

APPENDIX 1

National Program 303 – Plant Diseases

ACCOMPLISHMENT REPORT 2007 – 2011

Research Projects in National Program 303* [By Action Plan Component]

Component 1: Disease Diagnosis: Detection, Identification and Characterization of Plant Pathogens

1230-22000-022-00D

DETECTION, IDENTIFICATION, AND CHARACTERIZATION OF NEW AND EMERGING VIRAL AND BACTERIAL DISEASES OF ORNAMENTAL PLANTS – Ramon Jordan (P), Kathryn Kamo, Qi Huang, and John Hammond; Beltsville, Maryland.

1275-22000-244-00D

CHARACTERIZING, DETECTING, AND ELIMINATING PATHOGENS FOR THE SAFE INTRODUCTION OF PLANT GENETIC RESOURCES – Gary Kinard (P), Larry Kuykendall, Raymond Mock, and Ruhui LI; Beltsville, Maryland.

1275-22000-245-00D

SYSTEMATIC BIOLOGY OF INVASIVE AND EMERGING PLANT PATHOGENIC FUNGI – Lisa Castlebury (P), Joanne Crouch, and Amy Rossman; Beltsville, Maryland.

1275-22000-246-00D

GENOME-BASED STRATEGIES FOR DETECTION AND IDENTIFICATION OF PLANT PATHOGENIC PHYTOPLASMAS AND SPIROPLASMAS – Robert Davis (P), Ing Ming Lee, and Yan Zhao; Beltsville, Maryland.

1275-22000-249-00D

MOLECULAR AND MORPHOLOGICAL SYSTEMATICS AND IDENTIFICATION OF IMPORTANT PLANT PARASITIC NEMATODES – Lynn Carta (P) and Zafar Handoo; Beltsville, Maryland.

1275-22000-251-00D

EXOTIC PATHOGENS OF CITRUS – John Hartung (P); Beltsville, Maryland.

1275-22000-269-00D

SYSTEMATICS OF MICROFUNGI USED IN BIOLOGICAL CONTROL OF PLANT DISEASES AND INSECT PESTS – Gary Samuels (P) and Stephen Rehner; Beltsville, Maryland.

1920-22000-034-00D

IDENTIFICATION, CHARACTERIZATION, AND BIOLOGY OF FOREIGN AND EMERGING INSECT-TRANSMITTED PLANT PATHOGENS – William Schneider (P), Vernon Damsteegt, and Douglas Luster; Fort Detrick, Maryland.

* Because of the nature of their research, many NP 303 projects contribute to multiple Components. However, the projects are listed here under the Component that most closely reflects their core research. For the sake of consistency, projects are listed and organized in Appendix 1 and 2 according to the ARS project number used to track projects in the Agency's internal database. A (P) after a scientist's name indicates the project's principal investigator.

1920-22000-037-00D

IDENTIFICATION, CHARACTERIZATION, AND DETECTION OF FOREIGN AND NEWLY EMERGING DOMESTIC BACTERIA – Norman Schaad (P); Fort Detrick, Maryland.

5302-22000-009-00D

CHARACTERIZATION & EPIDEMIOLOGY OF CITRUS TRISTEZA VIRUS & OTHER INVASIVE & EMERGING GRAFT-TRANSMISSIBLE DISEASES OF CITRUS IN CALIFORNIA – Raymond Yokomi (P); Parlier, California.

5350-22000-016-00D

SYSTEMATICS OF ALTERNARIA SPP. ASSOCIATED WITH TREE FRUITS AND INTERNATIONAL COMMERCE – Rodney Roberts (P); Wenatchee, Washington.

5358-22000-033-00D

INTEGRATED MANAGEMENT OF VIRUS DISEASES OF SMALL FRUIT CROPS – Robert Martin (P); Corvallis, Oregon.

Component 2: Biology, Ecology, Epidemiology, and Spread of Plant Pathogens and Their Relationships with Hosts and Vectors.

1275-21220-250-00D

MOLECULAR APPROACHES TO UNDERSTANDING HOST RESISTANCE AND PATHOGEN VARIABILITY FOR IMPROVING POTATO AND TOMATO DISEASE MANAGEMENT – Richard Jones (P), Kenneth Deahl, and Leslie Wanner; Beltsville, Maryland.

1275-22000-243-00D

USING ELECTRON MICROSCOPY TECHNOLOGY TO SOLVE AGRICULTURAL PROBLEMS – Gary Bauchan (P); Beltsville, Maryland.

1275-22000-247-00D

CONTROL OF PLANT-PARASITIC NEMATODES BY INTERFERENCE WITH INTERNAL TARGETS – Edward Masler (P) and David Chitwood; Beltsville, Maryland.

1275-22000-248-00D

PHYSIOLOGICAL AND MOLECULAR BASES FOR PLANT-PATHOGEN SIGNALING – Con Baker (P), Robert Owens, and Rosemarie Hammond; Beltsville, Maryland.

1275-22000-252-00D

APPLICATION OF PLANT-VIRAL BASED VECTORS TO THE DEVELOPMENT OF NOVEL DISEASE CONTROL STRATEGIES – Rosemarie Hammond (P) and Robert Owens; Beltsville, Maryland.

1275-42430-010-00D

IMPROVED KNOWLEDGE OF VIRULENCE FACTORS TO DEVELOP POSTHARVEST DECAY CONTROL STRATEGIES – Wayne Jurick (P) and Robert Shaftner; Beltsville, Maryland.

1907-21000-027-00D

PSEUDOMONAS SYRINGAE SYSTEMS BIOLOGY – Samuel Cartinhour (P), Melanie Filiatrault, Paul Stodghill, and Bryan Swingle; Ithaca, New York.

1920-22000-035-00D

IDENTIFICATION, CHARACTERIZATION, AND BIOLOGY OF EMERGING FOREIGN FUNGAL PLANT PATHOGENS – Reid Frederick (P), Douglas Luster, Morris Bonde, Gary Peterson, Kerry Pedley, and Paul Tooley; Fort Detrick, Maryland.

1920-22000-036-00D

BIOLOGY AND EPIDEMIOLOGY OF EMERGING PLANT PATHOGENIC OOMYCETES – Paul Tooley (P), Kerry Pedley, Timothy Widmer, Douglas Luster, Gary Peterson, and Nina Shishkoff; Fort Detrick, Maryland.

3602-21220-011-00D

ENHANCING RESISTANCE TO ROOT ROT PATHOGENS OF SOYBEAN – Teresa Hughes (P); West Lafayette, Indiana.

3602-22000-015-00D

MOLECULAR AND GENETIC MECHANISMS OF FUNGAL DISEASE RESISTANCE IN GRAIN CROPS – Stephen Goodwin (P) and Charles Crane; West Lafayette, Indiana.

3607-22000-011-00D

BIOLOGY, ETIOLOGY, GENETICS, AND CONTROL OF VIRUS DISEASES OF CORN AND SOYBEAN – Margaret Redinbaugh (P) and Lucy Stewart; Wooster, Ohio.

3655-22000-019-00D

GENETICS OF THE PATHOGEN-HOST INTERACTION IN SNAP BEAN, TOMATO, AND POTATO – David Willis (P) and Philipp Simon; Madison, Wisconsin.

5302-22000-008-00D

EPIDEMIOLOGY AND MANAGEMENT OF XYLELLA FASTIDIOSA (XF) AND OTHER EXOTIC AND INVASIVE DISEASES AND INSECT PESTS – Drake Stenger (P), Craig Ledbetter, Jianchi Chen, Elaine Backus, Christopher Wallis, Hong Lin, Rodrigo Krugner, Elizabeth Rogers, Mark Sisterson, and David Ramming; Parlier, California.

5305-22000-011-00D

BIOLOGY, EPIDEMIOLOGY, PATHOGENESIS, AND VECTOR SPECIFICITY OF SUGARBEET AND VEGETABLE VIRUSES – William Wintermantel (P) and Hsing Yeh Liu; Salinas, California.

5306-22000-014-00D

INTEGRATED STRATEGIES FOR ADVANCE MANAGEMENT OF FRUIT, NUT, AND OAK TREE DISEASES – Daniel Kluepfel (P), Takao Kasuga, Mysore Sudarshana, and Greg Browne; Davis, California.

5358-22000-034-00D

EXOTIC, EMERGING, RE-EMERGING, AND INVASIVE PLANT DISEASES OF HORTICULTURAL CROPS – Walter Mahaffee (P) and Niklaus Grunwald; Corvallis, Oregon.

5358-22000-035-00D

EPIDEMIOLOGY AND MANAGEMENT OF FUNGAL DISEASES OF GRASSES GROWN FOR SEED – William Pfender (P) and Stephen Alderman; Corvallis, Oregon.

5440-22000-023-00D

WHEAT STREAK MOSAIC VIRUS INTERACTIONS WITH HOST AND VECTOR – Roy French (P); Lincoln, Nebraska.

6202-22000-026-00D

TOWARD CONTROL STRATEGIES OF EMERGING PATHOGENS AND NEMATODES OF COTTON – Robert Stipanovic (P), Enrique Medrano, Jinggao Liu, and Alois Bell; College Station, Texas.

6202-22000-027-00D

SORGHUM FUNGAL PATHOGEN BIOLOGY AND DISEASE RESISTANCE – Louis Prom (P); College Station, Texas.

Component 3: Plant Disease Resistance.

1907-22000-018-00D

MANAGEMENT OF NEMATODES AND VIRUS DISEASES AFFECTING POTATO AND GRAIN CROPS – Stewart Gray (P) and Xiaohong Wang; Ithaca, New York.

3602-21220-010-00D

GENETIC AND BIOCHEMICAL MECHANISMS OF RESISTANCE TO BARLEY AND CEREAL YELLOW DWARF VIRUSES AND FUNGI – Steven Scofield (P); West Lafayette, Indiana.

3640-21220-020-00D

GENETICS, POPULATION BIOLOGY, AND HOST-PARASITE INTERACTIONS OF CEREAL RUST FUNGI AND THEIR DISEASES – Les Szabo (P), James Kolmer, Martin Carson, and Yue Jin; St. Paul, Minnesota.

3640-22000-023-00D

PATHOGEN POPULATION BIOLOGY AND GENOMICS, AND HOST RESISTANCE FOR FUSARIUM HEAD BLIGHT OF CEREALS – H.C. Kistler (P), Yue Jin, Les Szabo, and Martin Carson; St. Paul, Minnesota.

5335-22000-007-00D

RESOURCES FOR IDENTIFICATION OF PLANT DISEASE RESISTANCE REGULATORY SEQUENCES, GENES AND SIGNALING COMPONENTS FOR CROP PROTECTION STRATEGIES – Barbara Baker (P); Albany, California.

5348-22000-014-00D

CONTROL OF RUSTS OF CEREAL CROPS – Xianming Chen (P) and Daniel Skinner; Pullman, Washington.

5442-22000-042-00D

ENHANCING PATHOGEN DETECTION AND CROP PROTECTION IN SUGARBEET USING MOLECULAR TECHNOLOGIES – Melvin Bolton (P) and Jeffrey Suttle; Fargo, North Dakota.

5442-22000-043-00D

CHARACTERIZATION OF HOST-PATHOGEN INTERACTIONS IN BARLEY AND WHEAT – Michael Edwards (P) and Timothy Friesen; Fargo, North Dakota.

6401-21220-002-00D

SOYBEAN DISEASES AS INFLUENCED BY AGRONOMIC PRACTICES, SOYBEAN GENOTYPES, AND REDUCED TILLAGE – Alemu Mengistu (P) and Lawrence Young; Stoneville, Mississippi

6402-21220-009-00D

GENETIC AND CULTURAL METHODS TO MANAGE CYST NEMATODE IN SOYBEANS – Prakash Arelli (P) and Patricia Donald; Stoneville, Mississippi.

6402-22000-005-00D

GENETIC AND CULTURAL METHODS TO MANAGE RENIFORM NEMATODE IN COTTON – Salliana Stetina (P), John Erpelding, and Lawrence Young; Stoneville, Mississippi.

6410-22000-013-00D

DISEASE CONTROL THROUGH THE ENHANCEMENT OF RESISTANT SUGARCANE GERMPLASM – Michael Grisham (P), Yong Bao Pan, and Edward Richard Jr.; Houma, Louisiana.

6618-22000-034-00D

DOMESTIC, EXOTIC, AND EMERGING DISEASES OF CITRUS, VEGETABLES, AND ORNAMENTALS – Scott Adkins (P), William Turechek, Yon Ping Duan, Mark Hilf, and Timothy Gottwald; Fort Pierce, Florida.

6625-22000-009-00D

BIOLOGY AND CONTROL OF SUGARCANE DISEASES BY SCREENING FOR RESISTANT GERMLASM – Jack Comstock (P) and Neil Glynn; Canal Point, Florida.

6659-22000-020-00D

IDENTIFICATION, ELUCIDATION, AND DEVELOPMENT OF DISEASE AND NEMATODE RESISTANCES IN VEGETABLE CROPS – Judy Thies (P) and Chandrasekar Kousik; Charleston, South Carolina.

Component 4: Biological and Cultural Strategies for Sustainable Disease Management

1275-21220-225-00D

USE OF MOLECULAR TOOLS FOR IMPROVING THE EFFICACY OF BIOLOGICAL CONTROL STRATEGIES FOR CACAO DISEASES – Bryan Bailey (P), Lyndel Meinhardt, and Ronald Collins; Beltsville, Maryland.

1275-22000-250-00D

NOVEL AGENTS AND STRATEGIES FOR MANAGEMENT OF PLANT-PARASITIC NEMATODES – Susan Meyer (P) and David Chitwood; Beltsville, Maryland.

1931-22000-008-00D

BIOLOGICAL APPROACHES FOR MANAGING DISEASES OF TEMPERATE FRUIT CROPS – Michael Wisniewski (P) and Wojciech Janisiewicz; Kearneysville, West Virginia.

3611-22000-019-00D

SOYBEAN DISEASE AND PEST MANAGEMENT – Leslie Domier (P), David Walker, and Glen Hartman; Urbana, Illinois

3620-22410-011-00D

DISCOVERY AND APPLICATION OF MICROBIAL PRODUCTION AND FORMULATION BIOTECHNOLOGIES TO ENHANCE BIOCONTROL OF FUNGAL PLANT DISEASES – David Schisler (P), Alejandro Rooney, and Christopher Dunlap; Peoria, Illinois.

5306-21220-004-00D

SUSTAINABLE VINEYARD PRODUCTION SYSTEMS – Kendra Baumgartner (P), Mysore Sudarshana, Daniel Kluepfel, Kerri Steenwerth, and Andrew McElrone; Davis, California.

5348-22000-013-00D

BIOLOGY, BIOLOGICAL CONTROL, AND MOLECULAR GENETICS OF ROOT DISEASES OF WHEAT, BARLEY AND BIOFUELS BRASSICAS – David Weller (P), Timothy Paulitz, Linda Thomashow, and Patricia Okubara; Pullman, Washington.

5350-22000-015-00D

BIOLOGICAL INTEGRATED MANAGEMENT OF FIRE BLIGHT OF POME FRUITS – Paul Pusey (P); Wenatchee, Washington.

5358-12220-003-00D

BIOLOGY AND MANAGEMENT OF SOILBORNE DISEASES OF HORTICULTURAL CROPS – Joyce Loper (P), Gerald Weiland, and Inga Zasada; Corvallis, Oregon.

5442-21220-023-00D

SCLEROTINIA DISEASES – William Kemp (P); Fargo, North Dakota.

