). (1) Washington State University, Wenatchee, WA; (2) Washington State University, Pullman, WA
- 58B Influence of temperature, wetness duration, and relative humidity on conidial germination of *Sphaeropsis pyriputrescens*. Y.K. KIM and C.L. Xiao. Washington State University, Wenatchee, WA
- 59B Fungal chitosan extracts are as effective in reducing decay caused by *Botrytis cinerea*, *Penicillium expansum* and *Penicillium solitum* as commercial seashell chitosan extract. C.E. SAMS (1), S. Zivanovic (1), W.S. Conway (2), C.S. Charron (1), T. Wu (1), and A. Blodgett (2). (1) University of Tennessee, Knoxville, TN; (2) USDA-ARS, Beltsville, MD
- 59aB Niche overlap index as an indicator for competition between endophytic colonization of maize by *Bacillus mojavensis* and *Fusarium verticillioides*. C.W. BACON and D.M. Hinton. USDA-ARS, Athens, GA

Posters

Phytoplasmas, Spiroplasmas, Fastidious Prokaryotes

- 60A Complete nucleotide sequence and characterization of pBJS, a novel plasmid of the phytopathogen *Spiroplasma citri* BR3-3X. B.D. JOSHI, J. Rogers, J. Fletcher and U. Melcher. Oklahoma State University, Stillwater, OK
- 61A Adherence-deficient *Spiroplasma citri*: Optimization of transposome mutagenesis and variant enrichment. K. Mutaqin, A. Wayadande, U. Melcher, and J. FLETCHER. Oklahoma State University, Stillwater, OK
- 62A Phytoplasma disease of watercress in Hawaii. W.B. BORTH, R.P.P. Almeida, S.K. Fukuda, R.T. Hamasaki, and J.S. Hu. University of Hawaii, Honolulu, HI
- 63A Association of a disease in *Fraxinus* in Colombia with the presence of phytoplasmas. L. FRANCO-LARA, S.L. Gaitán, J.J. Filgueira, and E. Salcedo. Universidad Militar Nueva Granada, Bogota, Colombia
- 64A Reaching destinations: Secreted proteins and protein translocation pathways in *Spiroplasma kunkelii*. Y. ZHAO, Q. Liu, R. Jomantiene, R.W. Hammond, and R.E. Davis. USDA-ARS, Beltsville, MD
- 65A Phylogenetic analysis based on multiple sets of concatenated proteins suggests earlier ancestors for phytoplasmas. Y. ZHAO, R.E. Davis, and I.-M. Lee. USDA-ARS, Beltsville, MD
- 66A Closely related but distinct phytoplasmas associated with potato purple top and potato witches'-broom diseases in the U.S. I.-M. LEE (1), K.D. Bottner (1), J.E. Munyaneza (2), W.L. Campbell (3), G.A. Secor (4), and N.C. Gudmestad (4). (1) USDA-ARS, Beltsville, MD; (2) USDA-ARS, Wapato, WA; (3) Department of Natural Resources, Palmer, AK; (4) North Dakota State University, Fargo, ND
- 67A Specific stylet activities by sharpshooters are involved in inoculation of *Xylella fastidiosa*. E.A. BACKUS (1), P.H. Joost (2), F. Yan (3), and H. Shugart (1). (1) USDA-ARS, Parlier, CA; (2) University of California, Riverside, CA; (3) Peking University, Beijing, China
- 68A Simultaneous association of two *Xylella fastidiosa* genotypes with almond leaf scorch disease in California. J. CHEN (1), R. Groves (1), E.L. Civerolo (1), M. Viveros (2), M. Freeman (3), and Y. Zheng (4). (1) USDA-ARS, Parlier, CA; (2) University of California Cooperative Extension, Bakersfield, CA; (3) University of California Cooperative Extension, Fresno, CA; (4) Fresno, CA Pierce's disease severity in relation to various rootstocks. C.J. CHANG (1) and R.E. Scott Jr. (2). (1) University of Georgia, Griffin, GA; (2) Montmorenci Vineyard, Aiken, SC

Viruses—Systematics, Evolution, Ecology

- 70B Natural field spread of decline and non-decline inducing isolates of *Citrus tristeza virus* in Florida after the introduction of the brown citrus aphid. C.A. POWELL. University of Florida, Ft. Pierce, FL
- 71B Searching for *Plum pox virus*: A survey of stone fruit in New York State. K.L. SNOVER-CLIFT and S.L. Jensen-Tracy. Cornell University, Ithaca, NY
- 72B Analysis of *Beet curly top virus* in weeds in New Mexico. R. CREAMER, A. Lewis, and J. Rascon. New Mexico State University, Las Cruces, NM
- 73B Comparative host range of U.S. isolates of *Plum pox virus* among *Prunus* and other woody plant species following graft inoculation or aphid transmission. V.D. DAMSTEEGT (1), R. Scorza (2) F.E. Gildow (3), W.L. Schneider (1), A.L. Stone (1), and D.G. Luster (1). (1) USDA-ARS, Ft. Detrick, MD; (2) USDA-ARS, Kearneysville, WV; (3) Pennsylvania State University, State College, PA
- 74B Characterization of a new foveavirus associated with cherry rusty mottle disease. M.E. ROTT, V.L. Johnson, and M.P. Belton. Canadian Food Inspection Agency, Sidney, BC, Canada
- 75B Natural infection of *Datura stramonium* L. by an unusual strain of *Pepper veinal mottle virus* genus *Potyvirus* in Nigeria. M.A TAIWO (1), J.d'A. Hughes (2), and A.R. Akomah (1). (1) University of Lagos, Akoka, Lagos, Nigeria; (2) International Institute of Tropical Agriculture, Ibadan, Nigeria
- 76B Characterization of a tobamovirus from tropical soda apple. I. KAMENOVA (1), E.N. Rosskopf (1), D.J. Lewandowski (2), and S. Adkins (1). (1) USDA-ARS, Ft. Pierce, FL; (2) University of Florida, Lake Alfred, FL
- 77B Phylogenetic analysis of Alaskan isolates of *Barley yellow dwarf virus-PAV* and *Cereal yellow dwarf virus-RPV*. N.L. ROBERTSON (1) and R. French (2). (1) USDA-ARS, Palmer, AK; (2) USDA-ARS, Lincoln, NE
- 78B Detection and phylogenetic analysis of *Blueberry scorch virus*. N. PETROVIC (1), D. Linder-Basso (2), P.V. Oudemans (2), and B.I. Hillman (2). (1) National Institute of Biology, Ljubljana, Slovenia; (2) Rutgers University, New Brunswick, NJ
- 79B Comparison of sequences amplified by N gene and universal *Tospovirus* primers. J.A. ABAD (1), J. Speck (1), A.M. Harness (2), M.D. Bandla (2), and J.W. Moyer (1). (1) North Carolina State University, Raleigh, NC; (2) Agdia Inc., Elkhart, IN
- 80B Complete nucleotide sequence, phylogenetic analysis and geographic distribution of *Fragaria chiloensis latent virus*, genus *Ilarvirus*. I.E. TZANETAKIS (1) and R.R. Martin (1,2). (1) Oregon State University, Corvallis, OR; (2) USDA-ARS, Corvallis, OR

Diseases of Plants**Disease Detection and Diagnosis**

- 81A Citrus canker symptom assessment using image analysis. P.E. PARKER (1), C.H. Bock (2), and T.R. Gottwald (2). (1) USDA APHIS, Edinburg, TX; (2) USDA-ARS, Ft. Pierce, FL
- 82A Incidence and severity of *Botryosphaeria* stem canker and dieback of pondberry (*Lindera melissifolia*) in Mississippi. A.D. WILSON, N.M. Schiff, M.S. Devall, K.F. Connor, P.B. Hamel, E.S. Gardiner, and T.D. Leininger. USDA Forest Service, Stoneville, MS
- 83A Pathogenicity of selected fungi on *Spartina alterniflora* and their possible role in Louisiana's marsh dieback. S.D. CALLAHAN and R.W. Schneider. Louisiana State University, Baton Rouge, LA
- 84A Documentation of a severe anthracnose epidemic in strawberry plug-plant production in North Carolina and evaluation of *Colletotrichum acutatum* isolates for sensitivity to strobilurin fungicides. R. SCHWEGEL (1), Y. Lu (1), H. Ypema (2), L.F.S. Leandro (1), and F.J. Louws (1). (1) North Carolina State University, Raleigh, NC; (2) BASF, Research Triangle Park, NC
- 85A Increased incidence of seed transmission of *High Plains virus* disease in sweet corn. T.D. BLUNT and J.P. Hill. Colorado State University, Ft. Collins, CO
- 86A A survey for the incidence of *Dahlia mosaic virus* in dahlias in the U.S. H.R. PAPPU and K. Druffel. Washington State University, Pullman, WA
- 87A Dubious optical density readings in ELISA testing for *Citrus tristeza virus* in mandarin varieties of citrus. M. POLEK, P.D. Metheney, and C. Wallen. Central California Tristeza Eradication Agency, Tulare, CA
- 88A Olive disease surveys in Argentina. B.A. PEREZ (1), E. Oriolani (2), D. Docampo (3), L. Otero (3), C. Matías (4), and D. Barreto (1). (1) INTA, Castelar, Argentina; (2) INTA, Mendoza, Argentina; (3) INTA, Córdoba, Argentina; (4) INTA, Catamarca, Argentina
- 89A Identification and discrimination of pesticide residues using electronic aroma detection. A.D. WILSON and C.S. Oberle. USDA Forest Service, Stoneville, MS
- 90B PCR assay for *Methylobacterium mesophilicum* in sweet orange trees infected with *Xylella fastidiosa*. P.T. Lacava (1,2), W.-B. Li (2), W.L. Araujo (1), J.L. Azevedo (1), and J.S. HARTUNG (2). (1) University of São Paulo, Piracicaba, SP, Brazil; (2) USDA-ARS, Beltsville, MD
- 91B PCR detection of citrus greening bacterium disease in commercial citrus species by addition of sodium sulphite in DNA extraction. K. GOPAL (1), M.K. Reddy (2), G. Prasad Babu (1), V.K. Baranwal (3), S. Khayum (1), C. Phaneendra (1), V. Gopi (4), and Palanivel (4). (1) ANGR Agricultural University, Tirupati, A.P., India; (2) IIHR, Bangalore, India; (3) IARI, New Delhi; (4) J.J. College of Arts & Science, Pudukkottai, TN, India
- 92B Real-time PCR for detection and quantification of *Xanthomonas campestris* pv. *vesicatoria* in samples from transplant seedling greenhouses. D.A. CUPPELS and T. Ainsworth. Agriculture and Agri-Food Canada, London, ON, Canada
- 93B Real-time quantitative PCR detection and quantification of *Fusarium solani* f. sp. *glycines* in soybean roots and soil. S. LI, X. Zeng, Y. Ge (1), and G.L. Hartman (1,2). (1) University of Illinois, Urbana, IL; (2) USDA-ARS, Urbana, IL
- 94B Simultaneous identification and quantification of *Rhizoctonia solani* and *R. oryzae* from root samples using real-time PCR. P.A. OKUBARA and T.C. Paulitz. USDA-ARS, Washington State University, Pullman, WA
- 95B Withdrawn
- 96B Real-time PCR identification of *Pythium* spp. from cereals in eastern Washington. K.L. SCHROEDER and T.C. Paulitz. USDA-ARS, Washington State University, Pullman, WA
- 97B Rapid detection of Ginseng root rot pathogen, *Cylindrocarpon destructans*, from soil samples using molecular biological techniques. C.S. Jang (1), J.B. Ra (2), S.J. Yoo (2), J.Y. Song (1), and H.G. KIM (1). (1) Chungnam National University, Daejeon, Korea; (2) Bioshield Co., Ltd., Daejeon, Korea
- 98B Detection of four rust pathogens of cereals and grasses using real-time PCR. C.W. BARNES, L.J. Szabo, and K.-P. Nguyen. USDA-ARS, University of Minnesota, St. Paul, MN
- 99B Development of a grid RT-PCR method for detection of *Peanut mottle* and *Peanut stripe viruses* in peanut germ plasm. A.G. GILLASPIE, M.L. Wang, D.L. Pinnow, and R.N. Pittman. USDA-ARS, Griffin, GA
- 100B *Sweet potato leaf curl virus*: Detection by molecular hybridization. R.A. VALVERDE, C.D. Kokkinos, and C.A. Clark. Louisiana State University, Baton Rouge, LA
- 101B An improved RT-PCR assay for the detection of two cherry foveaviruses in *Prunus* spp. R. LI and R.G. Mock. USDA-ARS, Beltsville, MD
- 102B Isolation and PCR amplification of plant viral nucleic acid from immunochromatographic devices. A.M. HARNESS (1), B.P. Kulemeka (1), J.A. Abad (2), and M.D. Bandla (1). (1) Agdia, Inc., Elkhart, IN; (2) North Carolina State University, Raleigh, NC
- 103B A simplified cDNA cloning method for recalcitrant double-stranded RNA viral templates using reverse transcriptase. I.E. TZANETAKIS (1), K.E. Keller (2), and R.R. Martin (1). (1) Oregon State University, Corvallis, OR; (2) USDA-ARS, Corvallis, OR
- 104B Soybean rust in Argentina. A. IVANCOVICH (1), G. Botta (1), S. Vallone (2), E. Guillen (2), N. Formento (3), G. Guerra (4), and I. Bonacic (5). (1) INTA Pergamino, Buenos Aires, Argentina; (2) INTA Marcos Juárez, Córdoba, Argentina; (3) INTA Paraná, Entre Ríos, Argentina; (4) INTA Manfredi, Córdoba, Argentina; (5) INTA Saenz Peña, Chaco, Argentina

Posters

- 105B Identification of a possible new anthracnose race on dry beans. L.E. del Río and R.S. LAMPPA. North Dakota State University, Fargo, ND
- 106B The occurrence of a mixed infection of a virus related to clover yellow mosaic potexvirus and unknown potyvirus in *Verbena canadensis*. D.A. DAVISON, M. Annamalai, and C.A. Baker. Florida Department of Agriculture, Gainesville, FL
- 107B Detection of the *Crinivirus*, *Cucurbit yellow stunting disorder virus* using antibodies produced against its recombinant coat protein. Y. ABOU-JAWDAH and H. Hourani. American University of Beirut, Beirut, Lebanon
- 108B Detection of three plant viruses in nematode vectors by RT/PCR. J. Kraus, J.N. Pinkerton and R.R. MARTIN. USDA-ARS, Corvallis, OR

Diseases of Cereals

- 109A Identification and molecular characterizaton of rice blast fungus *M. grisea* induced proteins through proteomic analysis. S.G. KIM, D.H. Hwang, S.T. Kim, S.Y. Kang, H.J. Kim and K.Y. Kang. Gyeongsang National University, Chinju, Korea
- 110A Utilization of field resistance to control rice blast. M.P. SINGH, F.N. Lee and P.A. Counce. University of Arkansas, Stuttgart, AR
- 111A Study on root and crown rot of rice in Gilan and Zanjan provinces. H. SAREMI and F. Farrokhi. Zanjan University, Zanjan, Iran
- 112A A new corn and sorghum infecting *Cercospora* sp. isolated from smooth brome grass. K. BRODERS and J.E. Partridge. University of Nebraska, Lincoln, NE
- 113A *Fusarium graminearum* mycotoxin levels in spring wheat with varying amounts of corn residue. L.E. OSBORNE. South Dakota State University, Brookings, SD
- 114A Greenhouse and field reaction of soft red winter wheat cultivars to *Stagonospora* leaf and glume blotch, *Stagonospora nodorum*. J.S. ENGLE and P.E. Lipps. Ohio State University, Wooster, OH
- 115A Influence of tillage on yield and root diseases in direct-seeded dryland wheat and barley in southeastern Idaho. C.A. STRAUSBAUGH and A.C. Koehn. University of Idaho, Kimberly, ID
- 116A Stripe rust epidemics and races of *Puccinia striiformis* in the United States in 2003. X.M. CHEN (1,2) M.K. Moore (2), and D.A. Wood (1). (1) USDA-ARS, Pullman, WA; (2) Washington State University, Pullman, WA
- 117A Frequency of the teleomorph of *Phaeosphaeria nodorum* on winter wheat in North Carolina, USA. C. COWGER (1) and H.V. Silva-Rojas (2). (1) USDA-ARS, Raleigh, NC; (2) Colegio de Postgraduados, Montecillo, México

- 118A Virulence specificities of world wide collections of *Puccinia triticina* from durum wheat. M.E. ORDONEZ (1), J.A. Kolmer (1,2), and J.V. Groth (1). (1) University of Minnesota, St. Paul, MN; (2) USDA-ARS, St. Paul, MN
- 119A Influence of environment on wheat infection efficiency by *Tilletia indica* Mitra artificially inoculated in northwest Mexico. P. FIGUEROA-LOPEZ, G. Fuentes-Davila and M.A. Camacho-Casas. INIFAP, Obregon, Mexico
- 120A Isolate by temperature interaction for aggressiveness among isolates of *Puccinia striiformis* f. sp. *tritici*. E. SEYRAN and E.A. Milus. University of Arkansas, Fayetteville, AR
- 121A The optimization of real-time PCR to quantify the number of *Tilletia indica* teliospores in soil. J.M. STEIN, K.L. Maxson-Stein, and C.M. Rush. Texas Agricultural Experiment Station, Bushland, TX
- 122A A method for the quantification of *Rhizoctonia solani* and *Rhizoctonia oryzae* from soil using toothpicks. T.C. PAULITZ and K.L. Schroeder. USDA-ARS, Washington State University, Pullman, WA
- 123A Consistent inoculation method for corn (*Zea mays L.*) hybrids to *Cercospora zeae-maydis* in greenhouse environments. J.M. FLEER and J.E. Partridge. University of Nebraska, Lincoln, NE
- 124A Association of pericarp color, plant color and grain hardness with fungal colonization and susceptibility to grain mold. D.L. FUNNELL and J.F. Pedersen. USDA-ARS, University of Nebraska, Lincoln, NE
- 124aA Evaluation of pearl millet germplasm accessions for resistance to grain mold. S.S. NAVI (1) and V.A. Tonapi (2). (1) Iowa State University, Ames, IA; (2) National Research Center for Sorghum, Rajendranagar, Hyderabad, A.P., India