6402-42000-003-00D

AGRICULTURAL PRACTICES, ECOLOGICAL AND VARIETAL EFFECTS ON AFLATOXINS AND OTHER MYCOTOXINS IN CORN – Hamed Abbas (P), Walker Jones, and Mark Weaver; Stoneville, Mississippi.

6602-21220-013-00D

INTEGRATED MANAGEMENT OF PLANT-PARASITIC NEMATODES IN COTTON AND PEANUT – Patricia Timper (P), Brian Scully, and Richard Davis; Tifton, Georgia.

6604-42000-009-00D

CONTROL MECHANISMS FOR MYCOTOXIN PREVENTION IN PEANUTS AND THEIR ROTATION CROPS – Bruce Horn (P), Renee Arias de Ares, Marshall Lamb, and Victor Sobolev; Dawson, Georgia.

6606-22000-013-00D

NEMATODE AND DISEASE MANAGEMENT OF DECIDUOUS FRUITS – Andrew Nyczepir (P); Byron, Georgia.

6659-22000-019-00D

GENETIC AND BIOLOGICALLY-BASED MANAGEMENT OF VEGETABLE CROP DISEASES – Kai Shu Ling (P) and William Wechter; Charleston, South Carolina.

APPENDIX 2

National Program 303 – Plant Diseases

ACCOMPLISHMENT REPORT 2007 – 2011

Publications by Research Project*

1230-22000-022-00D

DETECTION, IDENTIFICATION, AND CHARACTERIZATION OF NEW AND EMERGING VIRAL AND BACTERIAL DISEASES OF ORNAMENTAL PLANTS – Ramon Jordan (P), Kathryn Kamo, Qi Huang, and John Hammond; Beltsville, Maryland.

- Hammond, J., Reinsel, M.D. 2011. Mixed infection and novel viruses in various species of Phlox. *Acta Horticulture Proceedings*. 901:119-126.
- Hammond, J. 2011. Universal plant virus microarrays, broad spectrum PCR assays, and other tools for virus detection and identification. *Acta Horticulture Proceedings*. 901:49-60.
- Huang, Q., Lakshman, D.K. 2011. Effect of clove oil on plant pathogenic bacteria and bacterial wilt of tomato and geranium. *Journal of Plant Pathology*. 92(3):701-707.
- Jordan, R.L., Guaragna, M.A., Putnam, M. 2011. Detection and molecular characterizations of new and emerging potyviruses of ornamental plants. *Acta Horticulturae*. 901:159-166.
- Lim, H.S., Vaira, A.M., Domier, L.L., Lee, S.C., Kim, H.G., Hammond, J. 2010. Efficiency of VIGS and gene expression in a novel bipartite potyvirus vector delivery system as a function of strength of TGB1 silencing suppression. *Virology*. 402:149-163.
- Norman, D.J., Huang, Q., Yuen, J.M.F., Mangravita-Novo, A., Byrne, D. 2009. Susceptibility of Geranium cultivars to *Ralstonia solanacearum*. *HortScience*. 44(5):1-5.
- Lim, H.S., Bragg, J.N., Ganesan, U., Ruzin, S.E., Schichnes, D., Lee, M., Vaira, A., Ryu, K., Hammond, J., Jackson, A.O. 2009. Subcellular localization of the barley stripe mosaic virus triple gene block proteins. *Journal of Virology* 83(18):9432-9448. <http://dx.doi.org/10.1128/JVI.00739-09>.
- Vaira, A.M., Hansen, M.A., Murphy, C., Reinsel, M.D., and Hammond, J. 2009. First report of Freesia sneak virus in Freesia sp. in Virginia, USA. *Plant Disease*. 93(9):965. Available <http://dx.doi.org/10.1094/PDIS-93-9-0965B>.
- Lim, H.S., Bragg, J.N., Ganesan, U., Lawrence, D.M., Yu, J., Isogai, M., Hammond, J., and Jackson, A.O. 2008. Triple gene block protein interactions involved in movement of Barley stripe mosaic virus. *Journal of Virology*. 82:4991-5006.

1275-21220-225-00D

USE OF MOLECULAR TOOLS FOR IMPROVING THE EFFICACY OF BIOLOGICAL CONTROL STRATEGIES FOR CACAO DISEASES – Bryan Bailey (P), Lyndel Meinhardt, and Ronald Collins; Beltsville, Maryland.

- Melnick, R.L., Bailey, B.A., Backman, P.A. 2011. Isolation of endophytic endospore-forming bacteria from *Theobroma cacao* as potential biological control agents of cacao diseases. *Biological Control*. 57:236-245.
- Bae, H., Roberts, D.P., Lim, H.S., Strem, M.D., Park, S., Ryu, C., Melnick, R., Bailey, B.A. 2011. Endophytic *Trichoderma* isolates from tropical environments delay disease onset and induce resistance against *Phytophthora capsici* in hot pepper using multiple mechanisms. *Molecular Plant-Microbe Interactions*. 24:336-351.

* For the sake of consistency, projects are listed and organized in Appendixes 1 and 2 according to the ARS project number used to track projects in the Agency's internal database. A (P) after a scientist's name indicates the project's principal investigator.

- Bailey, B.A., Strem, M.D., Wood, D.F. 2009. Trichoderma species form endophytic associations within Theobroma cacao trichomes. *Mycological Research*. 113:1365-1376.
- Bae, H., Kim, S., Sicher, Jr., R.C., Kim, M.S., Strem, M.D., Bailey, B.A., Melnick, R. 2009. The beneficial endophyte, *Trichoderma hamatum*, isolate DIS 219B promotes growth and delays the onset of the drought response in *Theobroma cacao*. *Journal of Experimental Botany*. 60:3279-3295.
- Desouza, J.T., Pomella, A.W., Bailey, B.A., Bae, H., Erbe, E.F., Murphy, C.A. 2008. Colonization of cacao seedlings by *Trichoderma stromaticum*, a mycoparasite of the witches' broom pathogen, and its influence on plant growth and resistance. *Biological Control* 46:36-45.

1275-21220-250-00D

MOLECULAR APPROACHES TO UNDERSTANDING HOST RESISTANCE AND PATHOGEN VARIABILITY FOR IMPROVING POTATO AND TOMATO DISEASE MANAGEMENT – Richard Jones (P), Kenneth Deahl, and Leslie Wanner; Beltsville, Maryland.

- Pankin, A., Sokolova, E., Rogozina, E., Kuznetsora, M., Deahl, K.L., Jones, R.W., Khavkin, E. 2011. Allele mining in the gene pool of wild *Solanum* species for homologues of late blight resistance gene RB/Rpi-blb1. *Plant Genetic Resources*. 9:305-308.
- Schultz, D., Donahoo, R., Tejada, S., Perez, F.G., Deahl, K.L. 2010. A survey of Tomato and Potato fields in Florida reveals unique genotypes of *Phytophthora infestans* between 2005 and 2007. *HortScience*. 45:1064-1068.
- Deahl, K.L., Perez, F.G., Jones, R.W., Baker, C.J., Mcgrath, M. 2010. Natural occurrence of *Phytophthora infestans* on woody nightshade (*Solanum dulcamara*) in New York. *Plant Disease*. 94:1063.
- Jones, R.W., Stommel, J.R., Wanner, L.A. 2009. First report of *Oidiopsis taurica* causing powdery mildew outbreak on pepper in Maryland. *Plant Disease*. 93:1222.
- Wanner, L.A. 2010. Introduction to 2009 Symposium on Alternative Methods of Controlling Pests and Diseases. *American Journal of Potato Research*. 87:399-400.

1275-22000-244-00D

CHARACTERIZING, DETECTING, AND ELIMINATING PATHOGENS FOR THE SAFE INTRODUCTION OF PLANT GENETIC RESOURCES – Gary Kinard (P), Larry Kuykendall, Raymond Mock, and Ruhui Li; Beltsville, Maryland.

- Xu, D., Mock, R.G., Kinard, G.R., Li, R. 2011. Molecular analysis of complete genomic sequences of four isolates of Gooseberry vein banding associated virus. *Virus Genes*. 43:130-137.
- Xu, D., Liu, H., Li, F., Li, R. 2011. Complete genome sequence of Celery mosaic virus and its relationship to other members of the genus Potyvirus. *Archives of Virology*. 156:917-920.
- Liming, L., Li, R., Mock, R.G., Kinard, G.R. 2011. Development of a polyprobe to detect six viroids of pome and stone fruits. *Journal of Virological Methods*. 171:91-97.
- Cheong, E.J., Mock, R.G., Li, R. 2009. Optimizing culture medium for meristem tissue culture of several *Saccharum* species and commercial hybrids. *American Society of Sugar Cane Technologists*. 29:149-165.
- Li, R., Mock, R.G., Huang, Q., Abad, J., Hartung, J.S., Kinard, G.R. 2008. A Reliable and Inexpensive Method of Nucleic Acid Extraction for the PCR-Based Detection of Diverse Plant Pathogens. *Journal of Virological Methods*. 154:48-55.
- Li, R., Mock, R.G. 2008. Characterization of a flowering cherry strain of cherry necrotic rusty mottle virus. *Archives of Virology* 153(5):973-978.

1275-22000-245-00D

SYSTEMATIC BIOLOGY OF INVASIVE AND EMERGING PLANT PATHOGENIC FUNGI – Lisa Castlebury (P), Joanne Crouch, and Amy Rossman; Beltsville, Maryland.

- Schilder, M., Lizotte, E., Yun, H., Dixon, L., Castlebury, L.A. 2011. First report of Juneberry rust caused by *Gymnosporangium nelsonii* on Juneberry in Michigan. *Plant Disease*. 95(6):770.
- Yun, H., Rossman, A.Y. 2011. *Tubakia seoraksanensis* sp. nov., a new species from Korea. *Mycotaxon*. 115:369-373.
- Mejia, L., Rossman, A.Y., Castlebury, L.A., White, J. 2011. New species, phylogeny, host-associations, and geographic distribution of the genus *Cryptosporella* (Gnomoniaceae, Diaporthales). *Mycologia*. 103:379-399.
- Miller, J., Rossman, A.Y., Rosentreter, R., Ponzetti, J. 2011. Lichen ecology and diversity of a sagebrush steppe in Oregon: 1977 to the present. *North American Fungi*. 6(2):1-14.
- Ramirez-Mendoza, M.R., Rebollar-Alviter, A., Minnis, A.M., Dixon, L.J., Castlebury, L.A., Valdovinos-Ponce, G., Silva-Rojas, H.V. 2011. First report of leaf rust of blueberry caused by *Thekopsora minima* in Mexico. *Plant Disease*. 95:772.
- Chaverri, P., Salgado, C., Hirooka, Y., Rossman, A.Y., Samuels, G.J. 2011. Delimitation of *Neonectria* and *Cylindrocarpon* (Nectriaceae, Hypocreales, Ascomycota) and related genera with *Cylindrocarpon*-like anamorphs. *Studies in Mycology*. 68:57-78.
- Hirooka, Y., Rossman, A.Y., Chaverri, P. 2011. Morphological and phylogenetic analyses of the *Nectria cinnabarina* species complex. *Studies in Mycology*. 68:35-56.
- Minnis, A., Rossman, A.Y., Olsen, R.T. 2011. *Mycosphaerella nyssicola* revisited: characterization of a species distinct from *M. punctiformis*. *Mycotaxon*. 155:311-322.
- Mejia, L., Rossman, A.Y., Castlebury, L.A., White, J. 2011. A systematic account of the genus *Plagiostoma* (Gnomoniaceae, Diaporthales) based on morphology, host-associations, and a four gene phylogeny. *Studies in Mycology*. 68:211-235.
- Minnis, A., Rossman, A.Y., Farr, D., Olsen, R.T. 2010. *Sphaerographium nyssicola* Minnis, Rossman & D.F. Farr, sp. nov. *Persoonia: Molecular Phylogeny and Evolution of Fungi*. 25:122-123.
- Shetty, K., Minnis, A., Rossman, A.Y., Jayachandran, K. 2010. Brazilian peppertree seed-borne pathogen, *Neofusicoccum batangarum*, a potential biocontrol agent. *Biocontrol*. 56:91-97.
- Gregory, N., Bischoff, J., Dixon, L.J., Ciurlino, R. 2010. First report of the Telial stage of Japanese apple rust on *Juniperus chinensis* in North America and confirmation of the Aecial stage on *Malus domestica*. *Plant Disease*. 94:1169.
- Dervis, S., Dixon, L.J., Doganlar, M., Rossman, A.Y. 2010. Gall production on hawthorns caused by *Gymnosporangium* spp. in Hatay province, Turkey. *Phytoparasitica*. 38:391-400.
- Walker, D., Castlebury, L.A., Rossman, A.Y., Sogonov, M., White, J. 2010. Systematics of the genus *Gnomoniopsis* (Gnomoniaceae, Diaporthales) based on a three gene phylogeny, host associations, and morphology. *Mycologia*. 102:1479-1496.
- Yun, H., Minnis, A., Dixon, L.J., Castlebury, L.A. 2010. First report of *Uromyces acuminatus* on *Honckenya peploides*, the endangered seabeach sandwort. *Plant Disease*. 94:279.
- Dixon, L.J., Castlebury, L.A., Aime, M., Glynn, N.C., Comstock, J.C. 2010. Phylogenetic relationships of sugarcane fungi. *Mycological Progress*. 9(4):459-468.
- Lechat, C., Farr, D.F., Hirooka, Y., Minnis, D., Rossman, A.Y. 2010. A new species of *Hydropisphaera*, *H. bambusicola*, is the sexual state of *Gliomastix fusigera*. *Mycotaxon*. 111:102.
- Stuteville, D., Graves, W., Dixon, L.J., Castlebury, L.A., Minnis, A. 2010. *Uromyces ciceris-arietini*, the cause of chickpea rust: new hosts in the Trifolieae, Fabaceae. *Plant Disease*. 94(3):293-297.
- Minnis, D., Rossman, A.Y., Clement, D., Malinowski, M.K., Rane, K.K. 2010. First report of powdery mildew caused by *Podosphaera leucotricha* on Callery pear in North America. *Plant Disease*. 94:279.
- Bao, X., Carris, L.M., Huang, G., Luo, J., Liu, Y., Castlebury, L.A. 2010. *Tilletia puccinelliae*, a new species of reticulate-spored bunt fungus infecting *Puccinellia distans*. *Mycologia*. 102:613-623.

- Hirooka, Y., Kobayashi, T., Ono, T., Rossman, A.Y., Chaverri, P. 2010. *Verrucostoma*, a new genus in the Bionectriaceae from the Bonin Islands, Japan. *Mycologia*. 102(2):418-429.
- Rossman, A.Y., Farr, D.F., Schoch, C., Nishijima, K.A., Keith, L.M., Goenaga Portela, R.J. 2010. Phylogeny and redescription of *Dolabra nepheliae* on rambutan and litchi. *Mycoscience*. 51:300-309.
- Yun, H., Hong, S., Rossman, A.Y., Lee, S., Lee, K., Bae, K. 2009. The rust fungus *Gymnosporangium* in Korea including two new species, *G. monticola* and *G. unicornae*. *Mycologia*. 101(6):790-809.
- Schoch, C., Crous, P., Groenewald, J., Barres, B., Boehm, E., Degruyter, J., De Hoog, G., Dixon, L.J., Fournier, J., Grube, M., Gueidan, C., Harada, Y., Hatakeyama, Hirayama, K., Hosoya, T., Hyde, K., Jones, E., Kohlmeyer, J., Lucking, R., Lumbsch, H., Lutzoni, F., Marvanova, L., Mbatchou, J., Miller, A., Mugambi, G., Muggia, L., Nelson, M., Nelson, P., Owensby, C., Phongpaichit, S., Pointing, S., Pujade-Renaud, V., Raja, H., Rivas Plata, E., Robertse, B., Ruibal, C., Sakayaroj, J., Sano, T., Selbmann, L., Shearer, C., Shirouzu, T., Slippers, B., Suetrong, S., Tanaka, K., Volkmann-Kohlmeyer, B., Wood, A., Woudenberg, J., Yonezawa, H., Zhang, Y., Spatafora, J. 2009. A class-wide phylogenetic assessment of Dothideomycetes. *Studies in Mycology*. 64:1-15.
- Schoch, C., Blackwell, M., Bonito, G., Castlebury, L.A., Crous, P., Geiser, D., Lutzoni, F., O'Donnell, K., Rossman, A.Y., Spatafora, J. 2009. The Ascomycota tree of life: A phylum wide phylogeny clarifies the origin and evolution of fundamental reproductive and ecological traits. *Systematic Biology*. 58(2):224-239.
<http://dx.doi.org/10.1093/sysbio/syp020>.
- De Silva, H., Castlebury, L.A., Green, S., Stone, J.K. 2009. The phylogenetic relationship between *Anisogramma virgultorum* and *A. anomala* within the Diaporthales (Ascomycota). *Mycological Research*. 113:73-81.
- Sogonov, M.V., Castlebury, L.A., Rossman, A.Y., Mejia, L.C., White, J.F. 2008. Leaf-inhabiting Genera of the Gnomoniaceae, Diaporthales. *Studies in Mycology*. 62:1-79.
- Carris, L.M., Castlebury, L.A., Zale, J. 2008. First report of *Tilletia pulcherrima* on switchgrass (*Panicum virgatum* L.) in Texas. *Plant Disease*. 92:1707.
- Freshour, L., Agarwal, S., Sorochan, J., Zale, J., Ownley, B., Gwinn, K., Castlebury, L.A., Carris, L.M. 2008. First report of *Puccinia emaculata* on switchgrass (*Panicum virgatum* L.) in Tennessee. *Plant Disease*. 92:1710.
- Carris, L.M., Castlebury, L.A. 2008. The first report of the Rye Smut, *Tilletia secalis*, from North America. *North American Fungi*. 3(7):147-159.
- Rossman, A.Y., Farr, D.F., Akulov, A.Y. 2008. *Cosmospora stegonsporii* Rossman, Farr & Akulov, sp. nov. *Fungal Planet*. 23:1-2.
- Rossman, A.Y., Farr, D.F., Platas, G., Newcombe, G. 2008. *Hydropisphaera fungicola* Rossman, Farr & Newcombe, sp. nov. *Fungal Planet*. 24:1-2.
- Bobev, S.G., Castlebury, L.A., Rossman, A.Y. 2008. First report of *Colletotrichum dracaenophilum* on *Dracaena sanderiana* in Bulgaria. *Plant Disease*. 92:173.
- Vasilyeva, L.N., Rossman, A.Y., Farr, D.F. 2008. New species of the Diaporthales from eastern Asia and eastern North America. *Mycologia*. 99:916-923.
- Thomas, S.E., Crozier, J., Aime, M.C., Evans, H.C., Holmes, K.A. 2008. Molecular characterization of fungal endophytic morphospecies associated with the indigenous forest tree, *Theobroma gileri* in Ecuador. *Mycological Research*. 112:852-860.
- Comstock, J.C., Sood, S.G., Glynn, N.C., Shine, Jr., J.M., Mckemy, J.M., Castlebury, L.A. 2008. First report of *Puccinia kuehnii*, causal agent of orange rust of sugarcane, in the United States and Western Hemisphere. *Plant Disease*. 92:175.
- Rossman, A.Y., Goenaga, R.J., Keith, L.M. 2007. First report of *Dolabra nepheliae* on rambutan and litchi in Hawaii and Puerto Rico. *Plant Disease*. 91:1685.
- Aime, M.C., Rossman, A.Y. 2007. First report of the rust *Phragmidium violaceum* on Pennsylvania blackberry in California. *Plant Disease*. 91:1517.
- Cline, E., Rossman, A.Y. 2007. *Septoria malagutii* sp. nov., cause of annular leaf spot of potato. *Mycotaxon*. 98:125-135.

1275-22000-246-00D

GENOME-BASED STRATEGIES FOR DETECTION AND IDENTIFICATION OF PLANT PATHOGENIC PHYTOPLASMAS AND SPIROPLASMAS – Robert Davis (P), Ing Ming Lee, and Yan Zhao; Beltsville, Maryland.

- Wei, W., Cai, H., Jiang, Y., Lee, I., Davis, R.E., Ding, Y., Yuan, E., Chen, H., Zhao, Y. 2011. A new phytoplasma associated with little leaf disease in azalea: multilocus sequence characterization reveals a distinct lineage within the aster yellows phytoplasma group. *Annals of Applied Biology*. 158:318-330.
- Lee, I., Bottner-Parker, K.D., Zhao, Y., Villalobos, W., Loreira, L. 2011. Candidatus phytoplasma costaricanum: a new phytoplasma associated with a newly emerging disease in soybean in Costa Rica. *International Journal of Systematic and Evolutionary Microbiology*. 60:2887-2897.
- Jomantiene, R., Zhao, Y., Lee, I., Davis, R.E. 2011. Phytoplasma infecting cherry and lilac represent two distinct lineages having close evolutionary affinities with clover phyllody phytoplasma. *European Journal of Plant Pathology*. 130:97-107.
- Jomantiene, R., Davis, R.E., Lee, I., Zhao, Y., Bottner-Parker, K.D., Valiunas, D., Petkauskaitė, R. 2010. Onion is a host for two phytoplasma lineages, subgroups 16SrI-A and 16SrI-L, in Lithuania: a HinfI site revealed a SNP marking divergent branches of evolution. *Journal of Plant Pathology*. 92:461-470.
- Davis, R.E., Dally, E.L., Zhao, Y., Lee, I., Jomantiene, R., Detweiler, A.J., Putnam, M.L. 2010. First report of a new subgroup 16SrIX-E, 'Candidatus Phytoplasma phoenicium'-related, phytoplasma associated with juniper witches' broom disease in Oregon. *Plant Pathology*. 20:35.
- Lee, I., Bottner-Parker, K.D., Zhao, Y., Davis, R.E., Harrison, N. 2010. Phylogenetic analysis and delineation of phytoplasmas based on the secY gene. *International Journal of Systematic and Evolutionary Microbiology*. 60:2887-2897.
- Secor, G.A., Rivera, V.V., Abad, J.A., Lee, I., Clover, G.R., Liefting, L.W., Li, X., De Boer, S.H. 2009. Association of Candidatus Liberibacter solanacearum" with zebra chip disease of potato established by graft and psyllid transmission, electron microscopy and PCR. *Plant Disease*. 93:574-583."
- Zhao, Y., Sun, Q., Wei, W., Davis, R.E., Wu, W., Liu, Q. 2009. 'Candidatus Phytoplasma tamaricis', a novel taxon discovered in witches'-broom diseased salt cedar (*Tamarix chinensis* Lour.). *International Journal of Systematic and Evolutionary Microbiology*. 59:2496-2504.
- Zhao, Y., Wei, W., Lee, I., Shao, J.Y., Suo, X., Davis, R.E. 2009. Construction of an interactive online phytoplasma classification tool, iPhyClassifier, and its application in analysis of the peach X-disease phytoplasma group (16SrIII). *International Journal of Systematic and Evolutionary Microbiology*. 59(10):2582-2593.
- Valiunas, D., Jomantiene, R., Ivanauskas, A., Abraitis, R., Staniene, G., Zhao, Y., Davis, R.E. 2009. First Report of a New Phytoplasma Subgroup, 16SrIII-S, Associated with Decline Disease Affecting Sweet and Sour Cherry Trees. *Plant Disease*. 93:550.
- Lee, I., Bottner, K.D., Sun, M. 2009. An emerging potato purple top disease caused by a new 16SrIII group phytoplasma in Montana. *Plant Disease*. 93:574-583.
- Li, W.N., Abad, J.A., French-Monar, R.D., Rascoe, J., Wen, A., Gudmestad, G., Secor, G.A., Lee, I., Levy, L. 2009. Multiplex real-time PCR for detection, identification and quantification of Candidatus Liberibacter solanacearum in potato plants with zebra chip. *Phytopathology*. 78:59-65.
- Villalobos, W., Moreira, L., Rivera, C., Lee, I. 2009. First report of new phytoplasma diseases associated with soybean, sweet pepper, and passion fruit in Costa Rica. *Plant Disease*. 93:201.
- Quaglino, F., Zhao, Y., Bianco, P.A., Wei, W., Casati, P., Durante, G., Davis, R.E. 2009. New 16Sr subgroups and distinct SNP lineages among grapevine Bois noir phytoplasma populations. *Annals of Applied Biology*. 154:279-289.
- Sun, Q., Sun, H., Zhao, Y., Hammond, R., Davis, R.E. 2008. Stable expression of a bacterial GUS gene in vegetatively propagated transgenic pear lines. *Plant Physiology Communications*. 44:465-468.

- Sun, Q., Sun, H., Zhao, Y., Hammond, R., Davis, R.E. 2008. Transgene expression in pear (*Pyrus communis* L.) driven by a phloem-specific promoter. *Acta Horticulturae Sinica*. 35:487-492.
- Wei, W., Davis, R.E., Jomantiene, R., Zhao, Y. 2008. Ancient, recurrent phage attacks and recombination events shaped dynamic sequence-variable mosaic structures at the root of phytoplasma genome evolution. *Proceedings of the National Academy of Sciences*. 105:11827-11832.
- Wei, W., Lee, I., Davis, R.E., Suo, X., Zhao, Y. 2008. Automated RFLP pattern comparison and similarity coefficient calculation for rapid delineation of new and distinct phytoplasma 16S rDNA subgroup lineages. *International Journal of Systematic and Evolutionary Microbiology*. 58:2368-2377.
- Cai, H., Wei, W., Davis, R.E., Chen, H., Zhao, Y. 2008. Genetic diversity among phytoplasmas infecting *Opuntia*: virtual RFLP analysis identifies new subgroups in the peanut witches'-broom phytoplasma group. *International Journal of Systematic and Evolutionary Microbiology*. 58:1448-1457.
- Valiunas, D., Samutiene, M., Navalinskiene, M., Davis, R.E. 2008. Identification of viral and phytoplasmal agents responsible for diseases affecting plants of *Gaillardia* Foug. in Lithuania. *Agronomy Journal*. 6:109-111.
- Wei, W., Hua, J., Yang, Y., Youfu, W., Davis, R.E., Zhao, Y. 2007. Molecular identification of a new phytoplasma strain associated with the first observation of jujube witches'-broom disease in northeastern China. *Plant Disease*. 91:1364.

1275-22000-247-00D

CONTROL OF PLANT-PARASITIC NEMATODES BY INTERFERENCE WITH INTERNAL TARGETS – Edward Masler (P) and David Chitwood; Beltsville, Maryland.

- Gibson, T., Farrugia, D., Barrett, J., Chitwood, D.J., Rowe, J., Subbotin, S.A., Dowton, M. 2011. The mitochondrial genome of the soybean cyst nematode, *Heterodera glycines*. *Genome*. 54(7):565-574.
- Riepsamen, A.H., Gibson, T., Rowe, J., Chitwood, D.J., Subbotin, S.A., Dowton, M. 2011. Poly(T) variation in heteroderid nematode mitochondrial genomes is predominantly an artifact of amplification. *Journal of Molecular Evolution*. 72(2):182-192.
- Cheong, M.C., Na, K., Kim, H., Chitwood, D.J., Paik, Y.K. 2011. A potential biochemical mechanism underlying the influence of sterol deprivation stress on *Caenorhabditis elegans* longevity. *Journal of Biological Chemistry*. 286(9):7248-7256.
- Masler, E.P., Zasada, I.A., Sardanelli, S., Rogers, S.T., Halbrendt, J.M. 2010. Effects of benzyl isothiocyanate on the reproduction of *Meloidogyne incognita* on *Glycine max* and *Capsicum annum*. *Nematology*. 12(5):693-699.
- Masler, E.P. 2010. In vitro comparison of protease activities in preparations from free-living (*Panagrellus redivivus*) and plant-parasitic (*Meloidogyne incognita*) nematodes using FMRFa and FMRFa-like peptides as substrates. *Journal of Helminthology*. 84(4):425-433.
- Joo, H.J., Wim, Y.H., Jeong, P.Y., Jin, Y.X., Lee, J.E., Kim, H., Jeong, S.K., Chitwood, D.J., Paik, Y.K. 2009. *Caenorhabditis elegans* utilizes dauer pheromone biosynthesis to dispose of toxic peroxisomal fatty acids for cellular homeostasis. *Biochemical Journal*. 422(1):61-71.
- Masler, E.P. 2008. Digestion of invertebrate neuropeptides by preparations from the free-living nematode *Panagrellus redivivus*. *Journal of Helminthology*. 82:279-285.
- Masler, E.P. 2008. Responses of *Heterodera glycines* and *Meloidogyne incognita* to exogenously applied biogenic amines. *Nematology*. 10:911-917.
- Lee, J.H., Choi, S.H., Kwon, O.S., Shin, T.J., Lee, J.H., Lee, B.H., Yoon, I.S., Pyo, M.K., Rhim, H., Lim, Y.H., Shim, Y.H., Ahn, J.Y., Kim, H.C., Chitwood, D.J., Lee, S.M., Nah, S.Y. 2007. Effects of ginsenosides, the active ingredients of *Panax ginseng*, on development, growth, and life span of *Caenorhabditis elegans*. *Biological and Pharmaceutical Bulletin*. 30(11):2126-2134.

1275-22000-248-00D

PHYSIOLOGICAL AND MOLECULAR BASES FOR PLANT-PATHOGEN SIGNALING – Con Baker (P), Robert Owens, and Rosemarie Hammond; Beltsville, Maryland.