Diseases of Field and Fiber Crops

- 125A Prevalence of dry bean diseases in North Dakota—2003. R. HARIKRISHNAN, L.E. del Río, and R.S. Lamppa. North Dakota State University, Fargo, ND
- 126A Effects of temperature and relative humidity on ascospore infection, and viability of pre-colonized flowers by *Sclerotinia sclerotiorum* on white mold development in dry beans. R. HARIKRISHNAN and L. del Río. North Dakota State University, Fargo, ND
- 127A Commercial soybean variety response to *Tobacco ringspot virus* inoculation at different growth stages. R.A. PEKAREK, L.J. Giesler, L.C. Lane, and A.D. Ziems. University of Nebraska, Lincoln, NE
- 128A Pathogenicity, mitochondrial DNA RFLPs, and colony morphology comparisons of isolates of *Fusarium virguliforme* and *F. tucumaniae* capable of causing SDS of soybean. S.L. GIAMMARIA, M.L. Rosso, J.C. Correll and J.C. Rupe. University of Arkansas, Fayetteville, AR

- 129A Resistance in soybean cultivars to *Pythium* damping-off and root rot. G.D. BATES, C.S. Rothrock, J.C. Rupe, and P. Chen. University of Arkansas, Fayetteville, AR
- 130A (S) First report of *Soybean dwarf virus* on soybean in Wisconsin. A. PHIBBS (1), A. Barta (1), and L.L. Domier (2). (1) Wisconsin Department of Agriculture, Madison, WI; (2) USDA-ARS, University of Illinois, Urbana, IL
- 131A Characteristics of *Phytophthora sojae* populations in Illinois and implications for management of Phytophthora rot of soybean. D.K. MALVICK and E. Grunden. University of Illinois, Urbana, IL
- 132A Impact of strip-till into various cover crops on disease development and yield in peanut. H.L. CAMPBELL, J.R. Weeks, and A.K. Hagan. Auburn University, Auburn, AL
- 133B Safflower (*Carthamus tinctorius*): A potential alternate host of *Cercospora beticola*. R.T. LARTEY (1), T.C. Caesar-TonThat (1), A.J. Caesar (1), W.L. Shelver (2), and N.I. Sol (1). (1) USDA-ARS, Sidney, MT; (2) USDA-ARS, Fargo, ND
- 134B (S) Migration of *Fusarium verticillioides* in corn ears. I.E. YATES (1) and D. Sparks (2). (1) USDA-ARS, Athens, GA; (2) University of Georgia, Athens, GA
- 135B (S) Sugar beet seedling age and susceptibility to *Aphanomyces cochlioides*. J.R. BRANTNER and C.E. Windels. University of Minnesota, Crookston, MN
- 136B (S) Development of wild *Helianthus annuus* populations with multiple disease resistance. C.C. BLOCK. USDA-ARS, Ames, IA
- 137B (S) Fungus diseases on certified seed potato tubers. A.T. SAAD (1), L. Hanna (1), R. Abi Ghanem (1), and E. Choueiri (2). (1) American University of Beirut, Beirut, Lebanon; (2) LARI, Rayak, Lebanon
- 138B (S) Characterization of a new *Phytophthora infestans* isolate from tomato. G.S. Smith, C. Enderle, J. Gilpert, T. Davis, S. Foor and L.E. HOFFMAN. DuPont Crop Protection, Newark, DE
- 139B (S) Molecular and genetic variability of *Diaporthe phaseolorum* var. *caulivora* isolates from South Dakota. D. Zhang and T.E. CHASE. South Dakota State University, Brookings, SD
- 140B (S) Relationship of disease resistance and stand persistence in alfalfa cultivars from the 1940s to the 1990s. J.J. ARISS (1), L.H. Rhodes (1), R.M. Sulc (1), and J.F.S. Lamb (2). (1) Ohio State University, Columbus, OH; (2) USDA-ARS, St. Paul, MN
- 141B (S) Interaction of *Rotylenchulus reniformis* with seedling disease pathogens of cotton. A.J. PALMATEER (1), K.S. Lawrence (2), E. van Santen (2), and G. Morgan-Jones (2). (1) University of Florida, Homestead, FL; (2) Auburn University, Auburn, AL
- Diseases of Fruits and Nuts**
- 142A (S) A virus associated with blueberry fruit drop disease. R.R. MARTIN (1), I.E. Tzanetakis (2), M. Sweeney (3), and L. Wegener (4). (1) USDA-ARS, Corvallis, OR; (2) Oregon State University, Corvallis, OR; (3) British Columbia Ministry of Agric, Fisheries and Food, Abbotsford, BC, Canada; (4) Simon Fraser University, Burnaby, BC, Canada
- 143A (S) Control of postharvest Alternaria fruit rot with fungicides applied to blueberry during the growing season. P.R. BRISTOW and G.E. Windom. Washington State University, Puyallup, WA
- 144A Effect of temperature on ascospore discharge by *Monilinia vaccinii-corymbosi*. A.M.C. Schilder and P.S. WHARTON. Michigan State University, East Lansing, MI
- 145A (S) Studies on natural spread of citrus psoriasis disease. S.R. PALLE, H. Miao, M. Seyran, J.V. daGraca, and M. Skaria. Texas A&M University, Weslaco, TX
- 146A (S) Evaluation of fungicides and fungicide-adjuvant mixtures for post-infection control of Phomopsis cane and leaf spot of grape. M. NITA, M.A. Ellis, L.L. Wilson, and L.V. Madden. Ohio State University, Wooster, OH
- 147A (S) Field evaluation of nonchemical alternatives for control of *Mesocriconema xenoplax* on peach. A.P. NYCZEPIR. USDA-ARS, Byron, GA
- 148A Hawaiian grown guava as a model for studying plant disease. L.M. KEITH and F.T. ZEE. USDA-ARS, Hilo, HI
- 149A Pomegranate wilt and its potential biocontrol. Q. HUANG, H.R. Chen, Y.Y. Zhu, Y.Y. Wang, J.H. Fan, and Z.S. Mao. Yunnan Agricultural University, Kunming, China
- 150B Characterization of Pseudomonads isolated from dormant sweet cherry budsticks in New York. W.W. TURECHEK, R.M. Edwards, and N.A. Werner. Cornell University, Geneva, NY
- 151B Biology of powdery mildew (*Podosphaera clandestina*) on sweet cherry (*Prunus avium*). J.M. CALABRO and R.A. SPOTTS. Oregon State University, Hood River, OR
- 152B (S) Analysis of *Pseudomonas syringae* populations associated with a bacterial canker epidemic in Michigan. L.J. RENICK, A.G. Cogal, and G.W. Sundin. Michigan State University, East Lansing, MI
- 153B Phytotoxicity of copper bactericides to peach and nectarine. N. LALANCETTE and K.A. Foster. Rutgers University, Bridgeton, NJ
- 154B (S) Alternative fumigation strategies in California strawberry production and the use of remote sensing for evaluating their effect on crop production. F.N. MARTIN. USDA-ARS, Salinas, CA
- 155B (S) Phyloid strawberry fruit associated with undetermined non-phytoplasma cause in Florida. T.E. SEIJO, J.R. Duval, and N.A. Peres. University of Florida, Dover, FL

Posters

- 156B Identification of viruses in declining strawberries along the west coast of North America. I. TZANE-TAKIS (1), M. Bolda (2), and R. Martin (1,3). (1) Oregon State University, Corvallis, OR; (2) University of California, Watsonville, CA; (3) USDA-ARS, Corvallis, OR
- 157B Almond leaf scorch disease in the San Joaquin Valley of California: Factors affecting pathogen distribution. R. GROVES (1), J. Chen (1), E. Civerolo (1), M. Viveros (2), and M. Freeman (3). (1) USDA-ARS, Parlier, CA; (2) University of California Cooperative Extension, Bakersfield, CA; (3) University of California Cooperative Extension, Fresno, CA
- 158B Green fluorescent protein-labeled strains of *Xylella fastidiosa* colonize citrus, grapevines and periwinkle. W. LI and J.S. Hartung. USDA-ARS, Beltsville, MD
- 159B Cell-cell signal interference in *Xylella fastidiosa* and *Xanthomonas campestris*. K.L. NEWMAN and S.E. Lindow. University of California, Berkeley, CA
- 160B Temperature and maturity effects on latent period of *Botryosphaeria dothidea* on infected pistachio fruit. A.L. MILA and T.J. Michailides. University of California, Parlier, CA
- 161B Best time period to determine latent infection by *Monilinia fructicola* in prune. Y. LUO and T.J. Michailides. University of California, Parlier, CA
- 162B Evaluation of the efficacy of dormant applications of lime sulfur and fixed copper to control Phomopsis cane and leaf spot of grape. M. NITA, M.A. Ellis, and L.V. Madden. Ohio State University, Wooster, OH
- 163A Control of powdery mildew of grapes in California. G. LEAVITT and T. Martin-Duvall. University of California Cooperative Extension, Madera, CA
- 164B Effects of grape berry nitrogen content and high relative humidity on the activation and spread of latent *Botrytis cinerea* infections. S.M. ZITTER and W.F. Wilcox. Cornell University, Geneva, NY
- 165B Effect of scion bud source and irrigation on incidence of almond union mild etch. J.H. CONNELL (1), J.K. Uyemoto (2), and R. Rosecrance (3). (1) University of California Cooperative Extension, Oroville, CA; (2) USDA-ARS, University of California, Davis, CA; (3) California State University, Chico, CA
- 166B Effects of pre-plant fallow and crop rotations on severity of *Prunus* replant disease. G.T. BROWNE (1), S.M. Schneider (2), and T.J. Trout (2). (1) USDA-ARS, University of California, Davis, CA; (2) USDA-ARS, Parlier, CA
- Diseases of Ornamentals**
- 167A Natural occurrence of *Xylella fastidiosa* in a commercial nursery in Maryland. Q. HUANG. USDA-ARS, Beltsville, MD
- 168A Comparison of fungicides for control of powdery mildew on dogwood. A.K. HAGAN (1), J.W. Olive (2), J. Stephenson (2), and M. Rivas-Davila (1). (1)
- 169A Effect of biopesticides, microbial inoculants, and bio-rational products on *Phytophthora nicotianae* infection of periwinkle. C.B. YANDOC, J. Albano, and E.N. Rosskopf. USDA-ARS, Ft. Pierce, FL
- 170A Effect of timed post-infection fungicide sprays on urediniospore production and viability of *P. hemerocallidis*. K.A. WISE (1), D.S. Mueller (2), and J.W. Buck (1). (1) University of Georgia, Griffin, GA; (2) Iowa State University, Ames, IA
- 171A Influence of environment on atmospheric concentrations of *Peronospora antirrhini* conidia in field-grown snapdragons. J.M. Byrne, M.K. Hausbeck, and L.E. SCONYERS. Michigan State University, East Lansing, MI
- 172A Plant spacing effect on microclimate and Rhizoctonia web blight development in container-grown azalea. W.E. COPES (1) and H. Scherm (2). (1) USDA-ARS, Poplarville, MS; (2) University of Georgia, Athens, GA
- 173A Effect of light on germination of urediniospores of rusts on daylily, geranium, iris, native azalea, spearmint, and sweet corn. D.S. MUELLER (1) and J.W. Buck (2). (1) Iowa State University, Ames, IA; (2) University of Georgia, Griffin, GA
- 174A Role of SGT1 genes in regulating plant defense in ornamental plants. S. ZHANG, S.E. Nada, R.V. Sairam, and S.L. Goldman. University of Toledo, Toledo, OH
- 175A Phytoparasitic nematodes associated with field-grown floricultural crops in southern Florida. G.T. CHURCH. USDA-ARS, Ft. Pierce, FL
- 176A An investigation of an outbreak of *Impatiens necrotic spot virus* in New Zealand. B.S.M. LEBAS, F.M. Ochoa-Corona, D.R. Elliott, Z. Tang, B.J.R. Alexander, and K.J. Froud. Ministry of Agriculture and Forestry of New Zealand, Auckland, New Zealand
- 177A Identification of potexvirus isolates from phlox and portulaca as strains of *Alternanthera mosaic virus*, and comparison of the genomic 3' region. J. HAMMOND, M.D. Reinsel, and C.J. Maroon-Lango. USDA-ARS, Beltsville, MD
- 178A Biolistic inoculation of gladiolus with *Cucumber mosaic cucumovirus*. J.A. Aebrig, K. Kamo, and H.T. HSU. USDA-ARS, Beltsville, MD
- 179A Detection of hibiscus latent *Fort Pierce virus* in New Mexico. J. Allen (1), I. Kamenova (2), S. Adkins (2), and S.F. HANSON (1). (1) New Mexico State University, Las Cruces, NM; (2) USDA-ARS, Ft. Pierce, FL
- 180B Effect of nitrogen, potassium and silicon on disease susceptibility of various herbaceous ornamental crop species. J.C. LOCKE (1), D. Pitchay (2), and J.M. Frantz (1). (1) USDA-ARS, Toledo, OH; (2) University of Toledo, Toledo, OH
- 181B Reduction in *Phytophthora* disease with increased inoculum application pressure. T.J. Banko, C.X.

- Hong, and P.A. RICHARDSON. Virginia Tech, Virginia Beach, VA
- 182B Effect of coir extracts on growth of *Phytophthora capsici* and *Botrytis cinerea* *in vitro*. N. HYDER, S.N. Wegulo, M. Vilchez, and J.J. Sims. University of California, Riverside, CA
- 183B *Phytophthora ramorum* not detected in a survey of North Carolina nurseries. D.M. BENSON and C.Y. Warfield. North Carolina State University, Raleigh, NC
- 184B Nursery survey for sudden oak death in Texas. D.N. APPEL, S. Service, and T. Kurdyla. Texas A&M University, College Station, TX
- 185B Surveys of Oklahoma ornamental nurseries for *Phytophthora ramorum*, the cause of sudden oak death. S.L. VON BROEMBSEN, B.R. Olson, and M.A. Schnelle. Oklahoma State University, Stillwater, OK
- 186B Root infection of rhododendron by *Phytophthora ramorum*. C.D. LEWIS, M.L. Roth, C.J. Choquette, and J.L. Parke. Oregon State University, Corvallis, OR
- 187B Relative virulence of *Phytophthora ramorum* isolates in Oregon. J.L. PARKE and M.L. Roth. Oregon State University, Corvallis, OR
- Diseases of Turfgrasses**
- 188B Turfgrass disease characterizations in the state of Georgia before and after commercial disease management field trainings in 2002 and 2003. M.J. PEARCE, A.D. Martinez-Espinosa, and L. Burpee. University of Georgia, Griffin, GA
- 189B Dollar spot control on ultradwarf bermudagrass putting greens with curative and preventive fungicide applications. D.Y. Han (1), J.B. Unruh (2), and S.B. Davis (3). (1) Auburn University, Auburn, AL; (2) University of Florida, Jay, FL; (3) Bayer Environmental Science, Gulf Breeze, FL
- 190B Effects of spring-applied fungicide applications on disease and quality of rough bluegrass overseeded bermudagrass putting greens. S.R. PARKER, S.B. Martin, J.J. Camberato, and S.N. Jeffers. Clemson University, Clemson, SC
- 191B Evaluation of fungicides for control of rapid blight on cool season grasses. S.B. MARTIN (1), M.W. Olsen (2), P.D. Peterson (1), and J.J. Camberato (1). (1) Clemson University, Florence, SC; (2) University of Arizona, Tucson, AZ
- 192B Effect of salinity and cutting on symptom development of rapid blight of perennial rye. M.J. KOHOUT, D.M. Bigelow and M.W. Olsen. University of Arizona, Tucson, AZ
- 193B Effect of foliar disease on epiphytic yeast populations of creeping bentgrass and tall fescue. T.W. ALLEN, L.L. Burpee, and J.W. Buck. University of Georgia, Griffin, GA
- 194B The influence of temperature on the colonization of bermudagrass roots by *Ophiophaerella herpotricha*.
- N.R. WALKER (1), A.N. Morton (1), and T.K. Mitchell (2). (1) Oklahoma State University, Stillwater, OK; (2) North Carolina State University, Raleigh, NC
- 195B Factors influencing populations of plant parasitic nematodes on golf course greens in New England. K.S. JORDAN and N.A. Mitkowski. University of Rhode Island, Kingston, RI
- 196B Phylogenetic relationships between the rapid blight pathogen of turf and aquatic protists in the genus *Labyrinthula*. K.D. Craven (1), P.D. PETERSON (2), T.K. Mitchell (1), and S.B. Martin (2). (1) North Carolina State University, Raleigh, NC; (2) Clemson University, Florence, SC
- 197B Pathogenicity of *Gaeumannomyces graminis* var. *tritici* on creeping bentgrass. S.L. THOMAS, P. Bonello, and M.J. Boehm. Ohio State University, Columbus, OH
- 198B Use of morphological, molecular, and pathogenic characteristics to identify *Gaeumannomyces graminis* varieties. S.L. Thomas (1), P.E. Lipps (2), and M.J. BOEHM (1). (1) Ohio State University, Columbus, OH; (2) Ohio State University, Wooster, OH

Diseases of Vegetables

- 199A Ability of strains of *Pratylenchus penetrans* and influence of co-infection with *Verticillium dahliae* to cause potato early dying. M. OMER (1), R. Rowe (1), and A. MacGuidwin (2). (1) Ohio State University, Wooster, OH; (2) University of Wisconsin, Madison, WI
- 200A Suppression of root knot and lesion nematodes by cover crops, poultry litter and compost. K.L. EVERTS, S. Sardanelli, R.J. Kratochvil, and D.K. Armentrout. University of Maryland, College Park, MD
- 201A Induced resistance and increased nutrient uptake in pepper associated with harpin protein treatment in the greenhouse. Z. LAN and Z. Wei. EDEN Bioscience Corp., Bothell, WA
- 202A Systemic acquired resistance (SAR) in cucumber against infection by *Colletotrichum orbiculare* is enhanced by systemic fungicide and SAR activator applications. B.J. HORVATH and R. Hammerschmidt. Michigan State University, East Lansing, MI
- 203A Managing *Iris yellow spot virus* of onion with cultural practices, host genotype, and novel chemical treatments. D.H. GENT, H.F. Schwartz, and R. Khosla. Colorado State University, Ft. Collins, CO
- 204A Characterization of *Acidovorax avenae* subsp. *citrulli* strains isolated from watermelon and melon fields in Israel. S. BURDMAN (1), N. Kots (1), and G. Kritzman (2). (1) Hebrew University of Jerusalem, Rehovot, Israel; (2) Volcani Center, Bet Dagan, Israel
- 205A Identification and prevalence of bean pod rot in Arkansas and Missouri. J.H. TAYLOR (1) and C.S. Rothrock (2). University of Arkansas, Fayetteville, AR