- Verhoeven, J.J., Roenhorst, J.W., Owens, R.A. 2011. Mexican papita viroid and tomato planta macho viroid belong to a single species in the genus Pospiviroid. Archives of Virology. Available: <http://dx.doi.org/10.1007/s00705-011-0975-2>.
- Baker, C.J., Owens, R.A., Whitaker, B.D., Mock, N.M., Deahl, K.L., Roberts, D.P., Orlandi, E., Averyanov, A.A. 2011. Detection of bacterial aggregation in cell suspensions treated with pathogenic bacteria. *Physiological and Molecular Plant Pathology*. 75:170-175.
- Kim, E., Xiao, Y., Baker, C.J., Owens, R.A., Bentley, W.E., Payne, G.F. 2011. Fabricated catecholic films are capable of redox-cycling and H₂O₂-generation in the absence of enzymes. *Biomacromolecules*. 12:880-888.
- Wang, I., Shibuya, M., Taneda, A., Tasuku, K., Senda, M., Owens, R.A., Sano, T. 2011. Accumulation of Potato spindle tuber viroid-specific small RNAs is accompanied by specific changes in tomato gene expression. *Virology*. 413-72-83.
- Zakharenkova, T.S., Averyanov, A.A., Pasechnik, T.D., Lapikova, V.P., Baker, C.J. 2010. Release of elicitors from rice blast spores under the action of reactive oxygen species. *Russian Journal of Plant Physiology*. 57:615-619.
- Baker, C.J., Owens, R.A., Whitaker, B.D., Mock, N.M., Deahl, K.L., Roberts, D.P., Averyanov, A.A. 2010. Effect of viroid infection on the dynamics of phenolic metabolites in the apoplast of tomato. *Physiological and Molecular Plant Pathology*. 74:214-220.
- Baker, C.J., Romanova, T.S., Aver'Yanov, A.A., Pasechnik, T.D., Lapikova, V.P. 2009. Rice resistance to blast caused by leaf surface moistening prior to inoculation. *Russian Journal of Plant Physiology*. 56:(3):389-393.
- Baker, C.J., Whitaker, B.D., Mock, N.M., Rice, C., Roberts, D.P., Deahl, K.L., Ueng, P.P., Aver'Yanov, A.A. 2009. Differential induction of redox sensitive extracellular phenolic amides in potato. *Physiological and Molecular Plant Pathology*. 73:109-115.
- Owens, R.A., Girsova, N.V., Kromina, K.A., Lee, I., Mozhaeva, K.A., Kastalyeva, T.B. 2009. Russian isolates of Potato spindle tuber viroid exhibit low population diversity. *Plant Disease*. 93:752-759.
- Averyanov, A.A., Pasechnik, T.D., Lapikova, V.P., Gaivoronskaya, L.M., Kuznetsov, V.V., Baker, C.J. 2007. Possible Contribution of Blast Spores to the Oxidative Burst in the Infection Droplet on Rice Leaf. *Acta Phytopathologica and Entomologica Hungarica*. 42(2):305-319.
- Owens, R.A. 2007. Potato spindle tuber viroid: the simplicity paradox resolved?. *Molecular Plant Pathology*. 8:549-560.

1275-22000-249-00D

MOLECULAR AND MORPHOLOGICAL SYSTEMATICS AND IDENTIFICATION OF IMPORTANT PLANT PARASITIC NEMATODES – Lynn Carta (P) and Zafar Handoo; Beltsville, Maryland.

- Ibrahim I.K.A., Mokbel A.A., Handoo, Z.A. 2010. Current status of phytoparasitic nematodes and their host plants in Egypt. *Nematropica*. 40(2):239-262.
- Hafez, S., Sundararaj, A.P., Handoo, Z.A., Siddiqi, M.R. 2010. Occurrence and distribution of nematodes in Idaho crops. *International Journal of Nematology*. 20(1):91-98.
- Bernard, E.C., Handoo, Z.A., Powers, T.O., Donald, P.A., Heinz, R.D., 2010. *Vittatidera zeaphila* (Nematoda: Heteroderidae), a new genus and species of cyst nematode parasitic on corn (*Zea mays*). *Journal of Nematology*. 42:139-150.
- Carta, L.K., Bauchan, G.R., Hsu, C., Yuceer, C.Y. 2010. Description, Low Temperature SEM, and culture of *Parasitorhabditis frontalis* n. sp. (Nematoda: Rhabditida) from *Dendroctonus frontalis* Zimmermann (Coleoptera: Scolytidae). *Journal of Nematology*. 42(1):46-54.
- Handoo, Z.A., Skantar, A.M., Mulrooney, R. 2010. First report of the sting nematode *Belonolaimus longicaudatus* on soybean in Delaware. *Plant Disease*. 94(1):133.

- Handoo, Z.A., Iqbal E.Y., Kazi, N., Shahina, F. 2010. Two new species of Paurodontella Husain and Khan, 1968 (Nematoda: Sphaerulariidae) associated with wheat and a diagnostic compendium to the genus. *Nematology*. 12(2):181-192.
- Carta, L.K., Handoo, Z.A., Lebedeva, N.I., Raina, A.K., Zhuginisov, T.I., Khamraev, A.S. 2010. *Pelodera termitis* sp. n. and two other rhabditid nematode species associated with the Turkestan termite *Anacanthotermes turkestanicus* from Uzbekistan. *International Journal of Nematology*. 20:(2)125-134.
- Van Den Berg, E., Subbotin, S.A., Handoo, Z.A., Tiedt, L.R. 2009. *Hirschmanniella kwazuna* sp. n. from South Africa with notes on a new record of *H. spinicaudata*, Schuurmans Stekhoven, 1944, Luc & Goodey, 1964 (Nematoda: Pratylenchidae) and on the molecular phylogeny of *Hirschmanniella* Luc & Goodey, 1964. *Nematology*. 11(4):523-540.
- Troccoli, A., De Luca, F., Handoo, Z.A., Di Vito, M. 2008. Morphological and molecular characterization of *Pratylenchus lentis* n. sp. (Nematoda: Pratylenchidae) from Sicily. *Journal of Nematology*. 40:190-196.
- Smiley, R.W., Yan, G.P., Handoo, Z.A. 2008. First record of the cyst nematode *Heterodera filipjevi* on wheat in Oregon. *Plant Disease*. 92(7):1136.
- Walters, S.A., Bond, J., Russell, J., Taylor, B., Handoo, Z.A. 2008. Incidence and influence of plant-parasitic nematodes in southern Illinois peach orchards. *Nematropica*. 38(1):63-74.
- Karanastasi, E., Handoo, Z.A., Tzotzakakis, E. 2008. First record of *Mesocriconema xenoplax* (Nematoda: Criconematidae) in Greece and first record of *Viburnum* sp. as a possible host for this ring nematode. *Helminthologia*. 45:103-105.
- Ramzan, M., Handoo, Z.A., Fayyaz, S. 2008. Description of *Tylenchorhynchus qasimii* sp. n with a new report of *T. kegasawai* Minagawa, 1995 from Pakistan. *Journal of Nematology*. 40(1):20-25.
- Ibrahim, I.K., Handoo, Z.A. 2007. A survey of cyst nematodes (*Heterodera* spp.) in Northern Egypt. *Pakistan Journal of Nematology*. 25:335-337.

1275-22000-250-00D

NOVEL AGENTS AND STRATEGIES FOR MANAGEMENT OF PLANT-PARASITIC NEMATODES – Susan Meyer (P) and David Chitwood; Beltsville, Maryland.

- Stocking, L.A., Weil, R., Zasada, I.A., Momen, B., Sardanelli, S. 2010. Brassicaceous and rye cover crops altered free-living soil nematode community composition. *Applied Soil Ecology*. 45:1-12.
- Meyer, S.L.F., Halbrecht, J.M., Carta, L.K., Skantar, A.M., Liu, T., Abdelnabby, H.M., Vinyard, B.T. 2009. Toxicity of 2,4-diacetylphloroglucinol (DAPG) to Plant-parasitic and bacterial-feeding nematodes. *Journal of Nematology*. 41(4):274-280.
- Meyer, S.L., Rice, C., Zasada, I.A. 2009. DIBOA: Fate in Soil and Effects on Root-knot Nematode Egg Numbers. *Soil Biology and Biochemistry*. 41:1555-1560.
- Zasada, I.A. 2008. Processed Biosolids: Unwanted Wastes or Products for Soybean Cyst Nematode Control. *Journal of Nematology*. 4th National Soybean Cyst Nematode Conference Proceedings. p. 7-10.
- Zasada, I.A., Tenuta, M. 2008. Alteration of the soil environment to maximize *Meloidogyne incognita* suppression by an alkaline-stabilized biosolid amendment. *Applied Soil Ecology*. 40:309-317.
- Meyer, S.L.F., Lakshman, D.K., Zasada, I.A., Vinyard, B.T., Chitwood, D.J. 2008. Phytotoxicity of clove oil to vegetable crop seedlings and nematotoxicity to Root-knot Nematodes. *HortTechnology*. 18:631-638.
- Khan, A., Sayed, M., Shaikat, S., Handoo, Z.A. 2008. Efficacy of four plant extracts on nematodes associated with papaya in Sindh, Pakistan. *Nematologia Mediterranea*. 36:93-98.

1275-22000-251-00D

EXOTIC PATHOGENS OF CITRUS – John Hartung (P); Beltsville, Maryland

- Avijit, R., Ananthakrishnan, G., Hartung, J.S., Brlansky, R.H. 2010. Development and application of a hexaplex reverse transcription polymerase chain reaction for screening global Citrus tristeza virus isolates. *Phytopathology*. 100:1077-1088.
- Roy, A., Ananthakrishnan, G., Hartung, J.S., Brlansky, R.H. 2010. Development and application of a hexaplex reverse transcription polymerase chain reaction for screening global citrus tristeza virus isolates. *Phytopathology*. 100(10):1077-1088.
- Hartung, J.S., Paul, C., Achor, D., Brlansky, R. 2010. Colonization of dodder, *Cuscuta indecorans*, by *Ca. Liberibacter asiaticus* and *Ca. Liberibacter americanus*. *Phytopathology*. 100(8):756-762.
- Hartung, J.S., Halbert, S., Pelz-Stelinski, K., Brlansky, R.H., Chen, C., Gmitter, F. 2010. Lack of Evidence of Transmission of 'Candidatus' *Liberibacter Asiaticus* Through Citrus Seed Taken From Affected Fruit. *Plant Disease*. 94(10):1200-1205.
- Nunney, L., Yuan, X., Bromley, R., Hartung, J.S., Montero-Astua, M., Moreira, L., Ortiz, B. 2010. Population genomic analysis of a bacterial plant pathogen: Novel insight into the origin of Pierce's disease of grapevine in the U.S. *PLoS One* 5(11):e15488.
- Li, W.N., Levy, L., Hartung, J.S. 2009. Quantitative Distribution of *Candidatus Liberibacter asiaticus* in Citrus Plants and Fruits Infected by Citrus Huanglongbing. *Phytopathology*. 99:139-144.
- Li, W., Li, D., Tweig, E., Hartung, J.S., Levy, L. 2008. Optimized Quantification of Unculturable *Candidatus Liberibacter* Species Causing Citrus Huanglongbing in Host Plants by Real-Time PCR. *Plant Disease*. 92(6):854-861.
- Montero-Astua, M., Saborio-R, G., Chacon-Diaz, C., Villalobos, W., Moreira, L., Rivera, C., Hartung, J.S. 2008. First report of *Xylella fastidiosa* in Avocado. *Plant Disease*. 92(1):175.
- Machida, S., Yamahata, N., Watanuki, H., Owens, R.A., Sano, T. 2007. Successive accumulation of two size classes of viroid-specific small RNA in potato spindle tuber viroid-infected tomato plants. *Journal of General Virology*. 88:3452-3457.

1275-22000-252-00D

APPLICATION OF PLANT-VIRAL BASED VECTORS TO THE DEVELOPMENT OF NOVEL DISEASE CONTROL STRATEGIES – Rosemarie Hammond (P) and Robert Owens; Beltsville, Maryland.

- Shabala, S.N., Baekgaard, L., Shabala, L., Fuglsang, A.T., Cuin, T.A., Nemchinov, L.G., Palmgren, M.G. 2011. Endomembrane Ca²⁺-ATPases play significant role in virus-induced adaptation to oxidative stress. *Plant Signaling and Behavior*. 6(7):1053-1056.
- Solozano-Morales, A., Barboza, N., Hernandez, E., Mora-Umana, F., Ramirez, P., Hammond, R. 2011. Newly discovered natural hosts of tomato chlorosis virus in Costa Rica. *Plant Disease*. 95:497.
- Shabala, S., Baekgaard, L., Shabala, L., Fuglsang, A.T., Cuin, T.A., Palmgren, M.G., Nemchinov, L.G. 2011. Multiple transport systems mediate virus-induced acquired resistance to oxidative stress. *Plant Cell and Environment*. 34(3):406-411.
- Kovalskaya, N., Zhao, Y., Hammond, R. 2011. Antibacterial and antifungal activity of a snakindefensin hybrid protein expressed in tobacco and potato plants. *The Open Plant Science Journal*. 5:29-42.
- Crosslin, J., Hamm, P.B., Kirk, W.W., Hammond, R. 2010. Complete genomic sequence of a tobacco rattle virus isolate from Michigan-grown potatoes. *Archives of Virology*. 155:621-625.
- Shabala, S.N., Nemchinov, L.G. 2010. Microelectrode non-invasive potassium flux measurements as a potential tool for early recognition of plant virus-host compatibility. *Planta*. 232(4):807-815.

- Salyaev, R.K., Rekoslavskaya, N.I., Stolbikov, A.S., Hammond, R., Shchelkunov, S.N. 2009. Retention of the ability to synthesize HIV-1 and HBV antigens in generations of tomato plants transgenic for the TBI-HBS gene. *Doklady Biochemistry and Biophysics*. 425:120-123.
- Castro, R.M., Hernandez, E., Mora, F., Ramirez, P., Hammond, R. 2009. First Report of Tomato Chlorosis Virus in Tomato in Costa Rica. *Plant Disease*. 93:970.
- Boutaneav, A.M., Postnikova, O.A., Nemchinov, L.G. 2009. Mapping of Heterologous Expressed Sequence Tags as an Alternative to Microarrays for Study of Defense Responses in Plants. *Biomed Central (BMC) Genomics*. 10:273.
- Hammond, R., Hammond, J. 2009. Maize rayado fino virus capsid proteins assemble into virus-like particles in *Escherichia coli*. *Virus Research*. 147:208-215.
- Abraitene, A., Zhao, Y., Hammond, R. 2008. Nuclear targeting by fragmentation of the Potato spindle tuber viroid genome. *Biochemical and Biophysical Research Communications*. 368:470-475.

1275-22000-269-00D

SYSTEMATICS OF MICROFUNGI USED IN BIOLOGICAL CONTROL OF PLANT DISEASES AND INSECT PESTS – Gary Samuels (P) and Stephen Rehner; Beltsville, Maryland.

- Minnis, A., Kennedy, A., Grenier, D., Rehner, S.A., Bischoff, J. 2011. *Asperisporium* and *Pantospora* (Mycosphaerellaceae): epitypifications and phylogenetic placement. *Persoonia: Molecular Phylogeny and Evolution of Fungi*. 27:1-8.
- Popiel, D., Blaszczyk, L., Koczyk, G., Chelkowski, J., Samuels, G.J. 2011. Species diversity of *Trichoderma* in Poland. *Journal of Applied Genetics*. 52:233-243.
- Minnis, A., Rehner, S.A., Humber, R.A. 2011. Proposal to conserve the name *Botrytis brongniartii* (*Beauveria brongniartii*) with a conserved type (Ascomycota). *Taxon*. 60:233.
- Samuels, G.J., Ismaiel, A.A. 2011. *Hypocrea peltata*: a mycological Dr Jekyll and Mr Hyde? *Mycologia*. 103:616-630.
- Chaverri, P., Gazis, R., Samuels, G.J. 2011. *Trichoderma amazonicum*, a new endophytic species on *Hevea brasiliensis* and *H. guianensis* from the Amazon basin. *Mycologia*. 103(1):139-151.
- Samuels, G.J., Ismaiel, A.A., Bon, M., De Respinis, S., Petrini, O. 2010. *Trichoderma asperellum* reconsidered: two cryptic species. *Mycologia*. 102(4):944-966.
- Rojas, E., Rehner, S.A., Samuels, G.J., Van Bael, S., Herre, E., Cannon, P., Chen, R., Pang, J., Wang, R., Zhang, Y., Sha, T. 2010. *Colletotrichum gloeosporioides* s.l. associated with *Theobroma cacao* and other plants in Panama: multilocus phylogenies distinguish host-associated pathogens from asymptomatic endophytes. *Mycologia*. 102(6):1318-1338.
- De Respinis, S., Vogel, G., Benagli, C., Tonolla, M., Petrini, O., Samuels, G.J. 2010. MALDI-TOF MS of *Trichoderma*: A model system for the identification of microfungi. *Mycological Progress*. 9(1):79-100.
- Huhndorf, S., Miller, A., Greif, M., Samuels, G.J. 2009. *Amplistroma* gen. nov. and its relation to *Wallrothiella*, two genera with globose ascospores and acrodontium-like anamorphs. *Mycologia*. 101(6):751-934.
- Minnis, A.M., Samuels, G.J., Chaverri, P. 2009. Three nomenclatural corrections for species of *Hypocrea/Trichoderma*. *Mycotaxon*. 109:245-246.
- Yun, H., Rossman, A.Y., Byrne, J. 2009. First report of *Gymnosporangium sabiniae*, European pear rust, on Bradford pear in Michigan. *Plant Disease*. 93(8):841.