Posters

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– Ralph Waldo Emerson

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- 206B Expanded host and geographic range of *Pseudomonas syringae* pv. *alisaensis*. C.T. BULL (1), P.H. Goldman (1), N.C. Morris (1), S.T. Koike (2), and D.Y. Kobayashi (3). (1) USDA-ARS, Salinas, CA; (2) University of California Cooperative Extension, Salinas, CA; (3) Rutgers University, New Brunswick, NJ
- 207B *Streptomyces* strain variation and differences in inoculum density contribute to the severity of potato common scab. L.A. WANNER. USDA-ARS, Beltsville, MD
- 208B In vitro biofilm formation by *Erwinia carotovora* subs. *atroseptica* can be increased when grown on a cellulose-coated surface. T. Bolduc (1), L.L.R. MARQUES (1,2), M.E. Olson (1,2), and H. Ceri (1,2). (1) University of Calgary, Calgary, AB, Canada; (2) MBEC BioProducts Inc., Calgary, AB, Canada
- 209B Identification and fungicide sensitivity of fungal pathogens causing tomato fruit rot in Ohio. L.J. GUTIERREZ and B.B. McSpadden Gardener. Ohio State University, Wooster, OH
- 210B Fungicide efficacy and timing trials for the control of downy mildew of baby lima bean. J.F. DAVEY, R.P. Mulrooney, T.A. Evans, and R.B. Carroll. University of Delaware, Newark, DE
- 211B Efficacy of fungicides for control of downy mildew of lettuce. J.J. FARRAR. California State University, Fresno, CA
- 212B Suppression of gummy stem blight on watermelon and cantaloupe transplants with seed-applied fungicides. K.W. SEEBOLD. University of Georgia, Tifton, GA
- 213B Managing Xanthomonas leaf blight of onion with copper bactericides and acibenzolar. D.H. GENT and H.F. Schwartz. Colorado State University, Ft. Collins, CO
- 214B Evaluation of thymol as biofumigant for control of bacterial wilt of tomato under field conditions. P. JI (1), M.T. Momol (1), S.M. Olson (1), P.M. Pradhanang (1), and J.B. Jones (2). (1) University of Florida, Quincy, FL; (2) University of Florida, Gainesville, FL
- 215B Optimization of red-light irradiation in inducing resistance in vegetable seedlings against *Phytophthora capsici*. S.Z. ISLAM (1), M. Babadoost (1), and Y. Honda (2). (1) University of Illinois, Urbana, IL; (2) Shimane University, Matsue, Japan
- 216B Infection of onion seedlings by soilborne inoculum of *Aspergillus niger* expressing green fluorescent protein. A.M. SEYB, D.P. LoParco, and J.W. Lorbeer. Cornell University, Ithaca, NY
- 217B Developing prediction and management systems for the control of *Rhizoctonia* diseases in potato and sugarbeet. P.S. WHARTON, D. Berry, and W.W. Kirk. Michigan State University, East Lansing, MI
- 218B *Fusarium oxysporum* f. sp. *niveum* race 2 of watermelon in Indiana. D.S. EGEL (1), R. Harikrishnan (2), and R. Martyn (1). (1) Purdue University, West

- Lafayette, IN; (2) North Dakota State University, Fargo, ND
- 219B Evaluation of two models for lettuce downy mildew infection periods in Norway. B. NORDSKOG (1), A. Hermansen (1), R.C. Seem (2), and D.M. Gadoury (2). (1) Norwegian Crop Research Institute, Ås, Norway; (2) Cornell University, Geneva, NY
- 220B Efficacy of phosphorous acid against pink rot and Pythium leak on potato. D.A. INGLIS (1), J.S. Miller (2), and D.A. Johnson (3). (1) Washington State University, Mount Vernon, WA; (2) University of Idaho, Aberdeen, ID; (3) Washington State University, Pullman, WA
- 221B Molecular characterization of spinach germplasm and a marker linked to downy mildew resistance using AFLPs. B.M. IRISH, J.C. Correll, B. de los Reyes, and C. Feng. University of Arkansas, Fayetteville, AR
- Forest Pathology**
- 222A Forest fires influence the abundance of *Armillaria* root disease in ponderosa pine. J.T. Blodgett (1) and J.E. LUNDQUIST (2). (1) USDA Forest Service, Rapid City, SD; (2) USDA Forest Service, Ft. Collins, CO
- 223A Annual burning increases tree mortality, *Armillaria* and canker incidence. K.A. JACOBS, M.L. Bowles and K.A. Bolger. Morton Arboretum, Lisle, IL
- 224A Phylogeography of *Armillaria ostoyae* in the western United States. J.W. HANNA (1,2), N.B. Klopfenstein (1), M.-S. Kim (1), G.I. McDonald (1), and J.A. Moore (2). (1) USDA Forest Service, Moscow, ID; (2) University of Idaho, Moscow, ID
- 225A Biological control of monilia pod rot (*Moniliophthora roreri*) on "high flavor" cocoa field using biopesticidas based on *Bacillus subtilis* and *Pseudomonas cepacea*. C.E. FALCONI, A.R. Oleas, and V.R. Yáñez. Army Polytechnic School, Sangolquí, Ecuador
- 226A Characterisation of damage and organisms associated with the decline of *Eucalyptus wandoo* Blakely in Western Australia. R.J. HOOPER and K. Sivasithamparam. University of Western Australia, Crawley, WA, Australia
- 227A Diseases associated with plantation forest trees in Uganda. G. NAKABONGE, J. Roux, T.A. Coutinho, and M.J. Wingfield. University of Pretoria, Pretoria, South Africa
- 228A Fungi associated with bark wounds on indigenous African trees. J. ROUX (1), R.N Heath (1), G. Meke (2), C. Nguvulu (3), F. Mlambo (4), C.J. Geldenhuys (5), and M.J. Wingfield (1). (1) University of Pretoria, Pretoria, South Africa; (2) Forestry Research Institute, Zomba, Malawi; (3) Forest Research Division, Kitwe, Zambia; (4) Copperbelt University, Kitwe, Zambia; (5) Forestwood, Pretoria, South Africa
- 229A The Texas cooperative oak wilt suppression project completes 16th year. K.S. CAMILLII (1) and R.F. Billings (2). (1) Texas Forest Service, Austin, TX; (2) Texas Forest Service, College Station, TX
- 230A Oak wilt: Research for future control. K.L. MANN and D.W. Fulbright. Michigan State University, East Lansing, MI
- 231B Incidence of *Phytophthora* spp. in a hardwood forest site in the southern Appalachian Mountains. D.C. ZWART (1), S.N. Jeffers (1), and T.A. Waldrop (2). (1) Clemson University, Clemson, SC; (2) USDA Forest Service, Clemson, SC
- 232B Monitoring *Phytophthora ramorum* in Oregon coastal forests. A. Kanaskie (1), M. McWilliams (1), J. Mair (1), J. Laine (1), J. Beeson (1), E. Goheen (2), R. Schroeter (2), E. Hansen (3), W. Sutton (3), N. OSTERBAUER (4), and L. Rehms (4). (1) Oregon Department of Forestry, Salem, OR; (2) USDA Forest Service, Central Point, OR; (3) Oregon State University, Corvallis, OR; (4) Oregon Department of Agriculture, Salem, OR
- 233B Susceptibility of conifer shoots to infection by *Phytophthora ramorum*. G.A. CHASTAGNER (1), E.M. Hansen (2), K.L. Riley (1), and W. Sutton (2). (1) Washington State University, Puyallup, WA; (2) Oregon State University, Corvallis, OR
- 234B Effectiveness of fungicides in protecting Douglas-fir shoots from infection by *Phytophthora ramorum*. G.A. CHASTAGNER (1), E.M. Hansen (2), K.L. Riley (1), and W. Sutton (2). (1) Washington State University, Puyallup, WA; (2) Oregon State University, Corvallis, OR
- 235B Forest structure changes in the spruce-fir ecosystem of the Black Mountains NC. T.A. BOWERS, R.I. Bruck, and W.P. Robarge. North Carolina State University, Raleigh, NC
- 236B Anatomical responses of pine roots to starvation, fire, or pathogen infection. C.H. WALKINSHAW. US Forest Service, Pineville, LA
- 237B Risk from *Sirococcus conigenus* to understory red pine seedlings. J.J. Bronson and G.R. STANOSZ. University of Wisconsin, Madison, WI
- 238B Survey for asymptomatic persistence of *Sphaeropsis sapinea* on or in stems of red pine seedlings from seven Great Lakes region nurseries. G.R. STANOSZ and D.R. Smith. University of Wisconsin, Madison, WI
- 239B A test of the validity of screening poplar clones for long-term canker disease damage by responses to inoculation with *Septoria musiva*. J.E. Weiland, J.C. Stanosz, and G.R. STANOSZ. University of Wisconsin, Madison, WI
- 240B Observations on why usable disease research goes unused by field level forest managers. J.E. LUNDQUIST. USDA Forest Service, Ft. Collins, CO
- 241B The glassy-winged sharpshooter transmits *Xylella fastidiosa* between sycamore trees. T.D. LEININGER,

Posters

- N.M. Schiff, and K.C. Corbin. USDA Forest Service, Stoneville, MS
- 242B Effect of Annosus root rot on the keepability of noble fir Christmas trees. G.A. CHASTAGNER and P. Kaufmann. Washington State University, Puyallup, WA
- 243B Fungi associated with wood decomposition in forest soils of the northwestern USA. R.C. RIPPY (1,2), N.B. Klopfenstein (1), M.-S. Kim (1), D.S. Page-Dumroese (1), L.M. Carris (2), J.D. Rogers (2), and M.F. Jurgensen (3). (1) USDA Forest Service, Moscow, ID; (2) Washington State University, Pullman, WA; (3) Michigan Technological University, Houghton, MI
- 244B Molecular characterization of *Fusarium oxysporum* from tree nurseries: Tools for early detection of pathogens. J.E. STEWART (1), M.-S. Kim (1), R.L. James (2), R.K. Dumroese (1), and N.B. Klopfenstein (1). (1) USDA Forest Service, Moscow, ID; (2) USDA Forest Service, Coeur d'Alene, ID
- 245B Resistance to pitch canker in Monterey pine: Will it save the forest? B.J. AEGERTER and T.R. Gordon. University of California, Davis, CA
- 246B Development of black-stain root disease on artificially inoculated ponderosa pine. W.J. OTROSINA (1), S.S. Sung (1), J.T. Kliejunas (2), S. Smith (2), and D.R. Cluck (2). (1) USDA Forest Service, Athens, GA; (2) USDA Forest Service, Susanville, CA
- Seed Pathology**
- 247B Flow cytometry for multiplex detection of plant pathogenic bacteria, direct viable counting and cell sorting. J.M. VAN DER WOLF, J. Peters, P.S. van der Zouwen, R.W. van den Bulk, N.D. Tebaldi, and J.H.W. Bergervoet. Plant Research International, Wageningen, Netherlands
- 248B Identification of a *Xanthomonas* pathogen of coriander from Oregon USA. A.R. Poplawsky (1), L. Robles (1), W. Chun (1), M.L. DERIE (2), L.J. du Toit (2), X.Q. Meng (3), and R.L. Gilbertson (3). (1) University of Idaho, Moscow, ID; (2) Washington State University, Mount Vernon WA; (3) University of California, Davis, CA
- 249B A lognormal distribution of phytopathogenic bacteria in corn, cowpea, tomato and watermelon seeds. R.D. GITAITIS (1), R.R. Walcott (2), F.H. Sanders (1), and C.C. Block (3). (1) University of Georgia, Tifton, GA; (2) University of Georgia, Athens, GA; (3) USDA-ARS, Iowa State University, Ames, IA
- 250B Population dynamics of *Acidovorax avenae* subsp. *citrulli* on watermelon blossoms. J.T. LESSL and R.R. Walcott. University of Georgia, Athens, GA
- 251B Differential transmission of *Soybean mosaic virus* isolates through seed. T.A. STEINLAGE (1), J.S. Haudenshield (1,2), and L.L. Domier (1,2). (1) University of Illinois, Urbana, IL; (2) USDA-ARS, Urbana, IL
- 252B Inheritance of resistance to phomopsis seed decay in PI 80837 and MO/PSD-0259 soybean. E.W. Jackson, P. Fenn, S.E. SMITH, P. Chen, C. Feng, and P.K. Miller. University of Arkansas, Fayetteville, AR
- Tropical Plant Pathology**
- 253A Host range of *Corynespora cassiicola* and its occurrence on weeds, ornamentals and crops of Guam. L.J. SMITH and R.L. Schlub. University of Guam, Mangilao, Guam
- 254A Fusarium stem rot of vanilla in North Sulawesi. E.C.Y. LIEW (1), F. Rondonuwu (2), A. Pinaria (2), D.T. Sembel (2), B.A. Summerell (3), and L.W. Burgess (1). (1) University of Sydney, Sydney, NSW, Australia; (2) Sam Ratulangi University, North Sulawesi, Indonesia; (3) Royal Botanic Gardens, Sydney, NSW, Australia
- 255A *Ceratocystis* associated with clove decline in North Sulawesi. E.C.Y. LIEW (1), B. Assa (2), M.J. Wingfield (3), D.T. Sembel (2), B.A. Summerell (4), and L.W. Burgess (1). (1) University of Sydney, Sydney, NSW, Australia; (2) Sam Ratulangi University, North Sulawesi, Indonesia; (3) University of Pretoria, Pretoria, South Africa; (4) Royal Botanic Gardens, Sydney, NSW, Australia
- 256A Population diversity of the *Fusarium oxysporum* f. sp. *koae*, the pathogen of Koa dieback in Hawaii. R.C. Anderson (1), T.C. Bentley (2), and J.C. CORRELL (2). (1) USGS, Honolulu, HI; (2) University of Arkansas, Fayetteville, AR
- 257A Development of Phytophthora root rot-resistant avocado rootstocks. R.C. PLOETZ (1), R.J. Schnell (2), and J.L. Haynes (1). (1) University of Florida, Homestead, FL; (2) USDA-ARS, Miami, FL
- 258A Sustainable agricultural practices to aid taro, *Colocasia esculenta*, growers in Hawaii. J.Y. UCHIDA, C. Kadooka, J. Silva, and J. Deenick. University of Hawaii, Honolulu, HI
- Epidemiology/Ecology/ Environmental Plant Pathology**

- Environmental Quality and Plant Health**
- 259A Phyllosphere-mediated removal of airborne pollutants. A. SANDHU and G.A. Beattie. Iowa State University, Ames, IA
- 260A Toxicity of explosives contaminated soil to plants. M. SIMINI, R.T. Checkai, R.G. Kuperman, C.T. Phillips, J.E. Kolakowski and C.W. Kurnas. US Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD
- 261A Site-specific estimation of weather variables in mid-western US using spatial interpolation. K.S. Kim (1), M.L. Gleason (1), and C.C. GÓNGORA-CANUL (2). (1) Iowa State University, Ames, IA; (2) Instituto de Fitosanidad, Montecillo, Mexico