1275-42430-010-00D

IMPROVED KNOWLEDGE OF VIRULENCE FACTORS TO DEVELOP POSTHARVEST DECAY CONTROL STRATEGIES – Wayne Jurick (P) and Robert Shaftner; Beltsville, Maryland.

- Jurick II, W.M., Janisiewicz, W.J., Saftner, R.A., Vico, I., Gaskins, V.L., Park, E., Forsline, P.L., Fazio, G., Conway, W.S. 2011. Identification of wild apple germplasm (*Malus* spp.) with

- resistance to the postharvest decay pathogens *Penicillium expansum* and *Colletotrichum acutatum*. *Plant Breeding*. 130:481-486.
- Vico, I., Jurick II, W.M., Camp, M.J., Janisiewicz, W.J., Conway, W.S. 2010. Temperature suppresses decay on apple fruit by affecting *Penicillium solitum* conidial germination, mycelial growth and polygalacturonase activity. *Plant Pathology Journal*. 9(3):144-148.
- Jurick II, W.M., Vico, I., Gaskins, V.L., Garrett, W.M., Whitaker, B.D., Janisiewicz, W.J., Conway, W.S. 2010. Purification and biochemical characterization of polygalacturonase produced by *Penicillium expansum* during postharvest decay of 'Anjou' pear. *Phytopathology*. 100(1):42-48.
- Jurick II, W.M., Vico, I., Mcevoy, J.L., Whitaker, B.D., Janisiewicz, W.J., Conway, W.S. 2009. Isolation, purification, and characterization of a polygalacturonase produced in *Penicillium solitum*-decayed 'Golden Delicious' apple fruit. *Journal of Phytopathology*. 99:636-641.
- Trentham, R.W., Sams, C.E., Conway, W.S. 2008. Histological effects of calcium chloride in stored apples. *Journal of the American Society for Horticultural Science*. 133:487-491.
- Mcevoy, J.L., Luo, Y., Conway, W.S., Zhou, B., Feng, H. 2008. Potential of *E.coli* O157:H7 to grow on field-cored lettuce as impacted by postharvest storage time and temperature. *International Journal of Food Microbiology*. 128:506-509.

1907-21000-027-00D

PSEUDOMONAS SYRINGAE SYSTEMS BIOLOGY – Samuel Cartinhour (P), Melanie Filiatrault, Paul Stodghill, and Bryan Swingle; Ithaca, New York.

- Butcher, B.G., Bronstein, P., Myers, C., Stodghill, P., Bolton, J.J., Markel, E.J., Filiatrault, M.J., Swingle, B.M., Gaballa, A., Helmann, J.D., Schneider, D.J., Cartinhour, S.W. 2011. Characterization of the Fur regulon in *Pseudomonas syringae* pv. tomato DC3000. *Journal of Bacteriology*. 193(18):4598-4611. Available: <http://www.ncbi.nlm.nih.gov/pubmed/21784947>.
- Wu, S., Lu, D., Kabbage, M., Wei, H., Swingle, B.M., Dickman, M., He, P., Shan, L. 2011. Bacterial effector HopF2 interacts with AvrPto and suppresses Arabidopsis innate immunity at the plasma membrane. *Molecular Plant-Microbe Interactions*. 24(5):585-593.
- Swingle, B.M., Markel, E.J., Cartinhour, S.W. 2010. Oligonucleotide recombination: a hidden treasure. *Bioengineered Bugs*. 1(4):1-4.
- Moll, S., Schneider, D.J., Stodghill, P., Myers, C.R., Cartinhour, S.W., Filiatrault, M.J. 2010. Construction of an rsmX co-variance model and identification of five rsmX-like ncRNAs in *Pseudomonas syringae* pv. tomato DC3000. *RNA Biology*. 7(5):1-10.
- Sebahia, M., Bocsanczy, A.M., Biehl, B.S., Quail, M.A., Perna, N.T., Glasner, J.D., Declerck, G.A., Cartinhour, S.W., Schneider, D.J., Bentley, S.D., Parkhill, J., Beer, S.V. 2010. Complete genome sequence of the plant pathogen *Erwinia amylovora* strain ATCC 49946. *Journal of Bacteriology*. 192(7):2020-2021.
- Wei, Y., Flores-Mireles, A.L., Costa, E.D., Ryan, G.T., Schneider, D.J., Winans, S.C. 2010. Saturation mutagenesis of a CepR binding site as a means to identify new quorum-regulated promoters in *Burkholderia cenocepacia*. *Molecular Microbiology*. 79(3):616-632.
- Swingle, B.M., Bao, Z., Markel, E.J., Chambers, A., Cartinhour, S.W. 2010. Recombineering using RecTE from *Pseudomonas syringae*. *Applied and Environmental Microbiology*. 76(15):4960-4968.
- Park, D., Mirabella, R., Bronstein, P., Preston, G.M., Lim, C., Collmer, A., Schuurink, R.C. 2010. Mutations in gamma-aminobutyric acid (GABA) transaminase genes in plants or *Pseudomonas syringae* reduce bacterial virulence. *Plant Journal*. 64(2):318-330.
- Swingle, B.M., Markel, E.J., Costantino, N., Bubunenko, M., Cartinhour, S.W., Court, D. 2010. Oligonucleotide recombination in gram negative bacteria. *Molecular Microbiology*. 75(1):138-148.
- Filiatrault, M.J., Stodghill, P., Bronstein, P., Moll, S., Lindeberg, M., Grills, G., Schweitzer, P., Wang, W., Schroth, G., Luo, S., Khrebtukova, I., Thannhauser, T.W., Yang, Y., Butcher, B.G., Cartinhour, S.W., Schneider, D.J. 2010. Transcriptome analysis of *Pseudomonas*

- syringae identifies new genes, ncRNAs, and antisense activity. *Journal of Bacteriology*. 192(9):2359-2372.
- Earle, K.A., Sahu, I., Mainali, L., Schneider, D.J. 2009. Magnetic resonance spectra and statistical geometry. *Applied Magnetic Resonance*. 37:865-880.
- Collmer, A., Schneider, D.J., Lindeberg, M. 2009. Lifestyles of the effector-rich: genome-enabled characterization of bacterial plant pathogens. *Plant Physiology*. 150:1623-1630.
- Oliver, H.F., Orsi, R.H., Ponnala, L., Keich, U., Wang, W., Sun, Q., Cartinhour, S.W., Filiatrault, M.J., Wiedmann, M., Boor, K.J. 2009. Deep RNA sequencing of *L. monocytogenes* reveals overlapping and extensive stationary phase and sigma B-dependent transcriptomes, including multiple highly transcribed noncoding RNAs. *Biomed Central (BMC) Genomics*. 10:641.
- Kim, B., Park, J., Park, T., Bronstein, P., Schneider, D.J., Cartinhour, S.W., Shuler, M.L. 2009. Iron concentration limits growth rate and the expression of virulence factors in hrp-inducing minimal medium with *Pseudomonas syringae*. *Applied and Environmental Microbiology*. 25(9):2720-2726.
- Kvitko, B.H., Velasquez, A.C., Wei, C., Russell, A.B., Martin, G.B., Schneider, D.J., Collmer, A. 2009. Deletions in the repertoire of *Pseudomonas syringae* pv. tomato DC3000 type III secretion effector genes reveal functional overlap among effectors. *PLoS Pathogens*. 5(4):1-16.
- Almeida, N.F., Yan, S., Lindeberg, M., Studholme, D., Schneider, D.J., Condon, B., Liu, H., Viana, C.J., Warren, A., Evans, C., Kemen, E., Maclean, D., Angot, A., Martin, G.B., Jones, J.D., Collmer, A., Setubal, J.C., Vinatzer, B.A. 2009. A draft genome sequence of *Pseudomonas syringae* pv. tomato strain T1 reveals a repertoire of type III related genes significantly divergent from that of *Pseudomonas syringae* pv. tomato strain DC3000. *Molecular Plant-Microbe Interactions*. 22(1):52-62.
- Bronstein, P., Filiatrault, M.J., Myers, C., Rutzke, M., Schneider, D.J., Cartinhour, S.W. 2008. Global transcriptional responses of *Pseudomonas syringae* DC3000 to changes in iron bioavailability in vitro. *BMC Microbiology*. 8:209.
- Felise, H.B., Nguyen, H.V., Pfuetzner, R.A., Barry, K.C., Jackson, S.R., Blanc, M.P., Kline, T., Bronstein, P., Miller, S.I. 2008. An Inhibitor of Gram-Negative Bacterial Virulence Protein Secretion. *Cell Host and Microbe*. 4(4):325-336.
- Swingle, B.M., Thete, D., Moll, M., Myers, C., Schneider, D.J., Cartinhour, S.W. 2008. Characterization of the PvdS-regulated promoter motif in *Pseudomonas syringae* pv. tomato DC3000 reveals regulon members and insights regarding PvdS function in other pseudomonads. *Molecular Microbiology*. 68(4):871-889.
- Munkvold, K.R., Martin, M.E., Bronstein, P., Collmer, A. 2008. A survey of the *Pseudomonas syringae* pv. tomato DC3000 type III secretion system effector repertoire reveals several effectors that are deleterious when expressed in *Saccharomyces cerevisiae*. *Molecular Plant-Microbe Interactions*. 21(4):490-502.

1907-22000-018-00D

MANAGEMENT OF NEMATODES AND VIRUS DISEASES AFFECTING POTATO AND GRAIN CROPS – Stewart Gray (P) and Xiaohong Wang; Ithaca, New York.

- Mello, A., Olarte, R.A., Gray, S.M., Perry, K.L. 2011. Transmission efficiency of Potato virus Y strains PVYO and PVYN-Wi by five aphid species. *Plant Disease*. Available: <http://apsjournals.apsnet.org/doi/pdf/10.1094/PDIS-11-10-0855>.
- Cavatorta, J., Perez, K., Gray, S.M., Vanek, J., Yeam, I., Jahn, M. 2011. Engineering virus resistance using a modified potato gene. *Plant Biotechnology Journal*. DOI: 10.1111/j.1467-7652.2011.00622.x.
- Guo, Y., Ni, J., Denver, R., Wang, X., Clark, S.E. 2011. Mechanisms of molecular mimicry of plant CLE peptide ligands by the parasitic nematode *Globodera rostochiensis*. *Plant Physiology*. DOI: 10.1104/PP.2011-180554.
- Lee, C., Chronis, D.N., Kenning, C., Peret, B., Hewezi, T., Davis, E.L., Baum, T.J., Hussey, R., Bennett, M., Mitchum, M.G. 2011. The novel cyst nematode effector protein 19C07

- interacts with the Arabidopsis auxin influx transporter LAX3 to control feeding site development. *Plant Physiology*. 155:866-880.
- Wang, J., Replogle, A., Hussey, R., Baum, T., Wang, X., Davis, E.L., Mitchum, M.G. 2011. Identification of potential host plant mimics of CLAVATA3/ESR (CLE)-like peptides from the plant-parasitic nematode *Heterodera schachtii*. *Molecular Plant Pathology*. 12:177-186.
- Cilia, M., Howe, K.J., Fish, T., Smith, D., Mahoney, J., Tamborindeguy, C., Burd, J.D., Thannhauser, T.W., Gray, S.M. 2011. Biomarker discovery from the top down: digital protein biomarkers for virus transmission by insects discovered by coupling genetics and 2-D DIGE. *Proteomics*. 11:2440-2458.
- Cilia, M., Tamborindeguy, C., Fish, T., Howe, K.J., Thannhauser, T.W., Gray, S.M. 2011. Genetics coupled to quantitative intact proteomics links heritable aphid and endosymbiont protein isoform expression to polerovirus transmission. *Journal of Virology*. 85(5):2148-66.
- Yu, H., Chronis, D.N., Lu, S., Wang, X. 2011. Chorismate mutase: an alternatively spliced parasitism gene and a diagnostic marker for three important Globodera nematode species. *European Journal of Plant Pathology*. 129:89-102.
- Replogle, A., Wang, J., Bleckmann, A., Hussey, R.S., Baum, T.J., Sawa, S., Davis, E.L., Wang, X., Simon, R., Mitchum, M.G. 2010. Nematode CLE signaling in Arabidopsis requires CLAVATA2 and CORYNE. *Plant Journal*. 65:430-440.
- Pokharel, R.R., Abawi, G.S., Duxbury, J.M., Smart, C.D., Wang, X., Brito, J.A. 2010. Variability and the recognition of two races in *Meloidogyne graminicola*. *Australasian Plant Pathology*. 39:326-333.
- Wang, J., Lee, C., Replogle, A., Joshi, S., Korin, D., Hussey, R., Baum, T., Davis, E., Wang, X., Mitchum, M.G. 2010. Dual roles for the variable domain in protein trafficking and host-specific recognition of *Heterodera glycines* CLE effector proteins. *New Phytologist*. 187:1003-1017.
- Gray, S.M., De Boer, S., Lorenzen, J., Karasev, A., Whitworth, J.L., Nolte, P., Singh, R., Boucher, A., Xu, H. 2010. Potato virus Y: an evolving concern for potato crops in the United States and Canada. *Plant Disease*. 94:1384-1397.
- Cilia, M., Thannhauser, T.W., Gray, S.M. 2010. Tangible benefits of the pea aphid genome sequencing in proteomics research: enhancements in protein identification, data incorporation, and evaluation criteria. *Journal of Insect Physiology*. Available Online: <http://www.ncbi.nlm.nih.gov/pubmed/21070785>.
- Benitez-Alfonso, Y., Cilia, M., San Roman, A., Thomas, C., Maule, A., Hearn, S., Jackson, D. 2009. Control of Arabidopsis meristem development by thioredoxin-dependent regulation of intercellular transport. *Proceedings of the National Academy of Sciences*. 106(9):3615-3620.
- Karasev, A.V., Nikolaeva, O.V., Hu, X., Sielaff, Z., Whitworth, J.L., Lorenzen, J., Gray, S.M. 2009. Serological properties of ordinary and necrotic isolates of potato virus Y: a case study of PVYN misidentification. *American Journal of Potato Research*. 87:1-9. Available: <http://www.springerlink.com/content/04u8141225868w72/>.
- Hu, X., Meacham, T., Ewing, L., Gray, S.M., Karasev, A.V. 2009. A novel recombinant strain of Potato virus Y allows identification of a new viral genetic determinant of vein necrosis in tobacco. *Virus Genes*. 143(1):68-76.
- Lu, S., Chen, S., Wang, J., Yu, H., Chronis, D., Mitchum, M.G., Wang, X. 2009. Structural and functional diversity of CLAVATA3/ESR (CLE)-like genes from the potato cyst nematode *Globodera rostochiensis*. *Molecular Plant-Microbe Interactions*. 22:1128-1142.
- Peter, K., Gildow, F., Palukaitis, P., Gray, S.M. 2009. The C-terminus of the Polerovirus P5 readthrough domain limits virus infection to the phloem. *Journal of Virology*. 83(11):5419-5429.
- Cilia, M., Fish, T., Yang, X., Mclaughlin, M., Thannhauser, T.W., Gray, S.M. 2009. A Comparison of Protein Extraction Methods Suitable for Gel-Based Proteomics Studies of Aphid Proteins. *Journal of Biomolecular Techniques*. 20(4):201-215.

- Tamborindéguy, C., Gray, S.M., Jander, G. 2008. Testing the physiological barriers to viral transmission in aphids using microinjection. *Journal of Visualized Experiments*. Available: <http://www.jove.com/details.php?id=700> DOI: 10.3791/700. *J Vis Exp*. 15.
- Patel, N., Hamamouch, N., Li, C., Hussey, R., Mitchum, M.G., Baum, T., Wang, X., Davis, E.L. 2008. Similarity and functional analyses of expressed parasitism genes in *Heterodera schachtii* and *Heterodera glycines*. *Journal of Nematology*. 40(4):299-310.
- Cavatorta, J., Savage, A., Yeam, I., Gray, S.M., Jahn, M. 2008. Positive Darwinian selection at single amino acid sites conferring plant virus resistance. *Journal of Molecular Evolution*. 67(5):551-559.
- Lu, S., Tian, D., Borchardt Wier, H., Wang, X. 2008. Alternative splicing: a novel mechanism of regulation identified in the chorismate mutase gene of the potato cyst nematode *Globodera rostochiensis*. *Molecular and Biochemical Parasitology*. 162:1-15.
- Yang, X., Thannhauser, T.W., Burrows, M.E., Cox Foster, D., Gildow, F., Gray, S.M. 2008. Coupling genetics and proteomics to identify aphid proteins associated with vector-specific transmission of Pterovirus (Luteoviridae). *Journal of Virology*. 82:291-299.
- Singh, R.P., Valkonen, J.T., Gray, S.M., Boonham, N., Jones, A.C., Kerlan, C., Schubert, J. 2008. The naming of Potato virus Y strains infecting potato. *Archives of Virology*. 153(1):1-13.
- Peter, K., Liang, D., Palukaitis, P., Gray, S.M. 2007. Small deletions in the potato leafroll virus readthrough protein affect particle morphology, aphid transmission, virus movement and accumulation. *Journal of General Virology*. 88:1821-1830.
- Ramsey, J., Wilson, A., De Vos, M., Sun, Q., Tamborindéguy, C., Winfield, A., Mallack, G., Smith, D., Fenton, B., Gray, S.M., Jander, G. 2007. Genomic resources for *Myzus persicae*: EST sequencing, SNP identification, and microarray design. *Biomed Central (BMC) Genomics*. 8:423.
- Sukno, S.A., Mccuiston, J., Wong, M., Wang, X., Thon, M.R., Hussey, R., Baum, T., Davis, E. 2007. Quantitative Detection of Double-Stranded RNA-Mediated Gene Silencing of Parasitism Genes in *Heterodera glycines*. *Journal of Nematology*. 39:145-152.

1920-22000-034-00D

IDENTIFICATION, CHARACTERIZATION, AND BIOLOGY OF FOREIGN AND EMERGING INSECT-TRANSMITTED PLANT PATHOGENS – William Schneider (P), Vernon Damsteegt, and Douglas Luster; Fort Detrick, Maryland.

- Brlansky, R.H., Avijit, R., Damsteegt, V.D. 2011. Stem pitting Citrus tristeza virus predominantly transmitted by the brown citrus aphid from mixed infections containing non-stem pitting and stem pitting isolates. *Plant Disease*. 95: 913-920.
- Damsteegt, V.D., Stone, A.L., Kuhlmann, M., Gildow, F.E., Domier, L.L., Sherman, D.J., Tian, B., Schneider, W.L. 2011. Acquisition and transmissibility of United States Soybean dwarf virus isolates by the soybean aphid *Aphis glycines*. *Plant Disease*. 95: 945-950.
- Schneider, W.L., Damsteegt, V.D., Gildow, F.E., Stone, A.L., Sherman, D.J., Levy, L.E., Mavrodieva, V., Richwine, N., Welliver, R., Luster, D.G. 2011. Molecular, ultrastructural and biological characterization of Pennsylvania isolates of plum pox potyvirus (PPV). *Phytopathology*. 94:528-533.
- Schneider, W.L., Damsteegt, V.D., Stone, A.L., Kuhlman, M., Bunyard, B., Sherman, D.J., Graves, M., Smythers, G., Smith, O., Hatziloukas, E. 2011. Molecular analysis of Soybean dwarf virus isolates in the eastern United States confirms the presence of both D and Y strains and provides evidence of mixed infections and recombination. *Virology*. 412: 46-54.
- Damsteegt, V.D., Postnikova, E.N., Stone, A.L., Kuhlmann, M., Wilson, C., Sechler, A.J., Schaad, N.W., Brlansky, R.H., Schneider, W.L. 2010. The relevance of *Murraya paniculata* and related species as potential hosts and inoculum reservoirs of *Candidatus Liberibacter asiaticus*, causal agent of Huanglongbing (HLB). *Plant Disease*. 94:528-533.

1920-22000-035-00D

IDENTIFICATION, CHARACTERIZATION, AND BIOLOGY OF EMERGING FOREIGN FUNGAL PLANT PATHOGENS – Reid Frederick (P), Douglas Luster, Morris Bonde, Gary Peterson, Kerry Pedley, and Paul Tooley; Fort Detrick, Maryland.

- Schneider, K.T., Van De Mortel, M., Bancroft, T.J., Nelson, R., Nettleton, D., Braun, E., Frederick, R.D., Baum, T.J., Graham, M.A., Whitham, S.A. 2011. Biphasic gene expression changes elicited by *Phakopsora pachyrhizi* in soybean correlates with fungal penetration and haustoria formation. *Plant Physiology*. DOI:10.1104/pp. 111.181149.
- Kendrick, M.D., Harris, D.K., Ha, B., Hyten, D.L., Cregan, P.B., Frederick, R.D., Boema, H.R., Pedley, K.F. 2011. Identification of a second Asian soybean rust resistance gene in Hyuuga soybean. *Phytopathology*. 101:535-543.
- Twizeyimana, M., Ojiambo, P.S., Haudenshield, J.S., Caetano-Anolles, G., Pedley, K.F., Bandyopadhyay, R., Hartman, G.L. 2011. Genetic diversity and structure of *Phakopsora pachyrhizi* infecting soybean in Nigeria. *Phytopathology*. 60:719-729.
- Edwards, H.H., Bonde, M.R. 2011. Penetration and establishment of *Phakopsora pachyrhizi* in soybean leaves as observed by transmission electron microscopy. *Phytopathology*. 101:894-900.
- Oh, C., Pedley, K.F., Martin, G.B. 2010. Tomato 14-3-3 protein 7 (TFT7) positively regulates immunity-associated programmed cell death by enhancing accumulation and signaling ability of MAPKKK α . *The Plant Cell*. 22(1):260-272.
- Stone, C.L., Posada-Buitrago, M.L., Boore, J.L., Frederick, R.D. 2010. Analysis of the complete mitochondrial genome sequences of the soybean rust pathogens *Phakopsora pachyrhizi* and *P. meibomia*. *Mycologia*. 102(4):887-987.
- Peterson, G.L., Berner, D.K. 2009. Effects of temperature and humidity on the survival of urediniospores of *Gladiolus* rust (*Uromyces transversalis*). *European Journal of Plant Pathology*. Published online (DOI:10.1007/s10658-009-9492-5).
- Peterson, G.L. 2009. Susceptibility of selected winter wheat cultivars from Europe and the United States to Karnal bunt. *European Journal of Plant Pathology*. DOI: 10.1007/s10658-009-9498-z.
- Chakraborty, N., Curley, J., Frederick, R.D., Hyten, D.L., Nelson, R.L., Hartman, G.L., Diers, B.W. 2009. Mapping and Confirmation of a New Allele at *Rpp1* from Soybean PI 504538A Conferring RB Lesion Type Resistance to Soybean Rust. *Crop Science*. 49:783-790.
- Pedley, K.F. 2009. PCR-based assays for the detection of *Puccinia horiana* on chrysanthemums. *Plant Disease*. 93:1252-1258.
- Baysal, F., Dorrance, A., Ivey, M.L., Luster, D.G., Frederick, R.D., Czarnecki, J., Boehm, M., Miller, S. 2009. An Immunofluorescence Assay to Detect Urediniospores of the Soybean Rust Pathogen, *Phakopsora pachyrhizi*. *Plant Disease*. 92:1387-1393.
- Bonde, M.R., Nester, S.E., Moore, W.F., Allen, Jr, T.W. 2009. Comparative susceptibility of kudzu accessions from Southeastern United States to infection by *Phakopsora pachyrhizi*. *Plant Disease*. 93(6):593-598.
- Peterson, G.L., Kosta, K.L., Glenn, D.L., Phillips, J.G. 2008. Utilization of soil solarization for eliminating viable *Tilletia indica* teliospores from Arizona wheat fields. *Plant Disease*. 92:1604-1610.
- Choi, J.J., Alkharouf, N.W., Schneider, K., Matthews, B.F., Frederick, R.D. 2008. Expression patterns in soybean resistant to *Phakopsora pachyrhizi* reveal the importance of peroxidases and lipoxygenases. *Functional and Integrative Genomics*. 8:341-359
- Allen, T.W., Workneh, F., Steddom, K.C., Peterson, G.L., Rush, C.M. 2008. The influence of tillage on dispersal of *Tilletia indica* teliospores from a concentrated point source. *Plant Disease*. 92:351-356.
- Anderson, S.J., Stone, C.L., Posada-Buitrago, M., Boore, J.L., Neelam, B.A., Stephens, R.M., Luster, D.G., Frederick, R.D., Pedley, K.F. 2008. Development of simple sequence repeat markers for the soybean rust fungus, *Phakopsora pachyrhizi*. *Molecular Ecology Resources*. 8:1310-1312.

- Ojiambo, P.S., Bandyopadhyay, R., Twizeyimana, M., Lema, A., Frederick, R.D., Pedley, K.F., Stone, C.L., Hartman, G.L. 2007. First Report of Rust Caused by *Phakopsora pachyrhizi* on soybean in Democratic Republic of Congo. *Plant Disease*. 91(9):1204.
- Bandyopadhyay, R., Ojiambo, P.S., Twizeyimana, M., Asafo-Adjei, B., Frederick, R.D., Pedley, K.F., Stone, C.L., Hartman, G.L. 2007. First Report of Soybean Rust Caused by *Phakopsora pachyrhizi* in Ghana. *Plant Disease*. 91(8):1057.

1920-22000-036-00D

BIOLOGY AND EPIDEMIOLOGY OF EMERGING PLANT PATHOGENIC OOMYCETES – Paul Tooley (P), Kerry Pedley, Timothy Widmer, Douglas Luster, Gary Peterson, and Nina Shishkoff; Fort Detrick, Maryland.

- Li, P., Feng, B., Wang, H., Tooley, P.W., Zhang, X. 2011. Isolation of nine *Phytophthora capsici* pectin methylesterase genes which are differentially expressed in various plant species. *Journal of Basic Microbiology*. 51:61-70.
- Widmer, T.L. 2011. Survival of *Phytophthora kernoviae* oospores, sporangia, and mycelium. *New Zealand Journal of Forestry Science*. 41S(2011) S15 to S23.
- Widmer, T.L. 2010. Whole plant inoculations of *Viburnum* species and cultivars testing for susceptibility to *Phytophthora ramorum*. *Journal of Environmental Horticulture*. 28:197-202.
- Tooley, P.W., Carras, M.M., Sechler, A.J., Rajasab, A.H. 2010. Real-time PCR detection of sorghum ergot pathogens *Claviceps africana*, *C. sorghi*, and *C. sorghicola*. *Journal of Phytopathology*. DOI: 10.1111/j.1439-0434.2010.01683.x.
- Widmer, T.L. 2010. *Phytophthora kernoviae* oospore maturity, germination, and infection. *Fungal Biology*. DOI:10.1016/j.funbio.2010.06.001. 114:661-668.
- Widmer, T.L. 2010. Differentiating *Phytophthora* spp. isolated from leaves and stems of rhododendron plants. *Plant Health Progress*. DOI: 10.1094/PHP-2010-0317-01-RS.
- Tooley, P.W., Browning, M.E. 2009. Susceptibility of some common Eastern forest understory plant species to *Phytophthora ramorum*. *Plant Disease*. 93:249-256.
- Tooley, P.W., Browning, M.E., Kyde, K.L., Berner, D.K. 2009. The effect of temperature and moisture period on infection of *Rhododendron Cunningham's White* by *Phytophthora ramorum*. *Phytopathology*. 99:1045-1052.
- Shishkoff, N. 2009. Propagule production by *Phytophthora ramorum* on infected leaves of lilac (*Syringa vulgaris*). *Plant Disease*. 93:475-480.
- Widmer, T.L. 2008. Comparing necrosis of *Rhododendron* leaf tissue inoculated with *Phytophthora ramorum* sporangia or zoospores. *Plant Disease*. 93:30-35.
- Riccioni, L., Inman, A., Magnus, H.A., Valvassori, M., Di Giambattista, G., Porta-Puglia, A., Hughes, K., Coates, M., Bowyer, R., Barnes, A., Sansford, C.E., Razzaghian, J., Prince, A., Peterson, G.L. 2008. Susceptibility of European bread and durum wheat cultivars to *Tilletia indica*. *Plant Pathology*. DOI 10.1111/j.1365-3059.2008.01830.X.
- Inman, A., Magnus, H.A., Riccioni, L., Hughes, K., Coates, M., Barnes, A., Barton, V., Sansford, C.E., Valvassori, M., Di Giambattista, G., Port-Puglia, A., Razzaghian, J., Peterson, G.L. 2008. Survival of *Tilletia indica* teliospores under European soil conditions. *Plant Pathology*. 57(2):290-300.
- Browning, M.E., Englander, L., Tooley, P.W., Berner, D.K. 2008. Survival of *Phytophthora ramorum* hyphae following exposure to temperature extremes and various humidities. *Mycologia*. 100:236-245.

1920-22000-037-00D

IDENTIFICATION, CHARACTERIZATION, AND DETECTION OF FOREIGN AND NEWLY EMERGING DOMESTIC BACTERIA – Norman Schaad (P); Fort Detrick, Maryland.

- Schaad, N.W., Schuenzel, E. 2010. Sensitive molecular diagnostic assays to mitigate the risks of asymptomatic bacterial diseases of plants. *Critical Reviews in Immunology*. 50(3):271-275.