- 262A Development and validation of a leaf wetness duration model using a fuzzy logic system. K.S. KIM, S.E. Taylor, and M.L. Gleason. Iowa State University, Ames, IA
- 263A Estimation of leaf wetness duration using empirical models in northwestern Costa Rica. K.S. KIM (1), S.E. Taylor (1), M.L. Gleason (1), R. Villalobos (2), and L.F. Arauz (3). (1) Iowa State University, Ames, IA; (2) Instituto Meteorológico Nacional, San José, Costa Rica; (3) Universidad de Costa Rica, San José, Costa Rica
- 264A Using empirical models to forecast site-specific leaf wetness duration for input to disease-warning systems. K.S. KIM, S.E. Taylor, and M.L. Gleason. Iowa State University, Ames, IA
- Epidemiology**
- 265A Disease changes associated with climate changes in China from 1952 to 2002. X. LI (1), X.B. Yang (1), B. Hu (2), and P. Sun (3). (1) Iowa State University, Ames, IA; (2) Ministry of Agriculture of China, Beijing, China; (3) University of Toronto, Toronto, ON, Canada
- 266A Forecasting plant disease from local-scale, high-resolution weather data. K.R. KIM (1), R.C. Seem (1), J. Zack (2), and R.D. Magarey (3). (1) Cornell University, Geneva, NY; (2) MESO Inc., Troy, NY; (3) USDA APHIS, Raleigh, NC
- 267A Possible link between El Nino events and introductions of airborne fungal pathogens from South America to North America. S. PIVONIA (1), Z. Pan (2), and X.B. Yang (1). (1) Iowa State University, Ames, IA; (2) St. Louis University, St. Louis, MO
- 268A The effect of organic and synthetic fertility amendments and tillage on the resilience of soils to Phytophthora blight. B. LIU and J.B. Ristaino. North Carolina State University, Raleigh, NC
- 269A Contributions of oosporic inoculum to epidemics of grapevine downy mildew (*Plasmopara viticola*). M.M. KENNELLY (1), C. Eugster (2), D.M. Gadoury (1), C.D. Smart (1), R.C. Seem (1), D. Gobbin (2), and C. Gessler (2). (1) Cornell University, Geneva, NY; (2) Swiss Federal Institute of Technology, Zurich, Switzerland
- 270A Possible sources of *Puccinia sorghi* inoculum initiating rust epidemics on sweet corn in western New York, 2002. D.A. SHAH and H.R. Dillard. New York State Agricultural Experiment Station, Geneva, NY
- 271A Survival of sclerotia of *Botrytis* sp., cause of onion neck rot, in red-ferrosol soil in northern Tasmania, Australia. M.I. CHILVERS (1), F.S. Hay (2), and C.R. Wilson (2). (1) Washington State University, Pullman, WA; (2) University of Tasmania, Burnie, TAS, Australia
- 272A Effect of ascospore density, leaf age, leaf wetness, and fungicide application on epiphytic growth and development of symptoms of greasy spot caused by *Mycosphaerella citri*. S.N. MONDAL and L.W. Timmer. University of Florida, Lake Alfred, FL
- 273A Progress of panicle and shoot blight of pistachio in California. A.L. MILA, G.F. Driever, and T.J. Michailides. University of California, Parlier, CA
- 274A Epidemic analysis of early leaf spot suppression by strip-tillage. E.G. CANTONWINE and A.K. Culbreath. University of Georgia, Tifton, GA
- 275A Inoculum availability and seasonal survival of *Potebniomyces pyri* in pear orchards. C.L. XIAO and R.J. Boal. Washington State University, Wenatchee, WA
- 276A Genetic diversity of blackleg strains of canola in western Canada identified through phenotype and genotype characterization. Y. CHEN, P.S. Parks and W.G.D. Fernando. University of Manitoba, Winnipeg, MB, Canada
- 277A Influence of drop size, fall height, and target type on splash dispersal of *Gibberella zaeae* and the amount of water splashed. P.A. PAUL, P.E. Lipps, and L.V. Madden. Ohio State University, Wooster, OH
- 278A Effects of *Alternaria brassicicola* infection on the reproductive fitness of the littoral ruderals *Cakile maritima* and *C. edentula* in southeast Australia. C.H. BOCK (1), P.H. Thrall (2), and J.J. Burdon (2). (1) USDA-ARS, Ft. Pierce, FL; (2) CSIRO, Canberra, ACT
- 279A Study on penetration by *Fusarium solani* f. sp. *glycines*, causal agent of SDS on soybean. S.S. NAVI and X.B. Yang. Iowa State University, Ames, IA
- 280A Spatial patterns of spore deposition of *Gibberella zaeae* in corn and wheat fields. D.G. SCHMALE III (1), D.A. Shah (2), and G.C. Bergstrom (1). (1) Cornell University, Ithaca, NY; (2) New York State Agricultural Experiment Station, Geneva, NY
- 281A Influence of rhizomania and soil factors on sugarbeet yield. K. STEDDOM (1), M.W. Bredehoeft (2), J.A. Lamb (3), and C.M. Rush (1). (1) Texas Agricultural Experiment Station, Bushland, TX; (2) Southern Minnesota Beet Sugar Cooperative, Renville, MN; (3) University of Minnesota, St. Paul, MN
- 282B Airborne propagules of *Gibberella zaeae*: Techniques for monitoring spore release and viability. D.G. SCHMALE III and G.C. Bergstrom. Cornell University, Ithaca, NY
- 283B Simulation of airborne dispersal potentials of soybean rust from Africa to South America and from South America to North America. Z. PAN (1), S. Pivonia (2), R. Pasken (1), J. Pietrowicz (1), and X.B. Yang (2). (1) St. Louis University, St. Louis, MO; (2) Iowa State University, Ames, IA
- 284B Steps towards development of a site-specific sorghum ergot risk forecast system. F. WORKNEH (1), C.M. Rush (1), B. Narasimhan (2), and R. Srinivasan (2). (1) Texas Agricultural Experiment Station, Bushland, TX; (2) Texas A&M University, College Station, TX
- 285B A model for fungicide effects on within-plant spread of stem rust in ryegrass grown for seed. W. PFEND-

Posters

- ER (1), D. Upper (2), and C. Lipp (2). (1) USDA-ARS, Corvallis, OR; (2) Oregon State University, Corvallis OR
- 286B Comparison of forecasting methods for Fusarium head blight. J.E. MOLINEROS (1), L. Madden (2), P. Lipps (2), G. Shaner (3), L. Osborne (4), L. Franch (1), and E.D. De Wolf (1). (1) Pennsylvania State University, University Park, PA; (2) Ohio State University, Wooster, OH; (3) Purdue University, West Lafayette, IN; (4) South Dakota State University, Brookings, SD
- 287B Assessing the role of kudzu *Pueraria lobata* in potential epidemics of soybean rust in the United States. O. PEREZ-HERNANDEZ, X.B. Yang, S. Pivonia, and J. Guan. Iowa State University, Ames, IA
- 288B Comparison of two aerobiological approaches for predicting the aerial incursion of soybean rust into the United States. C.E. Main (1), T. Keever (1), S.A. Isard (2), R.D. MAGAREY (1), S.C. Redlin (3), and J.M. Russo (4). (1) North Carolina State University, Raleigh, NC; (2) University of Illinois, Urbana, IL; (3) USDA APHIS, Raleigh, NC; (4) ZedX Inc., Bellefonte, PA
- 289B Extraction efficiency of cysts of soybean cyst nematode from soils. A.J.A. MOREIRA, C.C. Marett, F.W. Nutter Jr., and G.L. Tylka. Iowa State University, Ames, IA
- 290B Spatial pattern of citrus tristeza in Tamaulipas, Mexico. C. Góngora-Canul (1), P. Rivas-Valencia (1), N. Ruiz-García (1), E. Loeza-Kuk (1), G. Mora-Aguilera (1), D. Ochoa-Martínez (1), M.A. Gutiérrez-Espinosa (2), and R. Álvarez-Ramos (3). (1) Instituto de Fitosanidad; (2) Instituto de Recursos Genéticos y Productividad; (3) Comité para el Fomento e Investigación Citrícola del Estado de Tamaulipas
- 291B Spatio-temporal analysis of Stewart's wilt of corn caused by *Pantoea stewartii* in Mexico. G. MORALES (1), H.V. Silva (1), D.L. Ochoa (2), A. Carballo (1), and L. Cordova (1). (1) Instituto de Recursos Genéticos y Productividad, Texcoco, Mexico; (2) Instituto de Fitosanidad, Montecillo, Mexico
- 292B Postinfection sprays with cyprodinil + fludioxinil against gray mold in Norwegian strawberry fields based on a forecasting model from Ohio. A. Stensvand and G.M. STRØMENG. Norwegian Crop Research Institute, Ås, Norway
- D. Lampe (3), and T. Miller (1). (1) University of California, Riverside, CA; (2) California State University, Hayward, CA; (3) Duquesne University, Pittsburgh, PA
- 295B Effects of Tomato spotted wilt tospovirus on tobacco thrips are influenced by interactions among TSWV isolate, host plant and temperature. C.F. STUMPF and G.G. Kennedy. North Carolina State University, Raleigh, NC
- 296B Characterization of vector non-transmissible isolate of *Tomato spotted wilt virus*. R.A. NAIDU, J.L. Sherwood, and C.M. Deom. University of Georgia, Athens, GA
- 297B Aphid transmission of stem pitting *Citrus tristeza virus* from mixed virus infections. R.H. BRLANSKY (1), A. Roy (1), and V.D. Damsteegt (2). (1) University of Florida, Lake Alfred, FL; (2) USDA-ARS, Ft. Detrick, MD

Phyllosphere Microbiology and Ecology

- 298A Distribution of *Xanthomonas campestris* pv. *pelargonii* after leaf surface inoculation of geranium. C. Giannetti and M.A. SULZINSKI. University of Scranton, Scranton, PA
- 299A Quorum sensing contributes to virulence and epiphytic fitness of *Pseudomonas syringae*. G. DULLA, B. Quiñones, and S. Lindow. University of California, Berkeley, CA
- 300A Biochemical analyses of pomaceous stigma exudates and relevance to biological control of fire blight. P.L. PUSEY. USDA-ARS, Wenatchee, WA
- 301A Effect of overhead irrigation on phylloplane yeast populations on bentgrass and tall fescue. T.W. ALLEN, L.L. Burpee and J.W. Buck. University of Georgia, Griffin, GA
- 302A The impact of rainfall on leaf colonization by *Aureobasidium pullulans*. M.J. MCGRATH, R.N. Spear, and J.H. Andrews. University of Wisconsin, Madison, WI
- 303A How friendly are biorational fungicides to non-target organisms on plant foliage? M.T. MMBAGA and T. Amanyenu. Tennessee State University, McMinnville, TN
- 304A War between kingdoms: Induction of programmed cell death in filamentous fungi by *Pseudomonas syringae*. G. WICHMANN and S.E. Lindow. University of California, Berkeley, CA
- 305A Critical evaluation of green fluorescent protein-based bioreporters deployed in stressful environments. C. CHEN and G.A. Beattie. Iowa State University, Ames, IA

Population Genetics

- 306A Genotyping and assessing genetic diversity in the PD strains of *Xylella fastidiosa* by simple sequence repeat DNA markers. H. LIN (1), M. Francis (2), S. Barros (2), R. Hu (2), E.L. Civerolo (1), and A.M. Walker

(2). (1) USDA-ARS, Parlier, CA; (2) University of California, Davis, CA

Phyllosphere Microbiology and Ecology

- 307A Population structure of *Sclerotinia sclerotiorum* in a pea field in the Pacific Northwest. I. JIMENEZ-HIDALGO (1), N.J. Grunwald (1), L.M. Kohn (2), and W. Chen (3). (1) Washington State University, USDA-ARS, Prosser, WA; (2) University of Toronto, Mississauga, ON, Canada; (3) Washington State University, Pullman, WA
- 308A Characterization of a regional population of *Fusarium oxysporum* f. sp. *niveum* by cross pathogenicity, race, and vegetative compatibility. X.G. ZHOU (1) and K.L. Everts (1,2). (1) University of Maryland, Salisbury, MD; (2) University of Delaware, Georgetown, DE
- 309A Characteristic analysis of genetic variation in *Plasmodiophora brassicae* from Korea. S.H. Heo, H.K. Lee, W.C. Lee, and H.G. KIM. Chungnam National University, Daejeon, Korea
- 310A Genetic diversity of *Mycosphaerella graminicola*, the Septoria tritici blotch pathogen of wheat in Kansas. M. KABBAGE (1), K.A. Zeller (2), S.H. Hulbert (1), and W.W. Bockus (1). (1) Kansas State University, Manhattan, KS; (2) USDA APHIS, Laurel, MD
- 311A The genetic structure of populations of *Apiosporina morbosa* in Canada. J.X. ZHANG, W.G.D. Fernando and W.R. Remphrey. University of Manitoba, Winnipeg, MB, Canada
- 312A *Colletotrichum gloeosporioides* from non-cultivated hosts close to strawberry fields are more pathogenic to strawberry. S.J. MACKENZIE (1), T.E. Seijo (1), D.E. Legard (1), N.A.R. Peres (1), and L.W. Timmer (2). (1) University of Florida, Dover, FL; (2) University of Florida, Lake Alfred, FL
- 313A Molecular and virulence characterization of *Pyricularia grisea* in Arkansas from 2000 to 2003. E.J. BOZA, J.C. Correll, R.D. Cartwright, and F.N. Lee. University of Arkansas, Fayetteville, AR
- 314A Genetic variation among *Verticillium dahliae* isolates. Q.M. QIN, G.E. Vallad, B.M. Wu, and K.V. Subbarao. University of California, Salinas, CA
- 315A Analysis of mating-type distribution and RAPD diversity of *Didymella rabiei* isolates from Tunisia. A. RHAIEM (1), M. Chérif (1), and P.S. Dyer (2). (1) Institut National Agronomique de Tunisie, Tunis, Tunisia; (2) University of Nottingham, Nottingham, UK
- 316A Phylogenetic analysis of *Trichoderma stromaticum*, a mycoparasite of *Crinipellis perniciosa*, the cause of witches' broom disease of cacao. J.T. DE SOUZA (1,2), S.A. Rehner (2), G.J. Samuels (2), A.W. Pomella (3), and P.K. Hebbar (4). (1) University of Maryland, Queenstown, MD; (2) USDA-ARS, Beltsville, MD; (3) Almirante Cacau, Itajubá, BA, Brazil; (4) Mars Inc., Hackettstown, NJ

317A A genetic shift in the predominant virus strain causing mosaic in Louisiana sugarcane. M.P. GRISHAM and Y.-B. Pan. USDA-ARS, Houma, LA

Rhizosphere Microbiology and Ecology

- 318B Metabolic activity of *Enterobacter cloacae* in cucumber and pea spermosphere. D.P. ROBERTS, J.S. Buyer, and C.J. Baker. USDA-ARS, Beltsville, MD
- 319B Population dynamics and non-target effects of transgenic *Pseudomonas fluorescens* in the rhizosphere of wheat and pea. S. BLOUIN BANKHEAD (1), A. Brown (1), M.Y. Son (2), L.S. Thomashow (2), and D.M. Weller (2). (1) Washington State University, Pullman, WA; (2) USDA-ARS, Pullman, WA
- 320B Phenazines play a role in adhesion/biofilm formation in *Pseudomonas aureofaciens* strain 30-84. V.S.R.K. MADDULA, E.A. Pierson and L.S. Pierson III. University of Arizona, Tucson, AZ
- 321B Long-term survival of different genotypes of 2,4-diacetylphloroglucinol-producing *Pseudomonas fluorescens* in soil. R. ALLENDE-MOLAR (1), B.B. Landa (2), and D.M. Weller (1,3). (1) Washington State University, Pullman, WA; (2) Universidad de Cordoba, Cordoba, Spain; (3) USDA-ARS, Pullman, WA
- 322B Dynamics of rhizosphere competition among genotypes of 2,4-diacetylphloroglucinol (DAPG)-producing *Pseudomonas fluorescens* depends on the host crop. L. DE LA FUENTE (1), B.B. Landa (2), L.S. Thomashow (3), and D.M. Weller (3). (1) Washington State University, Pullman, WA; (2) Universidad de Cordoba, Cordoba, Spain; (3) USDA-ARS, Pullman, WA
- 323B Role of *sss* recombinase and *dsbA* in root colonization by *Pseudomonas fluorescens* Q8r1-96. O.V. MAVRODI (1), D.V. Mavrodi (1), D.M. Weller (1,2), and L.S. Thomashow (1,2). (1) Washington State University, Pullman, WA; (2) USDA-ARS, Pullman, WA
- 324B Bacteriocin activity among 2,4-diacetylphloroglucinol-producing fluorescent *Pseudomonas* spp. D. MAVRODI (1), S. Validov (2), O. Mavrodi (1), L. De La Fuente (1), A. Boronin (2), D. Weller (1,3), and L. Thomashow (1,3). (1) Washington State University, Pullman, WA; (2) Institute of Biochemistry and Physiology of Microorganisms, Pushchino, Russia; (3) USDA-ARS, Pullman, WA
- 325B Electron microscopy studies of velvetleaf and corn root colonization by a weed deleterious rhizobacterium. C.L. Foune and R.E. ZDOR. Andrews University, Berrien Springs, MI
- 326B The role of symbiotic genes in *Rhizobium* biofilm formation. N.A. FUJISHIGE, N.N. Kapadia, and A.M. Hirsch. University of California, Los Angeles, CA

Posters

- 327B Role of iron in development of cylindrocarpon root rot on ginseng roots. M. Rahman and Z.K. PUNJA. Simon Fraser University, Burnaby, BC, Canada
- 328B Suppression of Rhizoctonia root rot and increased recovery of NOS+ *Sreptomyces* spp. in rapeseed meal amended soils. M.F. Cohen (1), H. Yamasaki (2), and M. MAZZOLA (1). (1) USDA-ARS, Wenatchee, WA; (2) University of the Ryukyus, Okinawa, Japan
- 329B Rhizosphere colonization by the fungus *Nectria haematococca* MPVI: Do conditionally dispensable chromosomes play a role? G.J. WHITE and H.D. VanEtten. University of Arizona, Tucson, AZ
- 330B Endomycorrhizal colonization of transgenic potato cultivars. J.A. TRAQUAIR and B. Singh. Agriculture and Agri-Food Canada, London, ON, Canada
- 331B Population dynamics of *Trichoderma hamatum* T382 on strawberry roots and in soil. L.F.S. LEANDRO, L.M. Ferguson, G.E. Fernandez, and F.J. Louws. North Carolina State University, Raleigh, NC
- 332B Soil water saturation and infection of chile by *Phytophthora capsici*. S. SANOGO, J. Carpenter, and S. Ghoshroy. New Mexico State University, Las Cruces, NM
- 333B Border cell specific gene expression. F. WEN, F.C. Gong, R. Celoy, S. Gardais, D.W. Galbraith, and M.C. Hawes. University of Arizona, Tucson AZ
- 334B Altered structure, composition, and biological activity of root exudates in transgenic roots with altered root cap gene expression. R. CELOY, F. Wen, S. Gardais, and M.C. Hawes. University of Arizona, Tucson AZ
- 335B Searching antimicrobial activities from plant rhizosphere metagenomic library. S.-W. Lee (1), H.K. Lim (1), E.J. Chung (1,2), K.S. Jang (1), J.-C. Kim (1), G.J. Choi (1), Y.R. Chung (2), and K.Y. Cho (1). (1) Korea Research Institute of Chemical Technology, Daejeon, Korea; (2) Gyeongsang National University, Jinju, Korea
- 336B Effect of soybean cyst nematode, soil moisture and infestation level on sudden death syndrome of soybean. L.J. XING and A. Westphal. Purdue University, West Lafayette, IN
- 339A (4). (1) Russian Research Institute of Phytopathology, Moscow, Russia; (2) Moscow State University, Moscow, Russia; (3) Russian Academy of Sciences, Moscow, Russia; (4) USDA-ARS, Ft. Detrick, MD
- Osmosensitivity and osmoprotection of selected *Pseudomonas syringae* strains. C. CHEN and G.A. Beattie. Iowa State University, Ames, IA
- 340A Role of *Pseudomonas putida* alginate production in biofilm development and stress tolerance in low-water-content habitats. W.-S. Chang, M. van de Mortel, and L.J. HALVERSON. Iowa State University, Ames, IA
- 341A Genetic analysis of the ubiquitous plasmid pEA29 of *Erwinia amylovora* and determination of its role in virulence. G.C. McGhee, P. Teubig, and G.W. SUNDIN. Michigan State University, East Lansing, MI
- 342A Oligonucleotide microarray analysis of the SalA regulon controlling phytotoxin production by *Pseudomonas syringae* pv. *syringae*. S.-E. LU, N. Wang, and D.C. Gross. Texas A&M University, College Station, TX
- 343A Identification of hrp Up-regulated virulence genes in *Erwinia chrysanthemi* 3937 by hrp functional cloning. X.Y. Shi (1), N.T. Perna (2), N.T. Keen (1), D.A. Cooksey (1), and C.-H. Yang (2). (1) University of California, Riverside, CA; (2) University of Wisconsin, Madison, WI
- 344A Functional genomics of *Pseudomonas syringae* pv. tomato: A protocol for rapid isolation of gene-specific Tn5-insertion mutants. A. CHATTERJEE (1), D. Tian (1), H. Hasegawa (1), Y. Cui (1), A. Collmer (2), and A.K. Chatterjee (1). (1) University of Missouri, Columbia, MO; (2) Cornell University, Ithaca, NY
- 345A A genome island in plant pathogenic strains of *Serratia marcescens*, causal agent of cucurbit yellow vine disease, encodes fimbrial proteins. Q. ZHANG (1), U. Melcher (1), L. Zhou (2), B.A. Roe (2), and J. Fletcher (1). (1) Oklahoma State University, Stillwater, OK; (2) University of Oklahoma, Norman, OK
- 346A Isolation of bacteria identified in the rice genome sequence. P. MANOSALVA (1), S. Goff (2,3), G. Presting (2,4), and J.E. Leach (1). (1) Kansas State University, Manhattan, KS; (2) Torrey Mesa Research Institute, San Diego, CA; (3) Syngenta, Research Triangle Park, NC; (4) University of Hawaii, Honolulu, HI
- 347A Analysis of the *Sinorhizobium meliloti* 1021 ORFeome in a functional genomics platform. B.K. SCHROEDER, B.L. House, M.W. Mortimer, K.L. Warren, S.C. Maloney, H.T. Ziemkiewicz, J.J. Bovitz, S. Yurgel, and M.L. Kahn. Washington State University, Pullman, WA

Molecular/Cellular Plant-Microbe Interactions

Bacteria—Genetics, Molecular Biology, Cell Biology

- 337A Genetic diversity among *Clavibacter michiganensis* subsp. *michiganensis* and subsp. *sepedonicus* in Russian Federation. A.N. IGNATOV (1,2), E.V. Matveeva (1), E.S. Pekhtereva (1), and N.W. Schaad (3). (1) Russian Research Institute of Phytopathology, Moscow, Russia; (2) Russian Academy of Sciences, Moscow, Russia; (3) USDA-ARS, Ft. Detrick, MD
- 338A Genetic diversity among bacteria associated with brown rot of potato in Russian Federation. E.V. MATVEEEVA (1), E.V. Nikolaeva (1), E.S. Pekhtereva (1), V.K. Bobrova (2), I.A. Milyutina (2), A.V. Troitsky (2), A.N. Ignatov (1,3), and N.W. Schaad

- 348A Deletion mutagenesis of eight *avr* gene homologues in *X. campestris* pv. *campestris*. A. CASTAÑEDA, Y.P. Duan, B. El Yacoubi, J.D. Reddy, and D.W. Gabriel. University of Florida, Gainesville, FL
- 349A Role of *pthA* homologues in *Xanthomonas citri* pv. *citri* AW in hyperplasia and necrosis on Key lime and grapefruit. Y.P. Duan, A. Al-Saadi and D.W. Gabriel. University of Florida, Gainesville, FL
- 350A Isolation and characterization of genes involved in the initial stages of biofilm development in *Pantoea stewartii* subsp. *stewartii*. C.M. HERRERA, M. Koutsoudis, and S.B. von Bodman. University of Connecticut, Storrs, CT
- 351A Plasmid-borne *nor-nir* genes in the microsymbiont *Rhizobium meliloti* JJ1c10. Y.-K. CHAN and W.A. McCormick. Agriculture and Agri-Food Canada, Ottawa, ON, Canada
- 352A Derivatives of the *Erwinia betavasculorum* type strain CFBP 2122 that differ by an order of magnitude in relative root necrosis-inducing ability. L.D. KUYKENDALL. USDA-ARS, Beltsville, MD
- 353A A putative oxidoreductase is necessary for cercosporin degradation by *Xanthomonas campestris* pv. *zinniae*. T.V. TAYLOR and M.E. Daub. North Carolina State University, Raleigh, NC
- 354A Pyramiding unmarked mutations in *Ralstonia solanacearum* to assess the role of extracellular enzymes in pathogenesis. H. LIU, S. Zhang, C. Rodriguez, M.A. Schell, and T.P. Denny. University of Georgia, Athens, GA
- 355A Characterization of the regulatory mechanism involved in co-regulation of the syringopeptin and syringomycin synthetase genes of *Pseudomonas syringae* pv. *syringae*. N. WANG, S.-E. Lu, and D.C. Gross. Texas A&M University, College Station, TX
- 356A Lipopolysaccharide O-antigen of *Ralstonia solanacearum* contributes to virulence on tomato plants. Y. Kang, H. Liu, R.W. Carlson, and T.P. DENNY. University of Georgia, Athens, GA
- 357A Quorum sensing in *Erwinia carotovora* subspecies: *rsmA* is the primary target of ExpR, a LuxR homolog. A. CHATTERJEE, Y. Cui, H. Hasegawa, and A.K. Chatterjee. University of Missouri, Columbia, MO
- 358A Global regulators control antibacterial metabolite production in *Pseudomonas syringae* pv. tomato DC3000. H. HASEGAWA (1), A. Chatterjee (1), D. Tian (1), Y. Cui (1), A. Collmer (2), and A.K. Chatterjee (1). (1) University of Missouri, Columbia, MO; (2) Cornell University, Ithaca, NY
- 359A Cloning and expression of phage holin and endolysin genes for potential control of diseases caused by *Ralstonia* and *Xanthomonas*. C. RAMADUGU and D.W. Gabriel. Integrated Plant Genetics, Alachua, FL
- 360A Cell envelope constituents of *Pseudomonas putida* contributing to growth and survival in low-water-content habitats. M. van de Mortel and L.J. HALVERSON. Iowa State University, Ames, IA
- Fungi—Genetics, Molecular Biology, Cell Biology**
- 361A Genetic and molecular analysis of the RNA interference pathway in *Aspergillus*. T.M. HAMMOND, T.R. McDonald, J.W. Bok, and N.P. Keller. University of Wisconsin, Madison, WI
- 362A The 14-3-3 homolog MAFA interacts with VERB synthase in *Aspergillus flavus*. A.M. FAKHOURY (1) and G.A. Payne (2). (1) Southern Illinois University, Carbondale, IL; (2) North Carolina State University, Raleigh, NC
- 363A Enzyme profiles associated with a cold tolerant *Trichoderma atroviride* during low temperature bio-control of pathogenic fungi. M. Cheng, P.A. Gay and J.H. MCBEAETH. University of Alaska, Fairbanks, AK
- 364A Differential gene expression during sclerotium formation in *Sclerotium rolfsii*. J.E. TAKACH and S.E. Gold. University of Georgia, Athens, GA
- 365A *FvABC1*, a *Fusarium verticillioides* gene encoding an ATP-binding cassette protein, may be required for tolerance of phytoanticipins produced by corn (*Zea mays*). E.R. PALENCIA (1) and A.E. Glenn (2). (1) University of Georgia, Athens, GA; (2) USDA-ARS, Athens, GA
- 366A Characterization of genes correlated with aflatoxin production using a targeted cDNA microarray. M.S. Price and G.A. PAYNE. North Carolina State University, Raleigh, NC
- 367A Microscopic localization of *Embellisia* in seed and seedlings of southern specklepod locoweed (*Astragalus lentiginosus*). J. MCLAIN-ROMERO, A. Padilla, and R. Creamer. New Mexico State University, Las Cruces, NM
- 368A Disruption of mannitol biosynthetic genes in *Alternaria alternata*. H. VÉLEZ and M.E. Daub. North Carolina State University, Raleigh, NC
- 369A Blue light represses conidiation in *Exserohilum turcicum*, the causal agent of northern leaf blight of maize. J.E. FLAHERTY and L.D. Dunkle. USDA-ARS, Purdue University, West Lafayette, IN
- 370A Genetic variability and mycelial compatibility groups of *Sclerotium rolfsii*. C. Saude (1), H.A. MELOUK (2), and K.D. Chenault (2). (1) Oklahoma State University, Stillwater, OK; (2) USDA-ARS, Stillwater, OK
- 371A *Agrobacterium*-mediated transformation of *Phoma medicaginis*. M. DHULIPALA, J.N. Enis, and S.M. Marek. Oklahoma State University, Stillwater, OK
- 372A The alignment between physical and genetic maps of *Gibberella zeae*. J. LEE (1), J.E. Jurgenson (2), J.F. Leslie (1), and R.L. Bowden (3). (1) Kansas State University, Manhattan, KS; (2) University of Northern Iowa, Cedar Falls, IA; (3) USDA-ARS, Manhattan, KS

Posters

- 373A Functional analysis of the nuclear genome of Ophiostomatoid fungi. L. Bernier (1), C. Breuil (2), W.E. Hintz (3), P.A. Horgen (4), V. JACOBI (1), J. Dufour (1), G. Bouvet (1), M. Aoun (1), S. Diguistini (2), P. de la Bastide (3), and M. Pinchback (3). (1) Laval University, Ste-Foy, QC, Canada; (2) University of British Columbia, Vancouver, BC, Canada; (3) University of Victoria, Victoria, BC, Canada; (4) University of Toronto, Mississauga, ON, Canada
- 374A L-proline, a potent antioxidant, is able to suppress ROS-induced apoptosis-like programmed cell death in *Colletotrichum trifolii*. C. CJEM and M.B. Dickman. University of Nebraska, Lincoln, NE
- 375A Purification and characterization of a polygalacturonase from *Rhizoctonia solani* AG- 3. M. MACHI-NANDIARENA (1), B. Patiño (2), G. Daleo (1), C. Vazquez (2), and M.T. Gonzalez-Jaén (2). (1) Universidad Nacional de Mar del Plata, Argentina; (2) Universidad Complutense de Madrid, España
- 376A The effect of *Ustilago hordei* mating inhibitors on expression of farnesyltransferase genes in *U. hordei*, *Tilletia tritici*, and *T. indica*. T.S. AL-NIEMI, P.J. Kosted, S.A. Gerhardt, and J.E. Sherwood. Montana State University, Bozeman, MT
- 377A RNA interference in *Fusarium graminearum*. T.R. McDonald (1), D.W. Brown (2), T.M HAMMOND (1), and N.P. Keller (1). (1) University of Wisconsin, Madison, WI; (2) USDA-ARS, Peoria, IL
- 378A A dual selection based, targeted gene knock-out method for fungi. C.H. KHANG (1), S.-Y. Park (1), Y.-H. Lee (2), and S. Kang (1). (1) Pennsylvania State University, University Park, PA; (2) Seoul National University, Seoul, Korea
- 379A Genetics of host specificity of *Ascochyta* species infecting legumes. M.A. HERNANDEZ-BELLO and T.L. Peever. Washington State University, Pullman, WA
- 380A Molecular analysis of powdery mildew pathogens in dogwood. A. Shi, M.T. MMBAGA, and S. Zhou. Tennessee State University, McMinnville, TN
- 381B Mechanisms of temperature-dependent gene expression during zoosporogenesis in *Phytophthora infestans*. S. TANI and H. Judelson. University of California, Riverside, CA
- 382B Regulation and function of sporangia-specific genes in the oomycete *Phytophthora infestans*. K.-S. KIM and H.S. Judelson. University of California, Riverside, CA
- 383B Molecular cloning and characterization of the *GIP* gene family from *Phytophthora infestans*. C.M.B. DAMASCENO (1), D.R. Ripoll (1), S. Kamoun (2), J. Bishop (3), and J.K.C. Rose (1). (1) Cornell University, Ithaca, NY; (2) Ohio State University, Wooster, OH; (3) Washington State University, Vancouver, WA
- 384B Molecular evolution of rice *Pi-ta* gene and fungal *Magnaporthe grisea* AVR-Pita gene. Y. JIA (1), P. Singh (2), E.M. Winston (1), Y. Wamishe (2), J. Correll (3), and B. Valent (4). (1) USDA-ARS, Stuttgart, AR; (2) University of Arkansas, Stuttgart, AR; (3) University of Arkansas, Fayetteville, AR; (4) Kansas State University, Manhattan, KS
- 385B *In planta* expressed genes of *Magnaporthe grisea*: Identification and analysis of their transcriptomes. S. KIM and Y.H. Lee. Seoul National University, Seoul, Korea
- 386B Proteomic analysis of rice blast fungus, *Magnaporthe grisea*, during appressorium formation. S.T. Kim, S. Yu, S.Y. Kang, H.J. Kim, D.H. Hwang, S.G. Kim, and K.Y. KANG. Gyeongsang National University, Chinju, Korea
- 387B Characterization of *MST11* gene in the rice blast fungus. Y. KIM, X. Zhao, and J.R. Xu. Purdue University, West Lafayette, IN
- 388B Telomere-association of pathogenicity genes in *Magnaporthe grisea*—A novel mechanism for pathogenic adaptation? C.J. REHMEYER, W. Li, C. Staben, C.L. Schardl, and M.L. Farman. University of Kentucky, Lexington, KY
- 389B Gene deletion of manganese peroxidase-like genes in *Magnaporthe grisea*. I.A. THOMPSON, J.R. Xu, D.M. Huber, and D.G. Schulze. Purdue University, West Lafayette, IN
- 390B Phylogeny of *Gymnosporangium* spp. and evolution of morphological characteristics. H.Y. YUN (1), S.G. Hong (2), K.J. Lee (1), and K.S. Bae (2). (1) Seoul National University, Seoul, Korea; (2) Korea Research Institute of Bioscience and Biotechnology, Yusong-gu, Daejon, Korea
- 391B Analysis of expressed sequence tags in the soybean rust pathogen *Phakopsora pachyrhizi* at different stages of the infection process. M.L. POSADA-BUITRAGO (1), J.L. Boore (1), and R.D. Frederick (2). (1) DOE-JGI-LBNL, Walnut Creek, CA; (2) USDA-ARS, Ft. Detrick, MD
- 392B Identification of proteins expressed during resistant and susceptible soybean rust interactions. D.G. LUSTER (1), M.B. McMahon (1), J.J. Choi (1), M.L. Carter (1), A. Nunez (2), and R.D. Frederick (1). (1) USDA-ARS, Ft. Detrick, MD; (2) USDA-ARS, Wyndmoor, PA
- 393B Identification of proteins in *Phakopsora pachyrhizi* urediniospores using MALDI-TOF/TOF mass spectrometry. M.B. McMahon (1), J.J. Choi (1), M.L. Carter (1), A. Nunez (2), R.D. Frederick (1), and D.G. LUSTER (1). (1) USDA-ARS, Ft. Detrick, MD; (2) USDA-ARS, Wyndmoor, PA
- 394B Differential gene expression in *Ustilago maydis*. M.D. GARCIA-PEDRAJAS, D.L. Andrews and S.E. Gold. University of Georgia, Athens, GA
- 395B Evaluation of DNA extraction techniques for *Tilletia* spp. X. WANG and L. Carris. Washington State University, Pullman, WA