- Feng, J., Li, J., Randhawa, P., Bonde, M.R., Schaad, N.W. 2009. Evaluation of several seed treatments for eradication of *Acidovorax avenae* subsp. *citrulli* from watermelon seed. *Canadian Journal of Plant Pathology*. 31:In Press.
- Zhao, T., Feng, J., Sechler, A.J., Randhawa, P., Schaad, N.W. 2009. An improved assay for detection of *Acidovorax avenae* subsp. *citrulli* in watermelon and melon seed. *Seed Science and Technology*. 37:337-347.
- Postnikova, E.N., Agarkova, I., Altundag, S., Eskandari, F., Sechler, A.J., Karahan, A., Vidaver, A.K., Schneider, W.L., Ozakman, M., Schaad, N.W. 2009. *Rathayibacter iranicus* isolated from asymptomatic wheat seeds in Turkey. *Plant Pathology*. 58:796.
- Sechler, A.J., Schuenzel, E., Cooke, P.H., Donnua, S., Thaveechai, N., Postnikova, E.N., Stone, A.L., Schneider, W.L., Damsteegt, V.D., Schaad, N.W. 2009. Cultivation of *Candidatus Liberibacter asiaticus* and *Ca. L. americanus* associated with Huanglongbing. *Phytopathology*. 99:480-486.
- Feng, J., Schuenzel, E., Li, J., Schaad, N.W. 2009. Multilocus sequence typing reveals two evolutionary lineages of the watermelon pathogen, *Acidovorax avenae* subsp. *citrulli*. *Phytopathology*. 99:913-920.
- Balestra, G.M., Sechler, A.J., Schuenzel, E., Schaad, N.W. 2008. First report of citrus canker caused by *Xanthomonas citri* in Somalia. *Plant Disease*. 92:981.

1931-22000-008-00D

BIOLOGICAL APPROACHES FOR MANAGING DISEASES OF TEMPERATE FRUIT CROPS – Michael Wisniewski (P) and Wojciech Janisiewicz; Kearneysville, West Virginia.

- Liu, J., Wisniewski, M.E., Droby, S., Vero, S., Tian, S., Hershkovitz, V. 2011. Glycine betaine improves oxidative stress tolerance and biocontrol efficacy of the antagonistic yeast *Cystofilobasidium infirmominiatum*. *International Journal of Food Microbiology*. 146:76-83.
- Janisiewicz, W.J., Pimenta, R.S., Jurick li, W.M. 2011. A novel method for selecting antagonists against postharvest fruit decays originating from latent infections. *Biological Control*. DOI: 10.1016/j.biocontrol.2011.07.015.
- Liu, J., Wisniewski, M.E., Droby, S., Tian, S., Tworkoski, T. 2011. Effect of heat shock treatment on stress tolerance and biocontrol efficacy of *Metschnikowia fructicola*. *FEMS Microbiology Ecology*. 76:145-155.
- Janisiewicz, W.J., Kurtzman, C.P., Buyer, J.S. 2010. Yeast microflora of nectarines and their potential for biocontrol of brown rot. *Yeast*. 27: 389-398.
- Macarasin, D., Wisniewski, M.E., Bauchan, G.R., Droby, S. 2010. Superoxide anion and hydrogen peroxide in the yeast antagonist-fruit interaction: a new role for reactive oxygen species in postharvest biocontrol? *Postharvest Biology and Technology*. 58:194-202.
- Janisiewicz, W.J., Buyer, J.S. 2010. Bacterial microflora of nectarines. *Canadian Journal of Microbiology*. 5:480-486.
- Vero, S., Garmendia, G., Gonzalez, M., Garat, F., Wisniewski, M.E. 2009. *Aureobasidium pullulans* as a biocontrol agent of postharvest pathogens of apples in Uruguay. *Biocontrol Science and Technology*. 19:1033-1049.
- Janisiewicz, W.J., Saftner, R.A., Conway, W.S., Yoder, K.S. 2008. Control of blue mold decay of apple during commercial controlled atmosphere storage with yeast antagonists and sodium bicarbonate. *Postharvest Biology and Technology*. 49:374-378.
- Droby, S., Eick, A., Macarasin, D., Cohen, L., Rafael, G., Stange Jr, R.R., Mccollum, T.G., Dudai, N., Nasser, A., Wisniewski, M.E., Shapira, R. 2008. The role of citrus volatiles in germination and growth of *Penicillium digitatum* and *Penicillium italicum*. *Postharvest Biology and Technology*. 49:386-396.
- Janisiewicz, W.J., Saftner, R.A., Conway, W.S., Forsline, P.L. 2008. Preliminary evaluation of apple germplasm from Kazakhstan for resistance to blue mold decay caused by *Penicillium expansum* after harvest. *HortScience*.43(2):420-426.

Macarasin, D., Cohen, L., Eick, A., Rafael, G., Belausov, E., Wisniewski, M.E., Droby, S. 2007. *Penicillium digitatum* suppresses production of hydrogen peroxide in host tissue during infection of citrus fruit. *Phytopathology*. 97(11):1491-1500.

3602-21220-010-00D

GENETIC AND BIOCHEMICAL MECHANISMS OF RESISTANCE TO BARLEY AND CEREAL YELLOW DWARF VIRUSES AND FUNGI – Steven Scofield (P); West Lafayette, Indiana.

- Van Eck, L., Schultz, T., Leach, J.E., Scofield, S.R., Peairs, F.B., Botha, A., Lapitan, N.V. 2010. Virus-induced gene silencing of WRKY53 and an inducible phenylalanine ammonia-lyase in wheat reduces aphid resistance. *Plant Biotechnology Journal*. 9:1023-1032.
- Manning, V.A., Chu, A.L., Scofield, S.R., Ciuffetti, L.M. 2010. Intracellular expression of a host-selective toxin, ToxA, in diverse plants phenocopies silencing of a ToxA-interacting protein, ToxABP1. *New Phytologist*. 187:1034-1047.
- Scofield, S.R., Gillespie, M., Cakir, C. 2010. Rapid Determination of Gene Function by Virus-Induced Gene Silencing in Wheat and Barley. *Crop Science*. 50:77-84.
- Loutre, C., Wicker, T., Travella, S., Galli, P., Scofield, S.R., Fahima, T., Feuillet, C., Keller, B. 2009. Two Genes Encoding Structurally Different CC-NB-LRR Proteins are Required for Lr10-Mediated Leaf Rust Resistance in Wheat of Two Ploidy Levels. *Plant Journal*. 60:1043-54.
- Scofield, S.R., Nelson, R. 2009. Resources for Virus-Induced Gene Silencing (VIGS) in the Grasses. *Plant Physiology*. 149:152-157.
- Anderson, J.M., Bucholtz, D.L., Sardesai, N., Santini, J.B., Gyulai, G., Williams, C.E., Goodwin, S.B. 2009. Potential New Genes for Resistance to *Mycosphaerella Graminicola* Identified in *Triticum Aestivum* x *Lophopyrum Elongatum* Disomic Substitution Lines. *Euphytica*. 172:251-262.
- Scofield, S.R., Cakir, C. 2008. Evaluating the Ability of the Barley Stripe Mosaic Virus-Induced Gene Silencing System to Simultaneously Silence Two Wheat Genes. *Cereal Research Communications*. 36:217-222.
- Held, M.A., Penning, B., Kessans, S.A., Yong, W., Scofield, S.R., Brandt, A.S., Carpita, N.C. 2008. Small-Interfering RNAs from Natural Antisense Transcripts Derived from a Cellulose Synthase Gene Modulate Cell Wall Biosynthesis in Barley. *Proceedings of the National Academy of Sciences*. 105:20534-10539.

3602-21220-011-00D

ENHANCING RESISTANCE TO ROOT ROT PATHOGENS OF SOYBEAN – Teresa Hughes (P); West Lafayette, Indiana.

- Westphal, A., Abney, T.S., Xing, L., Shaner, G. 2008. Sudden Death Syndrome. The Plant Health Instructor. Available at: www.apsnet.org/edcenter/intropp/lessons/fungi/ascomycetes/Pages/SuddenDeath.aspx.

3602-22000-015-00D

MOLECULAR AND GENETIC MECHANISMS OF FUNGAL DISEASE RESISTANCE IN GRAIN CROPS – Stephen Goodwin (P) and Charles Crane; West Lafayette, Indiana.

- Grigoriev, I.V., Cullen, D., Hibbett, D., Goodwin, S.B., Jeffries, T.W., Kuske, C., Magnuson, J., Spatafora, J. 2011. Fueling the future with fungal genomics. *Mycological Society Of Japan*. DOI: 10.1080/21501203.2011.584577.
- Hane, J.K., Rouxel, T., Howlett, B., Kema, G.J., Goodwin, S.B., Oliver, R.P. 2011. Mesosyteny; A novel mode of chromosomal evolution peculiar to filamentous Ascomycete fungi. *Genome Biology*. 12:R45 DOI:10.1186/gb-2011-12-5-r45.
- Goodwin, S.B., M'Barek, S., Dhillon, B., Wittenberg, A.J., Crane, C.F., Van Der Lee, T.J., Grimwood, J., Aerts, A., Antoniw, J., Bailey, A., Bluhm, B., Bowler, J., Bristow, J., Canto-

- Canche, B., Churchill, A., Conde-Ferraz, L., Cools, H., Coutinho, P.M., Csukai, M., Dehal, P., De Wit, P., Donzelli, B., Foster, A.J., Hammond-Kosack, K., Hane, J., Henrissat, B., Killian, A., Koopmann, E., Kourmpetis, Y., Kuzniar, A., Lindquist, E., Lombard, V., Maliepaard, C., Martins, N., Mahrabi, R., Oliver, R., Ponomarenko, A., Rudd, J., Salamov, A., Schmutz, J., Schouten, H.J., Shapiro, H., Stergiopoulos, I., Torriani, S.F., Tu, H., De Vries, R.P., Wiebenga, A., Zwiars, L., Grigoriev, I.V., Kema, G.J. 2011. Finished genome of the fungal wheat pathogen *Mycosphaerella graminicola* reveals dispensable structure, chromosome plasticity and stealth pathogenesis. *PLoS Genetics*. Available at: <http://www.plosgenetics.org/article/info%3Adoi%2F10.1371%2Fjournal.pgen.1002070>.
- Gurung, S., Goodwin, S.B., Kabbage, M., Bockus, W.W., Adhikari, T.B. 2011. Genetic differentiation at microsatellite loci among populations of *Mycosphaerella Graminicola* from California, Indiana, Kansas and North Dakota. *Phytopathology*. 101:1251-1259.
- Choi, Y., Goodwin, S.B. 2011. MVE1 Encoding the velvet gene product homolog in *Mycosphaerella graminicola* is associated with aerial mycelium formation, melanin biosynthesis, hyphal swelling, and light signaling. *Applied and Environmental Microbiology*. 77:942-953.
- Choi, Y., Goodwin, S.B. 2011. Gene encoding a C-type cyclin in *Mycosphaerella graminicola* is involved in aerial mycelium formation, filamentous growth, hyphal swelling, melanin biosynthesis, stress response, and pathogenicity. *Molecular Plant-Microbe Interactions*. 24:469-477.
- Rouxel, T., Grandaubert, J., Hane, J.K., Hoede, C., Van De Wouw, A., Couloux, A., Dominguez, V., Anthouard, V., Bally, P., Bourras, S., Cozijnsen, A.J., Ciuffetti, L.M., Degrave, A., Dilmaghani, A., Duret, L., Fudal, I., Goodwin, S.B., Gout, L., Glaser, N., Linglin, J., Kema, G.G., Lapalu, N., Lawrence, C.B., May, K., Meyer, M., Ollivier, B., Poulain, J., Simon, A., Stachowiak, A., Turgeon, G.B., Tyler, B.M., Vincent, D., Weissenbach, J., Amselem, J., Balesdent, M., Howlett, B., Oliver, R.P., Quesneville, H., Wincker, P. 2011. Effector diversification within compartments of the *Leptosphaeria maculans* genome affected by repeat induced point mutations. *Nature Communications*. 2:202.
- Westphal, A., Xing, L., Goodwin, S.B. 2011. Mature watermelon vine decline: evidence for the biological nature of a soil-borne problem. *Plant Pathology*. 30:111-117.
- Dhillon, B., Cavaletto, J.R., Wood, K.V., Goodwin, S.B. 2010. Accidental Amplification and Inactivation of a Methyltransferase Gene Eliminates Cytosine Methylation in *Mycosphaerella Graminicola*. *Genetics*. 186:67-77.
- Garcia, S.L., Van Der Lee, T.J., Ferreira, C.F., Hekkert, B., Carlier, J., Goodwin, S.B., Guzman, M., Souza, M.T., Kema, G.J. 2010. Variable Number of Tandem Repeat Markers in the Genome Sequence of *Mycosphaerella Fijiensis*, the Causal Agent of Black Leaf Streak Disease of Banana (*Musa* spp.). *Genetics and Molecular Research*. 9:2207-2212.
- Goodwin, S.B., Kema, G.J. 2009. Gearing Up for Comparative Genomics: Analyses of the Fungal Class Dothideomycetes. *New Phytologist*. 183:250-253.
- Dunkle, L.D., Crane, C.F., Goodwin, S.B. 2009. Development of Simple Sequence Repeat Markers from Expressed Sequence Tags of the Maize Gray Leaf Spot Pathogen, *Cercospora Zea-Maydis*. *Molecular Ecology Resources*. 9:1375-1379.
- Wittenberg, A.J., Van Der Lee, T.A., M'Barek, S.B., Ware, S.B., Goodwin, S.B., Kilian, A., Visser, R.F., Kema, G.J., Schouten, H.J. 2009. Meiosis Drives Extraordinary Genome Plasticity in the Haploid Fungal Plant Pathogen *Mycosphaerella Graminicola*. *PLoS One*. Available: PLoSONE4(6):e5863.DOI:10.1371/journal/pone.005863
- Bluhm, B., Dunkle, L.D. 2008. Phl1 of *Cercospora zeae-maydis* encodes a member of the photolyase/cryptochrome family involved in UV protection and fungal development. *Fungal Genetics and Biology*. 45:1364-1372.
- Bluhm, B., Dhillon, B., Lindquist, E., Crane, C.F., Kema, G., Goodwin, S.B., Dunkle, L.D. 2008. Analyses of Expressed Sequence Tags from the Maize Foliar Pathogen *Cercospora Zeae-maydis* Identify Novel Genes Expressed during Vegetative, Infectious, & Reproductive Growth. *Biomed Central (BMC) Genomics*. 9:523.

Bluhm, B., Kim, H., Butchko, R.A., Woloshuk, C.P. 2008. Involvement of ZFR1 of *Fusarium verticillioides* in kernel colonization and the regulation of FST1, a putative sugar transporter gene required for fumonisin biosynthesis on maize kernels. *Molecular Plant Pathology*. 9(2):203-211.

3607-22000-011-00D

BIOLOGY, ETIOLOGY, GENETICS, AND CONTROL OF VIRUS DISEASES OF CORN AND SOYBEAN – Margaret Redinbaugh (P) and Lucy Stewart; Wooster, Ohio.

- Jones, M.W., Boyd, E., Redinbaugh, M.G. 2011. Responses of Maize (*Zea mays* L.) near isogenic lines carrying Wsm1, Wsm2 and Wsm3 to three viruses in the Potyviridae. *Journal of Theoretical and Applied Genetics*. DOI:10.1007/s00122-011-1622-8. 123(5):729-740.
- Cao, M., Ye, X., Lin, J., Zhang, X., Redinbaugh, M.G., Simon, A.E., Morris, T.J., Qu, F. 2010. The Capsid Protein of Turnip Crinkle Virus Overcomes two Separate Defense Barriers to Facilitate Viral Systemic Movement in Arabidopsis. *Journal of Virology*. 84(15):7793-7802.
- Todd, J.C., Ammar, E., Redinbaugh, M.G., Hoy, C., Hogenhout, S.A. 2010. Plant host range and leafhopper transmission of Maize fine streak virus. *Phytopathology*. 100(11):1138-1145.
- Redinbaugh, M.G., Molineros, J., Vacha, J., Berry, S., Hammond, R.B., Madden, L.V., Dorrance, A.E. 2010. Bean Pod Mottle Virus Spread in Insect Feeding Resistant Soybeans. *Plant Disease*. 94(2):265-270.
- Jovic, J., Cvrkovi, T., Mitrovi, M., Krnjanji, S., Petrovi, A., Redinbaugh, M.G., Pratt, R.C., Hogenhout, S.A., Toevski, I. 2009. Stolbur Phytoplasma Transmission to Maize by *Reptalus panzeri* and the Disease Cycle of Maize Redness in Serbia. *Journal of Phytopathology*. 99(9):1053-1069.
- Russo, M., De Stradis, A., Boscia, D., Rubino, L., Redinbaugh, M.G., Abt, J.J., Martelli, G.P. 2008. Molecular and Ultrastructural Properties of Maize White Line Virus. *Journal of Plant Pathology*. 90:363-369.