396B	Analysis of beta-tubulin in <i>Cercospora beticola</i> with differing benzimidazole-sensitivity characteristics. R.M. Davidson (1), L.E. HANSON (1), G.D. Franc (2), R.M. Spence (2), and L. Panella (1). (1) USDA-ARS, Ft. Collins, CO; (2) University of Wyoming, Laramie, WY	407A	Identification of HrpA mutants that block type III secretion in <i>Pseudomonas syringae</i> pv. <i>tomato</i> DC3000. Y.H. LEE (1,2), O.O. Kolade (1), D.N. Arvidson (1), and S.Y. He (1). (1) Michigan State University, East Lansing, MI; (2) National Institute of Agricultural Science and Technology, Korea
397B	Identification of genes involved in resistance to cercosporin, a toxin produced by <i>Cercospora</i> spp. S. HERRERO (1), K.R. Chung (2), and M.E. Daub (1). (1) North Carolina State University, Raleigh, NC; (2) University of Florida, Lake Alfred, FL	408A	Cytological and molecular aspects of silicon-mediated resistance to rice blast. F.Á. RODRIGUES, J.A. Rollins, L.E. Datnoff, W.M. Jurick II, and J.B. Jones. University of Florida, Gainesville, FL
Host-Parasite Relations—Biochemistry, Molecular Biology, Cell Biology			
398A	Regulation of coronatine in <i>P. syringae</i> pv. <i>tomato</i> DC3000. A. SREEDHARAN and C.L. Bender. Oklahoma State University, Stillwater, OK	409A	Melanin production in <i>Ascochyta rabiei</i> is involved in pathogenicity on chickpea. W. CHEN (1), K.D. Sharma (1), M.H. Wheeler (2), and F.J. Muehlbauer (1). (1) USDA-ARS, Washington State University, Pullman, WA; (2) USDA-ARS, College Station, TX
399A	A potential relation of starch hydrolysis of <i>Paenibacillus polymyxa</i> to rot of Korean ginseng root and chili pepper fruit. Y.H. Jeon, S.G. Kim, I. Hwang, and Y.H. KIM. Seoul National University, Seoul, Korea	410A	Expression of defense genes in root tissues of two soybean cultivars with different levels of partial resistance to <i>Phytophthora sojae</i> . S. COSTANZO (1), M.G. Redinbaugh (2), and A.E. Dorrance (1). (1) Ohio State University, Wooster, OH; (2) USDA-ARS, Wooster, OH
400A	Programmed cell death and structural defense mechanisms in pepper fruit against <i>Xanthomonas axonopodis</i> pv. <i>glycines</i> infection. S.P. Chang, Y.H. Jeon, S.G. Kim, and Y.H. KIM. Seoul National University, Seoul, Korea	411A	Molecular genetics of Fusarium head blight susceptibility associated with chromosome 2A of wild emmer. D.F. Garvin (1) and R.W. STACK (2). (1) USDA-ARS, University of Minnesota, St. Paul, MN; (2) North Dakota State University, Fargo, ND
401A	Evaluation of chemical inducers and PR protein reporters for induced systemic resistance to citrus bacterial diseases. M.G.H. Dekkers, J.H. GRAHAM, J.K. Burns, J. Cubero, and G.C. Colburn. University of Florida, Lake Alfred, FL	412A	Defense mechanism of rice against <i>Cochliobolus miyabeanus</i> is distinct from that against <i>Magnaporthe grisea</i> . I.-P. AHN (1), S. Kim (1), S. Kang (2), and Y-H. Lee (1). (1) Seoul National University, Seoul, Korea; (2) Pennsylvania State University, University Park, PA
402A	Histopathology of <i>Rhamnus alaternus</i> knots induced by <i>Pseudomonas savastanoi</i> . M. Temsah, L. Hanna and A.T. SAAD. American University of Beirut, Beirut, Lebanon	413A	Induction of pathogenesis-related proteins on potato sprouts by an alpha-(1,3)-glucan from cell wall of binucleate non-pathogenic <i>Rhizoctonia</i> sp. isolate. E.A. WOLSKI, G.R. Daleo, and A.B. Andreu. Mar del Plata National University, Mar del Plata, Buenos Aires, Argentina
403A	Identification of <i>Erwinia amylovora</i> genes induced during infection. Y.F. ZHAO, S.E. BLUMER, and G.W. Sundin. Michigan State University, East Lansing, MI	414A	Corn smut induced maize genes. M. NADAL, M.D. Garcia-Pedrajas and S.E. Gold. University of Georgia, Athens, GA
404A	Role of the phytotoxin coronatine in pathogenesis of <i>Pseudomonas syringae</i> pv. <i>tomato</i> DC3000 in edible <i>Brassica</i> spp. S.V. ELIZABETH and C.L. Bender. Oklahoma State University, Stillwater, OK	415A	A novel pathosystem: <i>Arabidopsis thaliana</i> - <i>Cochliobolus miyabeanus</i> interactions. J.Y. PARK, S. Kim and Y.H. Lee. Seoul National University, Seoul, Korea
405A	Development of a high-throughput screening method for <i>Pseudomonas syringae</i> pv. <i>tomato</i> DC3000 using tomato seedlings. T. WANGDI, S.R. Uppalapati and C.L. Bender. Oklahoma State University, Stillwater, OK	416A	Identification of differentially expressed genes from a resistant soybean-rust interaction using suppressive subtractive hybridization. J.J. CHOI and R.D. Frederick. USDA-ARS, Ft. Detrick, MD
406A	Calcium availability influences aggregation and adhesion of <i>Xylella fastidiosa</i> , the causal agent of the Pierce's disease in grapes. B. LEITE (1), M.L. Ishida (1), B. Brodbeck (1), L. Marques (2), M.E. Olson (2), M.R. Braga (3), and P.C. Andersen (1). (1) University of Florida, Quincy, FL; (2) University of Calgary, Calgary, AB, Canada; (3) Institute of Botany, São Paulo, Brazil	417A	Differentially expressed defense genes in the resistance reaction in wheat infected with <i>Tilletia tritici</i> , the common bunt pathogen. Z.-X. LU, D.A. Gaudet, B. Puchalski, M. Frick, B. Genswein, and A. Laroche. Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

Posters

- 418A ♂ Induction of jasmonic acid and salicylic acid by *Colletotrichum acutatum*, the cause of postbloom fruit drop of citrus. K.A. Lahee, J.K. Burns, L.W. Timmer, and K.R. CHUNG. University of Florida, Lake Alfred, FL
- 419B ♂ Real-time PCR analysis of genes expressed during wheat-*Mycosphaerella graminicola* interactions. T.B. ADHIKARI (1), B. Balaji (2), J. Breedon (1), C.F. Crane (1), J.M. Anderson (1), and S.B. Goodwin (1). (1) USDA-ARS, Purdue University, West Lafayette, IN; (2) Purdue University, West Lafayette, IN
- 420B Detection of deletion mutants in spotted arrays. M. RYBA-WHITE (1), P. Manosalva (1), S. Hulbert (1), H. Leung (2), and J.E. Leach (1). (1) Kansas State University, Manhattan, KS; (2) IRRI, Los Banos, Philippines
- 421B ♂ Interaction between *Aphanomyces euteiches* and *Phytophthora medicaginis* in resistant and susceptible alfalfa cultivars evaluated using real-time PCR. T.J. HUGHES and G.J. Vandemark. USDA-ARS, Prosser, WA
- 422B ♂ Selective genetic suppression of hypersensitive-response-related cell death in resistant *Nicotiana* spp. during infection with CaMV. J.D. CAWLY (1), A.B. Cole (1), W. Qiu (2), L. Kiraly (1), and J. Schoelz (1). (1) University of Missouri, Columbia, MO; (2) Southwest Missouri State University, Mountain Grove, MO
- 423B Silencing of rubisco activase, an up-regulated protein during *Tobacco mosaic virus* infection, does not attenuate TMV infection in *Nicotiana benthamiana*. A.B. COLE, S.Y. Folimonova, B.S. Watson, L.W. Sumner and R.S. Nelson. Samuel Roberts Noble Foundation, Ardmore, OK
- 424B ♂ Construction and characterization of a polygalacturonase mutant of *Xylella fastidiosa*. M.C. ROPER, L.C. Greve, J. Labavitch, and B. Kirkpatrick. University of California, Davis, CA
- 425B ♂ Glutamine is an essential component of the defined medium 3G10-R for *Xylella fastidiosa*. M.L. ISHIDA, P.C. Andersen, and B. Leite. University of Florida, Quincy, FL
- 426B ♂ Antimicrobial and insecticidal properties of a protein isolated from seeds of the tropical forage legume *Clitoria ternatea* L. S. KELEMU, C. Cardona and G. Segura. Centro Internacional de Agricultura Tropical, Cali, Colombia
- 427B Maintenance of fungal isolates in culture on the aquatic fern, *Ceratopteris richardii*. R.R. URS (1), P.D. Roberts (1), and S. Lalla (2). (1) University of Florida, Immokalee, FL; (2) PL Dunbar Middle School, Ft. Myers, FL
- 428B Genetic and biochemical analysis of a tomato PCD-responsive gene. P.D. WEYMAN, D.G. Gilchrist and R.M. Bostock. University of California, Davis, CA
- 429B *AvrPto* suppresses nonhost pathogen induced cell death in *Nicotiana benthamiana* and tomato. L. KANG (1), C. Ryu (1), X. Tang (2), and K.S. Mysore (1). (1) Samuel Roberts Noble Foundation, Ardmore, OK; (2) Kansas State University, Manhattan, KS
- 430B Isolation of disease resistance genes associated with the salicylic acid pathway in *Citrus*. V.J. FEBRES and G.A. Moore. University of Florida, Gainesville, FL
- 431B ♂ Molecular genetic dissection of the RPP7 resistance pathway. X.-J. WANG (1), T. Hoff (1), A. Cuzick (1,2), E.B. Holub (2), and J.M. McDowell (1). (1) Virginia Polytechnic Institute and State University, Blacksburg, VA; (2) Horticulture Research International, Wellesbourne, Warwickshire, UK
- 432B Sclerotinia sclerotiorum produces oxalic acid to deregulate guard cells during infection. R.L. GUIMARAES and H.U. Stotz. Oregon State University, Corvallis, OR
- Nematodes—Genetics, Molecular Biology, Cell Biology**
- 433A ♂ Differentiation of *Hemicriconemoides mangeriferae* and *Hemicriconemoides litchi* based on morphological and molecular characteristics. H.F. NI (1), Y.H. Cheng (1), D.Y. Chen (2), and R.S. Chen (3). (1) Chiayi Agricultural Experimental Station, Chiayi, Taiwan; (2) Taiwan Agricultural Research Institute, Wufeng, Taichung, Taiwan; (3) National Chiayi University, Chiayi, Taiwan
- 434A Development of a PCR-based detection assay for foliar nematodes (*Aphelenchoides* spp.). L.C. HUDSON, X. Wang, E.L. Davis, and C.Y. Warfield. North Carolina State University, Raleigh, NC
- 435A Functional analysis of a novel esophageal parasitism gene from *Heterodera glycines*. H.G. DIAB (1), B. Gao (2), T.J. Baum (3), R.S. Hussey (2), X. Wang (1), and E.L. Davis (1). (1) North Carolina State University, Raleigh, NC; (2) University of Georgia, Athens, GA; (3) Iowa State University, Ames, IA
- 436A Towards functional analysis of putative parasitism genes in *Heterodera glycines* using RNA interference. S. SUKNO (1), J. McCuiston (1), X. Wang (1), R. Hussey (2), T. Baum (3), and E. Davis. (1) North Carolina State University, Raleigh, NC; (2) University of Georgia, Athens, GA; (3) Iowa State University, Ames, IA
- 437A Identification of putative parasitism genes of the beet cyst nematode, *Heterodera schachtii*. N. PATEL (1), H. Diab (1), B. Gao (2), X. Wang (1), R.S. Hussey (2), T.J. Baum (3), and E.L. Davis (1). (1) North Carolina State University, Raleigh, NC; (2) University of Georgia, Athens, GA; (3) Iowa State University, Ames, IA
- Viruses—Genetics, Molecular Biology, Cell Biology**
- 438A Global BYDV/CYDV sequencing project. W.A. Miller (1), J. Anderson (2), S.M. GRAY (3), X. Gai (1), and R. Beckett (1). (1) Iowa State University,

- 439A Ames, IA; (2) USDA-ARS, West Lafayette, IN; (3) USDA-ARS, Ithaca, NY
Quantifying symptom severity in wheat infected with *Wheat streak mosaic virus* using both visual and digital means of assessment. D.H. VAN WINKLE, R. French, and D.C. Stenger. USDA-ARS, University of Nebraska, Lincoln, NE
- 440A Towards the development of plant-based vaccine against HIV-1. H. Koprowski, N. Pogrebnyak, T. Pniewski, K. Bandurska, R. Egolf, and A.V. KARASEV. Thomas Jefferson University, Philadelphia, PA
- 441A Development of edible vaccine against SARS coronavirus. N. POGREBNYAK, V. Andrianov, A.V. Karasev, S. Spitsin, R. Egolf, and H. Koprowski. Thomas Jefferson University, Philadelphia, PA
- 442A Mapping determinants of stem pitting in *Citrus trifoliata virus*. S.Y. FOLIMONOVA (1), A.S. Folimonova (1), C.J. Robertson (1), S.M. Garnsey (1), M.E. Hilf (2), and W.O. Dawson (1). (1) University of Florida, Lake Alfred, FL; (2) USDA-ARS, Ft. Pierce, FL
- 443A Detection and quantification of *Plum pox virus* double-stranded RNA with real-time PCR. W.L. SCHNEIDER, A.L. Stone, D.J. Sherman, and V.D. Damsteegt. USDA-ARS, Ft. Detrick, MD
- 444A New data on cherry viruses in northern California. S. Sabanadzovic, N. Abou Ghanem-Sabanadzovic, A. Rowhani, and J.K. UYEMOTO. USDA-ARS, University of California, Davis, CA
- 445A Characterization of two new strains of Grapevine rupestris stem pitting associated virus. M.F. LIMA (1), R. Alkowni (2), D. Golino (1), J.K. Uyemoto (1), and A. Rowhani (1). (1) University of California, Davis, CA; (2) Arab American University, Jenin, Palestine
- 446A Detection and identification of a new marafivirus from grapevine. S. SABANADZOVIC, N. Abou Ghanem-Sabanadzovic, and A. Rowhani. University of California, Davis, CA
- 447A Preliminary molecular data on a putative new grapevine leafroll associated virus. N. ABOU GHANEM-SABANADZOVIC, S. Sabanadzovic, and A. Rowhani. University of California, Davis, CA
- 448A Molecular characterization of two viruses involved in the grapevine leafroll complex. N. Abou Ghanem-Sabanadzovic, S. Sabanadzovic, A. ROWHANI, and D. Golino. University of California, Davis, CA
- 449A Identification of *Saguaro cactus virus* coat protein as a suppressor of RNA silencing. Z. WENG and Z. Xiong. University of Arizona, Tucson, AZ
- 450B Expression of *Soybean mosaic virus* (SMV) HC-Pro in transgenic soybean plants enhances SMV symptoms. H.S. LIM (1), T.S. Ko (2), L.L. Domier (1,3), H.G. Kim (4), and G.L. Hartman (1,3). (1) University of Illinois, Urbana, IL; (2) University of Minnesota, St. Paul, MN; (3) USDA-ARS, Urbana, IL; (4) Chungnam National University, Daejeon, Korea
- 451B Assessment of interactions among important sweet-potato viruses using real-time quantitative PCR. C.D. KOKKINOS and C.A. Clark. Louisiana State University, Baton Rouge, LA
- 452B Detection and characterization of Euphorbia ringspot potyvirus. M.A. Guaragna, J. Ambrose, and R.L. JORDAN. USDA-ARS, Beltsville, MD
- 453B Emergence of resistance-breaking isolates of *Beet necrotic yellow vein virus* in the Imperial Valley, California. H.-Y. LIU, J.L Sears, and R.T. Lewellen. USDA-ARS, Salinas, CA
- 454B Spinach *Curly top virus*: A new *Curtovirus* species revealing a history of recombination among curtoviruses. S. Balaji (1), M.C. Black (2), R. French (3), D.C. STENGER (3), and G. Sunter (1). (1) University of Texas, San Antonio, TX; (2) Texas A&M University, Uvalde, TX; (3) USDA-ARS, University of Nebraska, Lincoln, NE
- 455B Genome organization and sequence of *Tomato chlorosis virus*. W.M. WINTERMANTEL (1), G.C. Wisler (2), A.V. Karasev (3), and H.-Y. Liu (1). (1) USDA-ARS, Salinas, CA; (2) University of Florida, Gainesville, FL; (3) Thomas Jefferson University, Doylestown, PA
- 456B A surface loop of the potato leafroll virus coat protein is involved in virion stability and aphid transmission. L. Lee (1), I. KAPLAN (1), D. Ripoll (2), D. Liang (1), P. Palukaitis (3), and S. Gray (1). (1) USDA-ARS, Ithaca, NY; (2) Cornell University, Ithaca, NY; (3) Scottish Crop Research Institute, Invergowrie, UK
- 457B Screening of resistant tomato germplasm to *Tomato yellow leaf curl virus*, Thailand isolate (TYLCTHV-[2]). O. CHOMDEJ, O. Chatchawankapanich, W. Kositratana, and J. Chunwongse. Kasetsart University, Kampangsaan, Thailand
- 458B Identification of *Clover yellow vein virus* as the causal agent of pod necrosis ("chocolate pod") in snap bean. R.C. LARSEN (1) and K.C. Eastwell (2). (1) USDA-ARS, Prosser, WA; (2) Washington State University, Prosser, WA
- 459B The N-terminal 14 amino acids of *Red clover necrotic mosaic virus* p27 protein are essential for both ER-targeting and viral infection. Z. WENG and Z. Xiong. University of Arizona, Tucson, AZ
- 459aB Live cell imaging of plant rhabdovirus movement. S. YELTON, D. Ghosh, S. Mathews, J. Lesnaw, and M. Goodin. University of Kentucky, Lexington

Plant Disease Management**Biological Control**

- 460A Substrate-dependent isothiocyanate toxicity. L.E. YAKABE, J.D. MacDonald and D.J. Kliebenstein. University of California, Davis, CA
- 461A Nematicidal effects of gas-producing *Muscodorus* sp. on *Meloidogyne incognita* in *in vitro* assays. N.K.

Posters

- ZIDACK (1), R.A. Sikora (2) G.A. Strobel (1), and B.J. Jacobsen (1). (1) Montana State University, Bozeman, MT; (2) Institut für Pflanzenkrankheiten der Universität, Bonn, Germany
- 462A Effect of mycofumigation on soilborne and seed pathogens. E. GRIMME, D. Ezra, N.K. Zidack, G.A. Strobel, and B.J. Jacobsen. Montana State University, Bozeman, MT
- 463A Novel use of fish emulsion as a disease control product: Management of soilborne and foliar plant pathogens. P.A. ABBASI, K.L. Conn, and G. Lazarovits. Agriculture and Agri-Food Canada, London, ON, Canada
- 464A Use of three essential oils as seed treatments against seedborne fungi of rice (*Oryza sativa* L.) under laboratory and field conditions. J. NGUEFACK (1), V. Leth (2), P.H. Amvam Zollo (1), and S.B. Mathur (2). (1) Danish Government Institute of Seed Pathology for Developing Countries, Frederiksberg, Denmark; (2) University of Yaounde-I, Cameroon
- 465A Efficacy of *Beauveria bassiana* on colonized millet seed as a biopesticide for the control of shore flies in greenhouses. M.E. STANGHELLINI and Z.A. El-Hamalawi. University of California, Riverside, CA
- 466A Risk assessment of biopesticides: Importance of substrate and water in vertical transport of *Paecilomyces lilacinus* strain 251. S. KIEWNICK, C. Roumbos, A. Mendoza, and R.A. Sikora. University of Bonn, Bonn, Germany
- 467A Biological control of *Uncinula necator* by tydeid mites. H.M. MELIDOSSIAN, R.C. Seem, D.M. Gadoury, W.F. Wilcox, and G.M. English-Loeb. Cornell University, Geneva, NY
- 468A Status of *Puccinia jaceae* in 2004 for biological control of yellow starthistle in California. W.L. BRUCKART (1), D.G. Luster (1), and D. Woods (2). (1) USDA-ARS, Ft. Detrick, MD; (2) California Department Food and Agriculture, Sacramento, CA
- 469A Primers specific for detection of *Myxococcus* spp. by polymerase chain reaction. A.F. PEPPER (1), K.J. Martin (2), and C.T. Bull (1). (1) USDA-ARS, Salinas, CA; (2) University of West Florida, Pensacola, FL
- 470A Evaluation of real time quantitative PCR for quantifying *Bacillus cereus* populations in the rhizosphere of *Capsicum annuum*. R.A. STAMLER, E. Morales, D. Sutton, and S.F. Hanson. New Mexico State University, Las Cruces, NM
- 471A Isolation and selection of antagonists to *Phytophthora infestans* on tomato. V. Lourenço Jr., L.A. Maffia, R.S. Romeiro, and E.S.G. MIZUBUTI. Universidade Federal de Viçosa, Viçosa, MG, Brazil
- 472A Biological control of postharvest late blight of potatoes in storage. P.J. SLININGER (1), D.A. Schisler (1), and G. Kleinkopf (2). (1) USDA-ARS, Peoria, IL; (2) University of Idaho, Kimberly, ID
- 473A Induced systemic resistance in *Arabidopsis* against *Pseudomonas syringae* pv. *tomato* by 2,4-diacetylphloroglucinol-producing *Pseudomonas fluorescens*. D.M. WELLER (1), J.A. van Pelt (3), D.V. Mavrodi (2), C.M.J. Pieterse (3), P.A.H.M. Bakker (3), and L.C. van Loon (3). (1) USDA-ARS, Pullman, WA; (2) Washington State University, Pullman, WA; (3) Universiteit Utrecht, Utrecht, Netherlands
- 474A Induced systemic resistance in cucumber to *Glomerella cingulata* var. *orbiculare* and *Pseudomonas syringae* pv. *lachrymans* by *Bacillus mycoides*, isolate BacJ, and *Bacillus pumilus*, isolate MSU 203-7. O.T. ZIETLOW, M.R. Johnston, N.K. Zidack, and B.J. Jacobsen. Montana State University, Bozeman, MT
- 475A Biocontrol of strawberry Fusarium wilt by three antagonistic bacteria. S.J. YOO (1), M.H. Nam (2), J.B. Ra (1), I.S. You (1), D.W. Kwak (1), and H.G. Kim (3). (1) Bioshield Co., Ltd., Yusung-Gu, Daejeon, Korea; (2) Chungnam ARES, Nonsan, Chungnam, Korea; (3) Chungnam National University, Daejeon, Korea
- 476A  *Trichoderma stromaticum*: A potential biological control agent for black root rot in strawberries. R.O. OLATINWO (1), S. Sabaratnam (2), and A.M.C. Schilder (2). (1) University of California, Riverside, CA; (2) Michigan State University, East Lansing, MI
- 477A  Zwittermicin A detection in *Bacillus* spp. controlling *Sclerotinia sclerotiorum* on canola. Y. ZHANG and W.G.D. Fernando. University of Manitoba, Winnipeg, MB, Canada
- 478A Use of a *luxGfp* bioreporter system to determine metabolic activity of an antagonist in fruit wounds. W.J. JANISIEWICZ (1), C.L. Bassett (1), M.E. Wisniewski (1), W.S. Conway (2), and D.P. Roberts (2). (1) USDA-ARS, Kearneysville, WV; (2) USDA-ARS, Beltsville, MD
- 479A Utilization of the osmolyte melezitose and its effect on the growth and freeze-drying tolerance of *Cryptococcus nodaensis* OH 182.9. J.E. VAN-CAUWENBERGE, D.A. Schisler, and P.J. Slininger. USDA-ARS, Peoria, IL
- 480A  Proliferation of *Trichoderma harzianum* quantified in non-sterile soil using GFP and image analysis. K.A. Orr and G.R. KNUDSEN. University of Idaho, Moscow, ID
- 481A Isolating and screening antagonists to *Hemileia vastatrix*. F. Haddad, LA. MAFFIA, E.S.G. Mizubuti, and R.S. Romeiro. Universidade Federal de Viçosa, Viçosa, MG, Brazil
- 482A Alternative strategies for onion Xanthomonas leaf blight management. J.M. LANG, H.F. Schwartz and D.H. Gent. Colorado State University, Ft. Collins, CO
- 483A Biological control of *Sclerotinia minor* on peanut with *Coniothyrium minitans*. D.E. PARTRIDGE, T.B. Sutton, D.L. Jordan, and V.L. Curtis. North Carolina State University, Raleigh, NC

- 484A Fungi resident in chickpea debris and competitive interactions with *Ascochyta rabiei*. F.M. DUGAN (1), T.L. Peever (2), and W. Chen (1). (1) USDA-ARS, Pullman, WA; (2) Washington State University, Pullman, WA
- 485B Does flower application of *Bacillus subtilis* pose a risk to pollination-related variables in rabbiteye blueberry? H.K. NGUGI and H. Scherm. University of Georgia, Athens, GA
- 486B Biocontrol capacities of *phlD*+pseudomonads that are prevalent in Ohio soils. B.B. MCSPADDEN GARDENER, R. Joshi, L. Gutierrez, and E. Lutton. Ohio State University, Wooster, OH
- 487B Interaction dynamics between saprophytic wood-inhabiting fungi and *Armillaria* spp. K.D. COX and H. Scherm. University of Georgia, Athens, GA
- 488B Biological control of bacterial soft rot of Chinese cabbage by the lactonase-producing *Bacillus* sp. 5-3. J.-E. Chung (1), S.-E. Lee (1), S.-Y. Park (1), B.-S. Kim (2), and J.-S. Cha (2). (1) Chungbuk National University, Cheongju, Chungbuk, South Korea; (2) Kangnung National University, Kangnung, Gangwon, Korea
- 489B Biological control of watermelon seed infection by *Acidovorax avenae* subsp. *citrulli*. A. FESSEHAIE and R.R. Walcott. University of Georgia, Athens GA
- 490B Effects of sorghum cultivars with different levels of sorgoleone production, and wheat rotation, on soil microorganism communities. D.L. FUNNELL and J.F. Pedersen. USDA-ARS, University of Nebraska, Lincoln, NE
- 491B Field testing of *Bacillus licheniformis* SB3086 biofungicide efficacy on *Colletotrichum graminicola*, *Rhizoctonia solani*, and *Sclerotinia homeocarpa*. L. WEST, S. Inman, and S. Semones. Novozymes Biologicals Inc., Salem, VA
- 492B Frequency of colonization of corn kernels by atoxicogenic *Aspergillus flavus* applied as a potential biocontrol agent. K. DAMANN, R. Sweany, and C. DeRobertis. Louisiana State University, Baton Rouge, LA
- 493B Characterization of mycoviruses infecting *Fusarium solani* f.sp. *glycines*. R.A. MARVELLI (1), L.L. Domier (2), and D.M. Eastburn (1). (1) University of Illinois, Urbana, IL; (2) USDA-ARS, Urbana, IL
- 494B Epiphytic yeast's kinetics characterization and storage decay biocontrol on apple fruit. A.R. Martínez-Campos and V.M. GUERRERO-PRIETO. Center for Research on Food and Development, Cuauhtemoc, Mexico
- 495B Oxygen competition as a biological control mechanism. L.G. HJELJORD and A. Tronsmo. Agricultural University of Norway, Ås, Norway
- 496B Selection and field evaluation of choline-utilizing microbial strains as potential biocontrol agents of *Fusarium* head blight. D.A. SCHISLER (1), N.I. Khan (2), M.J. Boehm (3), S. Zhang (1,3), and P.J. Slininger (1). (1) USDA-ARS, Peoria, IL; (2) BRDC, Peoria, IL; (3) Ohio State University, Columbus, OH
- 497B Induced resistance against *Fusarium* head blight of wheat by autoclaved fungal biomass. N.I. KHAN (1) and B. Tisserat (2). (1) Biotechnology Research and Development Corporation, Peoria, IL; (2) USDA-ARS, Peoria, IL
- 498B Cold shock increases air-drying survival of *Cryptococcus nodaensis* OH 182.9. S. ZHANG (1,2), D.A. Schisler (2), M.A. Jackson (2), M.J. Boehm (1), and P.J. Slininger (2). (1) Ohio State University, Columbus, OH; (2) USDA-ARS, Peoria, IL
- 499B Temporal dynamics of *Clonostachys rosea* isolates and suppression of *Botrytis cinerea* sporulation in strawberry leaves. L.V. Cota, L.A. MAFFIA, E.S.G. Mizubuti, and A.C. Alfenas. Universidade Federal de Viçosa, Viçosa, MG, Brazil
- 500B Functional characterization of SM1, a 16-kDa protein from *Trichoderma virens* involved in plant-associated interactions. S. DJONOVIĆ (1), L.J. Dangott (1), C.R. Howell (2), and C.M. Kenerley (1). (1) Texas A&M University, College Station, TX; (2) USDA-ARS, College Station, TX
- 501B Influence of biocontrol agents and other biological amendments on soil microbial communities. R.P. LARKIN. USDA-ARS, University of Maine, Orono, ME
- 502B Biocontrol of coffee leaf rust with antagonists isolated from organic crops. F. Haddad, L.A. Maffia, E.S.G. MIZUBUTI, and R.S. Romeiro. Universidade Federal de Viçosa, Viçosa, MG, Brazil
- 503B Association of bacteriophages with citrus canker and their use for control. B. BALOGH (1), J.B. Jones (1), R.E. Stall (1), B.I. Canteros (2), and A.M. Gochez (2). (1) University of Florida, Gainesville, FL; (2) INTA, Bella Vista, Corrientes, Argentina
- 504B Blueberry fruit surface microflora: Search for potential biological control agents for fruit rot pathogens. S. SABARATNAM, J. Dickman and A.M.C. Schilder. Michigan State University, East Lansing, MI
- 505B Incidence of the atoxicogenic *Aspergillus flavus* strain AF36 in pistachio and fig orchards in California. M.A. DOSTER (1), T.J. Michailides (1), and P.J. Cotty (2). (1) University of California, Parlier, CA; (2) USDA-ARS, University of Arizona, Tucson, AZ
- 506B Variability among vegetative compatibility groups of *Aspergillus flavus* in crop colonization and overwintering. P.J. COTTY. USDA-ARS, University of Arizona, Tucson, AZ
- 507B *Bacillus* spp. with potential as biological control agents. C. NAVA-DIAZ, M.D. Kleinhenz, D.J. Doohan, M.L. Lewis, and S.A. Miller. Ohio State University, Wooster, OH
- 508B Identification of microorganism for biological control of powdery mildew in flowering dogwood. M.T. MMBAGA and F.A. Mrema. Tennessee State University, McMinnville, TN

Posters

- 509B Biological control of gummy stem blight on watermelon and Phytophthora crown rot on summer squash with bacteria. K.W. SEEBOULD, R.D. Gitaitis, and F.H. Sanders. University of Georgia, Tifton, GA
- 510B Beneficial bacteria and acibenzolar-S-methyl plus imidacloprid as seedling treatments for the management of *Tomato spotted wilt virus* in flue-cured tobacco. N. MARTINEZ-OCHOA, S.W. Mullis, A.S. Csinos, M. Stephenson, and S.S. LaHue. University of Georgia, Tifton GA
- 511B Culturable biofilms isolated from 'Jewel' sweetpotato with antagonism to rhizopus stolonifer in vitro. A.E. Fyffe (1), C. STEVENS (1), V.A. Khan (1), C.L. Wilson (2), and J.W. Williams (1). (1) Tuskegee University, Tuskegee, AL; (2) USDA-ARS, Kearneysville, WV
- Chemical Control**
- 512A Use of the MBEC technology to study the role of biofilms on microbial pathogenesis and determine the anti-biofilm activity of biocides used on plants and agriculture. M.E. OLSON (1,2), L.L.R. Marques (1,2), and H. Ceri (1,2). (1) University of Calgary, Calgary, AB, Canada; (2) MBEC BioProducts Inc., Calgary, AB, Canada
- 513A Biofilms of *Erwinia carotovora* subsp. *atroseptica* and *E. carotovora* subsp. *carotovora* are less susceptible to antibiotics and biocides than planktonic populations. L.L.R. MARQUES (1), T. Bolduc (1), S.H De Boer (2), H. Ceri (1), and M.E. Olson (1). (1) University of Calgary, Calgary, AB, Canada; (2) Centre for Animal and Plant Health, Charlottetown, PEI, Canada
- 514A Controlling fungal and bacterial diseases of vegetables with a new fungicide containing famoxadone and cymoxanil. C. Shepherd, R. Williams, M. Martin, S. Soehner, and R. GEDDENS. DuPont Crop Protection, Newark DE
- 515A Managing pepper diseases with a new premix fungicide containing famoxadone and cymoxanil. M. MARTIN, R. Williams, S. Rick, D. Ganske, and S. Soehner. DuPont Ag and Nutrition, Newark, DE
- 516A Control of Asian soybean rust (*Phakopsora pachyrhizi*) in South America with myclobutanil. D.G. OUIMETTE, G.M. Kemmitt, M.T. Iamauti, and B.R. Sheppard. Dow AgroSciences, Indianapolis, IN Withdrawn
- 517A
- 518A Sensitivity of *Monilinia fructicola* isolates collected from stone fruits to fludioxonil. G. OLAYA (1) and A. Tally (2). (1) Syngenta Crop Protection, Vero Beach, FL; (2) Syngenta Crop Protection, Greensboro, NC
- 519A Evaluation of fludioxonil and azoxystrobin for control of Rhizoctonia root rot of soybean. E.S. BUCHER and W.L. Pedersen. University of Illinois, Urbana, IL
- 520A Effect of seed and foliar insecticide treatments on barley yellow dwarf disease of wheat in Alabama. K.L. BOWEN, K.L. Flanders, and K.B. Burch. Auburn University, Auburn, AL
- 521A Evaluation of insecticide applications to reduce corn leafhopper populations and corn stunt disease. C.A. FRATE (1), C. Summers (2), S.M. Mueller (1), C. Collar (1), and A. Newton (2). (1) University of California Cooperative Extension, Oakland, CA; (2) University of California, Davis, CA
- 522A Translocation of metalaxyl to grape clusters from leaf and stem tissue controls grapevine downy mildew (*Plasmopara viticola*). M.M. KENNELLY, R.C. Seem, D.M. Gadoury, and W.F. Wilcox. Cornell University, Geneva, NY
- 523A Evidence for reduced sensitivity to propiconazole in the pecan scab fungus in Georgia. K.L. STEVENSON (1), P.F. Bertrand (2), and T.B. Brennenman (2). (1) University of Georgia, Athens, GA; (2) University of Georgia, Tifton, GA
- 524A Inoculation and evaluation methods used for field efficacy trials of pink rot (*Phytophthora erythroseptica*) in potato. B.D. OLSON (1), W. Kirk (2), G. Kemmitt (1), A. McFadden (1), B. Oemichen (1), H. Yoshida (1), and D. Ouimette (1). (1) Dow AgroSciences LLC, Indianapolis, IN; (2) Michigan State University, East Lansing, MI
- 525A Differential responses of self-fertile *Phytophthora infestans* isolates to metalaxyl. C. AVILA-ADAME and J.B. Ristaino. North Carolina State University, Raleigh, NC
- 526A Sensitivity of isolates of *Phytophthora capsici* from South Carolina to mefenoxam, dimethomorph, zoxamide and cymoxanil. A.P. KEINATH. Clemson University, Charleston, SC Withdrawn
- 528B Biological activity, biochemical mode of action, and physical properties of the natural picolinamides UK-2A and UK-3A. C. YAO, J. Owen, A. Meitl, G. DeBoer, S. Erhardt-Zabik, Y. Adelfinskaya, R. Holley, and C. Yerkes. Dow AgroSciences, Indianapolis, IN
- 529B Reduced sensitivity to sterol demethylation-inhibiting fungicides in populations of *Blumeriella jaapii* from Michigan. T.J. PROFFER (1,2), G.R. Ehret (1), and G.W. Sundin (1). (1) Michigan State University, East Lansing, MI; (2) Kent State University, Salem, OH
- 530B Comparison of two assay methods for evaluating the sensitivity of *Alternaria mali* to boscalid. Y. LU (1), J. Ma (1), T.B. Sutton (1), and H. Ypema (2). (1) North Carolina State University, Raleigh, NC; (2) BASF Corporation, Research Triangle Park, NC
- 531B Effects of fungicides, plant density, and cultivars on powdery mildew of *Delphinium*. S.N. Wegulo (1), M. VILCHEZ (1), and F. Laemmle (2). (1) University of California, Riverside, CA; (2) University of California Cooperative Extension, Santa Maria, CA

- 532B Screening of chemicals for the control of bacterial wilt of geranium. D.J. NORMAN, J. Chen, J.M.F. Yuen, R.J. Donahoo, and R. Resendiz. University of Florida, Apopka, FL
- 533B Drip applied soil fumigants for calla lily production. J.S. GERIK (1) and I.D. Greene (2). (1) USDA-ARS, Parlier, CA; (2) Golden State Bulb Growers, Moss Landing, CA
- 534B Effect of pesticides on recovery of *Didymella bryoniae* from cucurbit vines. A.P. KEINATH. Clemson University, Charleston, SC
- 535B Efficacy comparison between seed-coated and soil-applied nematicides in root-knot nematode-infested cucumber fields. J.O. BECKER (1) and D. Hofer (2). (1) University of California, Riverside, CA; (2) Syngenta Crop Protection, Basel, Switzerland
- 536B Transition from methyl bromide use on commercial vegetable farms. D.O. CHELLEMI (1), J. Mirusso (2), and J. Nance (3). (1) USDA-ARS, Ft. Pierce, FL; (2) Mirusso Enterprises, Delray Beach, FL; (3) Dow AgroSciences, Winter Haven, FL
- 537B US crop grouping and international harmonization. H. CHEN (1), B.A. Schneider (2), D.C. Thompson (1), D.L. Kunkel (1), J.J. Baron (1), and R.E. Holm (1). (1) Rutgers University, North Brunswick, NJ; (2) US EPA, Washington, DC
- 538B Molecular mechanisms conferring reduced sensitivities to triazoles in UK isolates of *Septoria tritici*. H.J. COOLS, B.A. Fraaije, and J.A. Lucas. Rothamsted Research, Harpenden, UK
- 539B Bayer CropScience fungicides—We've got you covered. L. FOUGHT, G. Musson, J. Bloomberg, M.R. Schwartz, and R. Kaiser. Bayer CropScience, Research Triangle Park, NC
- 540B The effect of two melanin biosynthesis inhibitors on growth and reproduction of *Monosporascus cannonballus*. D.M. FERRIN and M.E. Stanghellini. University of California, Riverside, CA
- 541B Evaluation of Abound 2.08SC in calendar and AU-Pnut leaf spot advisory programs for disease control on peanut. H.L. CAMPBELL, A.K. Hagan, and K.L. Bowen. Auburn University, Auburn, AL
- 542B Integrated management strategies for Rhizoctonia crown and root rot. J.C. ANSLEY, B.J. Jacobsen, N.K. Zidack, and M.R. Johnston. Montana State University, Bozeman, MT
- Host Resistance**
- 543A Rust resistance in the black bean Compuesto Negro Chimaltenango. X.K. WANG, C.M. Tandeski, J.J. Jordahl, P.L. Gross, K.F. Grafton, and J.B. Rasmussen. North Dakota State University, Fargo, ND
- 544A Characterization of Sclerotinia stem rot resistance in double haploid *Brassica napus* for mapping purposes. L. BUCHWALDT, F.Q. Yu, R. Li, D.H. Hegedus, and S.R. Rimmer. Agriculture and Agri-Food Canada, Saskatchewan, SK, Canada
- 545A Western Australian isolates of *Leptosphaeria maculans* show physiological adaptation to single dominant gene-based resistance in cultivars of *Brassica napus*. H. Li (1), M.J. Barbetti (1), L. Damour (2), and K. SIVASITHAMPARAM (1). (1) University of Western Australia, Crawley, WA, Australia; (2) ESMISAB, Brest, France
- 546A Effect of calcium concentration in nutrient solution on bacterial wilt development of tomato plants. I.-S. Myung (1), Y.-K. Lee (1), and K.-W. Nam (1). NIAST, Suwon, Korea
- 547A Identification of races of *Xanthomonas campestris* pv. *phaseoli* and establishment of the first common bacterial blight differential *Phaseolus vulgaris* lines. N. Mutlu, A.K. VIDAVER, D.P. Coyne, J.R. Steadman, J. Reiser, and P.A. Lambrecht. University of Nebraska, Lincoln, NE
- 548A Evaluating the potential utility of partial resistance to *Bremia lactucae* from the lettuce cultivars 'Grand Rapids' and 'Iceberg'. R.C. Grube. USDA-ARS, Salinas, CA
- 549A Characterization of *Botrytis*-resistance of *Lilium speciosum* Thunb. var. *gloriosoides* Baker. R.S. CHEN and J.L. Jong. National Chiayi University, Chiayi, Taiwan
- 550A Pathogen phenotypes used to identify sources of resistance to rust from a specific common bean gene pool in southern Mozambique. C. Jochua (1), J. STEADMAN (1), M. Amane (2), and J. Fenton (1). (1) University of Nebraska, Lincoln, NE; (2) Instituto National de Investigacao Agronomica, Maputo, Mozambique
- 551A Peanut functional genomics: Gene identification and marker development through EST-microarray analysis. M. Luo (1) and B.Z. GUO (2). (1) University of Georgia, Tifton, GA; (2) USDA-ARS, Tifton, GA
- 552A Susceptibility of tubers from potato varieties and advanced breeding lines to different genotypes of *P. infestans* at three storage temperatures. F.M. ABU-EL SAMEN, D.S. Douches, R. Hammerschmidt, and W.W. Kirk. Michigan State University, East Lansing, MI
- 553A Potato late blight control incorporating host plant resistance and managed fungicide application. W.W. KIRK, J.B. Muhinyuza, D.S. Douches, R. Hammerschmidt, and F.M. Abu-El Samen. Michigan State University, East Lansing, MI
- 554A Soybean partial resistance and tolerance to *Phytophthora sojae*. C.R. FERRO (1), C.B. Hill (1), M.R. Milles (2), and G.L. Hartman (1,2). (1) University of Illinois, Urbana, IL; (2) USDA-ARS, Urbana, IL
- 555A The effect of insect resistance on *Bean pod mottle virus* transmission in soybeans. D. PINO DEL CAR-

Posters

- PIO (1), M.G. Redinbaugh (1,2), J.L. Vacha (1), S.A. Berry (1), R. Hammond (1), L. Madden (1), and A.E. Dorrance (1). (1) Ohio State University, Wooster, OH; (2) USDA-ARS, Wooster, OH
- 556A Screening for disease susceptibility genes to *Phytophthora sojae* in soybean line Ox20-8. S.X. MIDEROS (1), S. Costanzo (1), M. Nita (1), S.K. St. Martin (2), and A.E. Dorrance (1). (1) Ohio State University, Wooster, OH; (2) Ohio State University, Columbus, OH
- 557A Effect of temperature on the expression of necrosis in soybean infected with *Soybean mosaic virus*. C. Zheng, P. Chen, and R. GERGERICH. University of Arkansas, Fayetteville, AR
- 558A A comparison of measurement methods using the sensitivity ratio: An application to screening for disease resistance in soybeans. G. Madisa, K. Eskridge, K. Powers, J. STEADMAN, G. Graef, R. Higgins, and C. Bellows. University of Nebraska, Lincoln, NE
- 559B Identification of microsatellite and STS markers for resistance genes *Rsp1*, *Rsp2*, and *Rsp3* to *Septoria passerinii* in barley. S.H. LEE and S.M. Neate. North Dakota State University, Fargo, ND
- 560B Mapping of a major net blotch resistance gene in the Q21861 X SM89010 doubled haploid population. T.L. FRIESEN (1), J.D. Faris (1), and B.J. Steffenson (2). (1) USDA-ARS, Fargo, ND; (2) University of Minnesota, St. Paul, MN
- 561B Investigating the roles of an aflatoxin resistance-associated protein in maize using RNAi. Z.-Y. CHEN (1), R.L. Brown (2), T.E. Cleveland (2), and K.E. Damann (1). (1) Louisiana State University, Baton Rouge, LA; (2) USDA-ARS, New Orleans, LA
- 562B The role of kernel water relations in resistance to aflatoxin production in corn. R.L. BROWN (1), Z.-Y. Chen (2), and T.E. Cleveland (1). (1) USDA-ARS, New Orleans, LA; (2) Louisiana State University Ag Center, Baton Rouge, LA
- 563B Evaluation of three inbreds for resistance to Fusarium ear rot and fumonisin accumulation in grain. C.E. KLEINSCHMIDT, J.K. Pataky, and D.G. White. University of Illinois, Urbana, IL
- 564B Durability of monogenic lines to Korean rice blast fungus using the greenhouse assay. B.R. Kim, J.H. Roh, S.H. Choi and S.S. HAN. National Institute of Crop Science, Suwon, Korea
- 565B Rice bacterial blight resistance genes *Xa7*, *xa5*, and *Xa4* confer resistance during all developmental stages. K.M. LINHOLM (1,2), E. Garcia (2), C.M. Vera Cruz (2), and J.E. Leach (1). (1) Kansas State University, Manhattan, KS; (2) International Rice Research Institute, Manila, Philippines
- 566B Characterization of novel ubiquitination-related E3 rice genes in the defense response to fungal and bacterial pathogens. C. JANTASURIYARAT, B. Zhou, and G.L. Wang. Ohio State University, Columbus, OH
- 567B Increased leaf hardness and reticulate silicate architecture: A physical mechanism of silicon-induced rice resistance to blast disease. K.W. KIM (1), J.J. Park (2), Y. Kim (2), S.S. Han (3), and E.W. Park (1). (1) Seoul National University, Seoul, Korea; (2) Hankuk University of Foreign Studies, Yongin, Korea; (3) National Institute Crop Science, Suwon, Korea
- 568B Assessing type 1 resistance to Fusarium head blight in high disease pressure screening nurseries. R.W. STACK and J.M. Hansen. North Dakota State University, Fargo, ND
- 569B Wheat leaf rust in a durum disomic chromosome substitution series. R.W. STACK, J.B. Rasmussen, and J.J. Jordahl. North Dakota State University, Fargo, ND
- 570B Identification of rust resistance genes in four spring wheats. L.M. OELKE and J.A. Kolmer. USDA-ARS, University of Minnesota, St. Paul, MN
- 571B Identification and mapping of host resistance genes to *Septoria tritici* blotch of wheat. S.G. COWLING (1), A.L. Brule-Babel (1), D.J. Somers (2), and L. Lamari (1). (1) University of Manitoba, Winnipeg, MB, Canada; (2) Agriculture and Agri-Food Canada, Winnipeg, MB, Canada
- 572B Quantification of *Mycosphaerella graminicola* in wheat by real-time PCR. T.B. ADHIKARI (1), B. Balaji (2), J. Breeden (1), J.M. Anderson (1), and S.B. Goodwin (1). (1) USDA-ARS, Purdue University, West Lafayette, IN; (2) Purdue University, West Lafayette, IN
- 573B Inheritance of and molecular mapping of wheat and barley genes for resistance to inappropriate formae speciales of *Puccinia striiformis*. V. PAHALAWATTA and X.M. Chen. USDA-ARS, Washington State University, Pullman, WA
- 574B Use of directed molecular evolution for *Fusarium verticillioides* control by chitinases. M. NADIGA (1), H. Challberg (1), A. Boyce (1), N. Yalpani (2), and M.L. Müller (1). (1) Verdia Inc., Redwood City, CA; (2) Pioneer Hi-Bred International Inc., Johnston, IA
- 575B Real-time quantitative PCR of wheatgrass-specific markers to confirm alien translocations and BYDV/CYDV resistance in wheat. B. Balaji (1), N. THOMPSON (2), and J.M. Anderson (2). (1) Purdue University, West Lafayette, IN; (2) USDA-ARS, West Lafayette, IN
- 576B Gene expression of *Theobroma cacao* leaves responding to wounding, ethylene, or methyl jasmonate. B. BAILEY (1), M. Strem (1), H. Bae (1), and M. Guiltinan (2). (1) USDA-ARS, Beltsville, MD; (2) Pennsylvania State University, University Park, PA

Integrated Pest Management

- 577B IPM strategies for control of foliar diseases in commercial carrot fields in Wisconsin. P.M. ROGERS and W.R. Stevenson. University of Wisconsin, Madison, WI

- 578B ☽ The North Dakota IPM crop pest survey—Using technology to improve information delivery. M. McMULLEN and P. Glogoza. North Dakota State University, Fargo, ND
- 579B ☽ Assessing root health by a soil bioassay with beans as an indicator of soil health. G.S. ABAWI, J.W. Ludwig, and C.H. Petzoldt. Cornell University, Geneva, NY
- 580B Impact of soybean and rapeseed seed meal on microbial populations and growth of apple in replant orchard soils. M. MAZZOLA (1), M.F. Cohen (1), and G. Fazio (2). (1) USDA-ARS, Wenatchee, WA; (2) USDA-ARS, Geneva, NY
- 581B ☽ Validation of a grape *Botrytis cinerea* infection risk index for California strawberries. J.C. BROOME, J.F. Strand, J. Bryer, S.L. Swezey, E.J. Morgan, and F.O. Martino. University of California, Davis, CA
- 582B An airflow system for management of *Botrytis cinerea* on lisianthus. S.A. Tjosvold (1), S.N. WEGULO (2), J.F. Thompson (3), D. Chambers (1), and M. Vilchez (2). (1) University of California Cooperative Extension, Watsonville, CA; (2) University of California, Riverside, CA; (3) University of California, Davis, CA
- 583B ☽ Formulating locally effective integrated management packages for tomato bacterial wilt. C.-H. Lin and J.F. WANG. AVRDC, Tainan, Taiwan
- 584B Evaluation of *Brassica* crop residue effects on Verticillium wilt and Phytophthora root rot in chile peppers. G.C. LUDWIG, N.P. Goldberg, M. Remmenga, and L. Blackwell. New Mexico State University, Las Cruces, NM
- 585B Comparison of late blight suppression by natural products and the impact of genotype diversity on disease development and control. O.M. OLANYA, R.P. Larkin and C.W. Honeycutt. USDA-ARS, Orono, ME
- 586B Value of environmental factors in predicting cotton seedling disease severity. C.S. Rothrock (1), M.L. SCHULZ (1), P.D. Colyer (2), E.E. Gbur (1), and T.L. Kirkpatrick (1). (1) University of Arkansas, Fayetteville, AR; (2) Louisiana State University Agricultural Center, Bossier City, LA
- 587B ☽ Accumulated rainfall thresholds for applying protective fungicides on potato cultivars resistant to *Phytophthora infestans* in Ecuador. J.A. TAIPE (1), G.A. Forbes (2), and M. Taipe (2). (1) Programa Nacional de Raíces y Tubérculos-Papa, INAP, Quito, Ecuador; (2) Centro Internacional de la Papa, Quito, Ecuador
- 588B ☽ Chemical control strategies for late blight management in Argentina. A. ANDREU (1), and D. Caldiz (2). (1) Mar del Plata National University, Mar del Plata, Buenos Aires, Argentina; (2) McCain Argentina SA
- 589B ☽ Induced resistance in plants treated with solarized soil or *Trichoderma*. N.O. LEVY (1,2) Y. Elad (1), and J. Katan (2). (1) Volcani Center, Bet Dagan, Israel; (2) Hebrew University, Rehovot, Israel
- 590B Use of burley tobacco cultivars and fungicides to control blue mold in Virginia—2001 to 2003. C.S. JOHNSON (1,2), D.R. Peek (2), and L. Wright (3). (1) Virginia Polytechnic Institute and State University, Blackstone, VA; (2) Southern Piedmont Agric Research and Extension Center, Blackstone, VA; (3) Southwest Virginia Agric Research and Extension Center, Glade Spring, VA
- ### Regulatory Plant Pathology
- 591A An eradication strategy for *Phytophthora ramorum* in Oregon coastal forests. E. Goheen (1), E. Hansen (2), A. Kanaskie (3), M. McWilliams (3), N. OSTERBAUER (4), W. Sutton (2), and L. Rehms (4). (1) USDA Forest Service, Central Point, OR; (2) Oregon State University, Corvallis, OR; (3) Oregon Department of Forestry, Salem, OR; (4) Oregon Department of Agriculture, Salem, OR
- 592A An overview of risk ratings that examined exotic plant pathogens in pest risk analyses. A.V. LEMAY and E.M. Sutker. USDA APHIS, Raleigh, NC
- 593A ☽ The USDA Regulated Plant Pest List: A transparent window to pests of regulatory significance. L.G. BROWN. USDA APHIS, Raleigh, NC
- ### Viruses—Resistance and Control
- 594A ☽ Vector incompetence of *Frankliniella tritici* is not associated with a barrier to midgut infection by *Tomato spotted wilt virus*. F.M. ASSIS FILHO (1), J. Stavisky (2), S.R. Reitz (3), C.M. Deom (4), and J.L. Sherwood (4). (1) AGDIA, Inc., Elkhart, IN; (2) New York State Agricultural Experiment Station, Geneva, NY; (3) USDA-ARS, Tallahassee, FL; (4) University of Georgia, Athens, GA
- 595A ☽ Incidence and prevalence of *Maize streak virus*, genus *Mastrevirus* and *Maize mottle/chlorotic stunt virus* in Lagos, Nigeria. M.A. TAIWO (1), J. d'A. Hughes (2), and K.E. Oke (1). (1) University of Lagos, Akoko, Lagos; (2) International Institute of Tropical Agriculture, Ibadan, Nigeria
- 596A ☽ *Bean pod mottle virus* effects on yield of ten soybean lines. C.L. CIHLAR-STRUNK and M.A.C. Langham. South Dakota State University, Brookings, SD
- 597A ☽ Yield decline of sweetpotato cultivars and virus infection. C.A. CLARK, M.W. Hoy, and C.D. Kokkinos. Louisiana State University, Baton Rouge, LA
- 598A Post-transcriptional gene silencing in transgenic *Nicotiana benthamiana* plants induced by self-complementary constructs containing chimeric cDNA sequences from *Citrus tristeza virus*. G. ROY (1), M.R. Sudarshana (1), A.M. Dandekar (1), S.-W. Ding (2), and B.W. Falk (1). (1) University of California, Davis, CA; (2) University of California, Riverside, CA

Posters

- 599A Introgression of virus resistance genes from *N. glutinosa* to *N. clevelandii*. B.E. WIGGINS and J.E. Schoelz. University of Missouri, Columbia, MO
- 600A The effect of *Potato virus Y* infection on siRNA accumulation and transcription of a transgene targeted by RNA silencing. M.C Solofoharivelto, Z. Weng, and Z. Xiong. University of Arizona, Tucson, AZ

Professionalism/Service/Outreach

Extension and Outreach Education

- 601A Plant pathology education, extension and outreach at Southern University and A&M College. D.J. COLLINS (1), D.J. Morgan-Collins (2), Y. Qi (1), and O. Bandele (1). (1) Southern University Agricultural Research and Extension Center, Baton Rouge, LA; (2) Berean SDA Church School, Baton Rouge, LA
- 602B Development of a fungal disease risk index for peanuts. R.C. KEMERAIT JR., T.B. Brenneman, A.K. Culbreath, and J.E. Woodward. University of Georgia, Tifton, GA
- 603B Barriers to implementing integrated pest management and safe pesticide use in developing countries. M.A. HANSEN. Virginia Polytechnic Institute and State University, Blacksburg, VA
- 604B California's San Joaquin Valley grape growers reduce fungicide applications. S.J. VASQUEZ (1) and G.M. Leavitt (2). (1) University of California Cooperative Extension, Fresno, CA; (2) University of California Cooperative Extension, Madera, CA
- 605B Status of the citrus canker eradication program in Florida and development of a citrus canker extention education program of the University of Florida. H.L. CHAMBERLAIN (1), L.W. Timmer (2), and P.D. Roberts (1). (1) University of Florida, Immokalee, FL; (2) University of Florida, Lake Alfred, FL

Plant Pathology and Society

- 606A A national soybean pathogen conservation system: The National Soybean Pathogen Collection Center. S. LI (1), G.L. Hartman (1,2), T. Niblack (1), and D. Phillips (3). (1) University of Illinois, Urbana, IL; (2) USDA-ARS, Urbana, IL; (3) University of Georgia, Griffin, GA

Teaching and Pedagogy

- 607A Teaching pest risk assessment: A case study in Iowa. J. Bradshaw, P. ESKER, S. Hernandez, A.J. Moreira, A. Murillo-Williams, F.W. Nutter Jr., and J. Tollefson. Iowa State University, Ames, IA
- 608A A new book on field crops diseases as a teaching resource. R.W. STACK (1) and J.E. Kurle (2). (1) North Dakota State University, Fargo, ND; (2) University of Minnesota, St. Paul, MN

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