3611-22000-019-00D

SOYBEAN DISEASE AND PEST MANAGEMENT – Leslie Domier (P), David Walker, and Glen Hartman; Urbana, Illinois

- Bekal, S., Domier, L.L., Niblack, T.L., Lambert, K.N. 2011. Discovery and initial analysis of novel viral genomes in the soybean cyst nematode. *Journal of General Virology*. 92(8):1870-1879.
- Hartman, G.L., West, E., Herman, T. 2011. Crops that feed the world 2. Soybean-worldwide production, use, and constraints caused by pathogens and pests. *Food Security Journal*. 3:5-17.
- Srivastava, P., George, S., Marois, J.J., Wright, D.L., Walker, D.R. 2011. Saccharin-induced systemic acquired resistance against rust (*Phakopsora pachyrhizi*) infection in soybean: Effects on growth and development. *Crop Protection*. 30(6):726-732.
- Domier, L.L., Hobbs, H.A., Mccoppin, N.K., Bowen, C.R., Steinlage, T.A., Chang, S., Wang, Y., Hartman, G.L. 2011. Multiple loci condition seed transmission of Soybean mosaic virus in soybean. *Phytopathology*. 101:750-756.
- Paul, C., Hill, C.B., Hartman, G.L. 2011. Quantification of *Phakopsora pachyrhizi* DNA for Assessing Partial Resistance in Soybean. *Plant Disease*. 95:DOI: 10.1094/PDIS-10-10-0729.
- Twizeyimana, M., Ojiambo, P., Hartman, G.L., Badnyopadhyay, R. 2011. Dynamics of soybean rust epidemics in sequential plantings of soybean cultivars in Nigeria. *Plant Disease*. 95:43-50.
- Boerma, H.R., Monteros, M.J., Ha, B., Wood, E.D., Phillips, D.V., Walker, D.R., Missaoui, A.M. 2011. Registration of Asian soybean rust-resistant soybean germplasm G01-PR16. *Journal of Plant Registrations*. 5(1):118-122.

- Miles, M.R., Hartman, G.L., Bonde, M.R., Nester, S.E., Frederick, R.D. 2011. Characterizing resistance to *Phakopsora pachyrhizi* in soybean. *Plant Disease*. 95:577-581.
- Haudenshield, J.S., Hartman, G.L. 2011. Exogeneous controls to increase negative call veracity in multiplexed, quantitative PCR assays for *Phakopsora pachyrhizi*. *Plant Disease*. 95:343-352.
- Walker, D.R., Boerma, H.R., Harris, D.K., Phillips, D.V., Schneider, R.W., Hartman, G.L., Miles, M.R., Weaver, D.B., Sikora, E.J., Moore, S.H., Buckley, J.B., Shipe, E.R., Mueller, J.D., Wright, D.L., Marois, J.J., Nelson, R.L. 2011. Evaluation of USDA soybean germplasm accessions for resistance to soybean rust in the southern United States. *Crop Science*. 51:678-693.
- Hill, C.B., Crull, L., Herman, T., Voegtlin, D.J., Hartman, G.L. 2010. A New Soybean Aphid (Hemiptera: Aphididae) Biotype Identified. *Journal of Economic Entomology*. 103:509-515.
- Twizeyimana, M., Hartman, G.L. 2010. Culturing *Phakopsora pachyrhizi* on detached leaves and Urediniospore survival at different temperatures and relative humidities. *Plant Disease*. 94:1453-1460.
- Paul, C., Bowen, C.R., Tefera, H., Bandyopadhyay, R., Sikora, E., Pegues, M.D., Hartman, G.L. 2010. Registration of three soybean germplasm lines resistant to *Phakopsora pachyrhizi* (soybean rust). *Journal of Plant Registrations*. 4:244-248.
- Hobbs, H.A., Herman, T.K., Slaminko, T.L., Wang, Y., Nguyen, B.T., Domier, L.L., Hartman, G.L. 2010. Occurrences of soybean viruses, fungal diseases, and pests in Illinois soybean rust sentinel plots. *Plant Health Progress*. DOI:10.1094/PHP-2010-0827-01-BR.
- Agrindotana, B.O., Ahonsia, M.O., Domier, L.L., Gray, M.E., Bradley, C.A. 2010. Application of sequence-independent amplification (SIA) for the identification of RNA viruses in bioenergy crops. *Journal of Virological Methods*. 169(1):119-128.
- Soria-Guerra, R.E., Rosales-Mendoza, S., Chang, S., Haudenshield, J.S., Zheng, D., Rao, S.S., Hartman, G.L., Ghabrial, S.A., Korban, S.S. 2010. Identifying differentially expressed genes in leaves of *Glycine tomentella* in the presence of the fungal pathogen *Phakopsora pachyrhizi*. *Planta*. 232:1181-1189.
- Hobbs, H.A., Herman, T.K., Slaminko, T.L., Wang, Y., Nguyen, B.T., Mccoppin, N.K., Domier, L.L., Hartman, G.L. 2010. Occurrences of Soybean Viruses, Fungal Diseases, and Pests in Illinois Soybean Rust Sentinel Plots. Online. *Plant Health Progress*. DOI: 10.1094/PHP-2010-0827-01-BR.
- Bradley, C., Hines, R., Haudenshield, J.S., Hartman, G.L. 2010. First Report of Soybean Rust, Caused by *Phakopsora pachyrhizi*, on Kudzu (*Pueraria montana* var. *lobata*) in Illinois. *Plant Disease*. 94:477.
- Kim, K., Hill, C.B., Hartman, G.L., Hyten, D.L., Hudson, M.E., Diers, B. 2010. Fine Mapping of the Soybean Aphid Resistance Gene *Rag2* in Soybean PI 200538. *Theoretical and Applied Genetics*. 121:599-610.
- Lygin, A.V., Hill, C.B., Zernova, O.V., Crull, L., Widholm, J.M., Hartman, G.L., Lozovaya, V.V. 2010. Response of soybean pathogens to glyceollin. *Phytopathology*. 100:897-903.
- Slaminko, T., Bowen, C.R., Hartman, G.L. 2010. Multi-Year Evaluation of Commercial Soybean Cultivars for Resistance to *Phytophthora sojae*. *Plant Disease*. 94:368-371.
- Soria-Guerra, R., Rosales-Mendoza, S., Chang, S., Haudenshield, J.S., Padmanaban, A., Rodriguez-Zas, S., Hartman, G.L., Ghabrial, S., Korban, S.S. 2010. Global Gene Expression Profiles of Resistant and Susceptible Genotypes of *Glycine tomentella* During *Phakopsora pachyrhizi* Infection. *The Plant Genome*. 120:1315-1333.
- Tang, E., Hill, C.B., Hartman, G.L. 2010. Carbon utilization profiles of *Fusarium virguliforme* isolates. *Canadian Journal of Microbiology*. 56:979-986.
- Ma, A., Hill, C., Hartman, G.L. 2010. Production of *Macrophomina phaseolina* conidia by multiple soybean isolates in culture. *Plant Disease*. 94:1088-1092.
- Cui, D., Zhang, Q., Li, M., Zhao, Y., Hartman, G.L. 2010. Image processing methods for quantitatively detecting soybean rust from multispectral images. *Biosystems Engineering*. 107:186-193.
- Nelson, B. and Domier, L.L. 2009. First Report of Soybean mosaic Virus on Soybean in North Dakota. *Plant Disease*. 93(7):760.

- Wille, B., Hartman, G.L. 2009. Two Species of Symbiotic Bacteria Present in the Soybean Aphid (Hemiptera: Aphididae). *Environmental Entomology*. 38:110-115.
- Scaboo, A.M., Pantalone, V.R., Walker, D.R., West, D.R., Walker, F.R., Sams, C.E., Boerma, H. 2009. Confirmation of Molecular Markers and Agronomic Traits Associated with Seed Phytate Content in Two Soybean RIL Populations. *Crop Science*. 49:426-432.
- Nam, N., Kim, S.M., Domier, L.L., Koh, S., Moon, J., Choi, H.S., Kim, H.G., Moon, J.S., Lee, S.H. 2009. Nucleotide Sequences and Genomic Organization of a Newly Identified Member of the Carmovirus genus, Soybean Yellow Mottle Mosaic Virus (SYMMV), from Soybean. *Archives of Virology*. 154(10):1679-1684.
- Twizeyimana, M., Ojiambo, P.S., Haudenschild, J.S., Caetano-Anolles, G., Pedley, K.F., Bandyopadhyay, R., Hartman, G.L. 2009. Pathogenic variation of *Phakopsora pachyrhizi* infecting soybean in Nigeria. *Phytopathology*. 99(4):353-361.
- Calla, B., Vuong, T., Radwan, O., Hartman, G.L., Clough, S.J. 2009. Gene Expression Profiling Soybean Stem Tissue Early Response to *Sclerotinia sclerotiorum* and In Silico Mapping in Relation to Resistance Markers. *The Plant Genome*. 2:149-166.
- Paul, C., Hartman, G.L. 2009. Sources of Soybean Rust Resistance Challenged with Six Purified *Phakopsora pachyrhizi* Isolates Collected from the USA. *Crop Science*. 49:1781-1785.
- Goradia, L., Hartman, G.L., Daniel, S. 2009. Evaluation of Glyphosate-Resistant Soybean Cultivars for Resistance to Bacterial Pustule. *European Journal of Plant Pathology*. 124:331-335.
- Hill, C.B., Kim, K., Diers, B.W., Crull, L., Hartman, G.L. 2009. A New Soybean Gene for Resistance to the Soybean Aphid. *Crop Science*. 49:1193-1200.
- Sugimoto, T., Watanabe, K., Furiki, M., Walker, D.R., Yoshida, S., Aino, M., Kanto, T., Irie, K. 2009. The Effect of Potassium Nitrate on the Reduction of *Phytophthora* Stem Rot Disease of Soybeans, the Growth Rate and Zoospore Release of *Phytophthora sojae*. *Journal of Phytopathology*. 157:379-389.
- Thekke, V.T., Hobbs, H.A., Domier, L.L. 2009. Sequence Diversity of Readthrough Proteins of Soybean Dwarf Virus Isolates from the Midwestern United States. *Archives of Virology*. 154(5):861-866.
- Twizeyimana, M., Ojiambo, P.S., Sonder, K., Ikotun, T., Hartman, G.L., Bandyopadhyay, R. 2009. Pathogenic Variation of *Phakopsora pachyrhizi* Infecting Soybean in Nigeria. *Phytopathology*. 99:353-361.
- Mueller, T.A., Morel, W., Marois, J.J., Wright, D.L., Kemerait, R.C., Miles, M.R., Levy, C., Hartman, G.L. 2009. Effect of Fungicide and Time of Application on Soybean Rust Severity and Yield. *Plant Disease*. 93(3):243-248.
- Pham, T.A., Miles, M.R., Frederick, R.D., Hill, C.B., Hartman, G.L. 2009. Differential Responses of Resistant Soybean Genotypes to Ten Isolates of *Phakopsora pachyrhizi*. *Plant Disease*. 93:224-228.
- Craig, J.P., Bekal, S., Hudson, M., Domier, L.L., Niblack, T., Lambert, K.N. 2008. Analysis of a Horizontally Transferred Pathway Involved in Vitamin B6 Biosynthesis from the Soybean Cyst Nematode *Heterodera glycines*. *Molecular Biology and Evolution*. 25(10):2085-2098. DOI: 10.1093/molbev/msn141.
- Slaminko, T.L., Miles, M.R., Frederick, R.D., Bonde, M.R., Hartman, G.L. 2008. New legume hosts of *Phakopsora pachyrhizi* based on greenhouse evaluations. *Plant Disease*. 92(5):767-771.
- De. Fraias Neto, A.L., Schmidt, M., Hartman, G.L., Li, S., Diers, B.W. 2008. Greenhouse Inoculation Methods for Evaluating Resistance of Soybean to Sudden Death Syndrome. *Brazilian Journal of Agricultural Research*. 43:1475-1482.
- Atibalentja, N., Noel, G.R. 2008. Bacterial endosymbionts of plant-parasitic nematodes. *Symbiosis*. 46(2):87-93.
- Wille, B., Hartman, G.L. 2008. Evaluation of Artificial Diets for Rearing *Aphis Glycines* (Hemiptera: Aphididae). *Journal of Economic Entomology*. 101:1228-1232.
- Jun, T., Van, K., Kim, M., Lee, S., Walker, D.R. 2008. Association analysis using SSR markers to identify QTL for seed protein content in soybeans. *Euphytica*. 162:179-191.

- Lynch, T.N., Steinlage, T.A., Miles, M.R., Marois, J.J., Wright, D.L., Hartman, G.L. 2008. New Legume Hosts of *Phakopsora pachyrhizi* Identified from Field Studies in Florida. *Plant Disease*. 92:767-771.
- Slaminko, T.L., Miles, M.R., Frederick, R.D., Bonde, M.R., Hartman, G.L. 2008. New legume hosts of *Phakopsora pachyrhizi* based on greenhouse evaluations. *Plant Disease*. 92(5):767-771.
- Twizeyimana, M., Ojiambo, P.S., Ikotun, T., Ladipo, J.L., Hartman, G.L., Bandyopadhyay, R. 2008. Evaluation of Soybean Germplasm for Resistance to Soybean Rust (*Phakopsora pachyrhizi*) in Nigeria. *Plant Disease*. 92(6):947-952.
- Kim, K.S., Hill, C.B., Hartman, G.L., Mian, R.M., Diers, B.W. 2008. Discovery of Soybean Aphid Biotypes. *Crop Science*. 48(3):923-928.
- Bekal, S., Craig, J.P., Hudson, M.E., Niblack, T.L., Domier, L.L., Lambert, K.N. 2008. Genomic DNA sequence comparison between two inbred soybean cyst nematode biotypes facilitated by massively parallel 454 microbead sequencing. *Molecular Genetics and Genomics*. 5:535-543.
- Zhu, S., Walker, D.R., Boerma, H.R., All, J.N., Parrott, W.A. 2007. Effects of Defoliating Insect Resistance QTLs and a *cryIAC* Transgene in Soybean Near-Isogenic Lines. *Theoretical and Applied Genetics*. 16:455-463.
- Thekkeveetil, T., Hobbs, H.A., Wang, Y., Kridelbaugh, D., Donnelly, J., Hartman, G.L., Domier, L.L. 2007. First report of Soybean dwarf virus in soybean in Northern Illinois. *Plant Disease*. 91(12):1686.
- Twixeyimna, M., Ojiambo, P., Ikotun, T., Paul, C., Hartman, G.L., Bandyopadhyay, R. 2007. Comparison of field, greenhouse, and detached leaf evaluations of soybean germplasm for resistance to *Phakopsora pachyrhizi*. *Plant Disease*. 91(9):1161-1169.
- Daniel, S., Hartman, G.L., Wagner, E.D., Plewa, M.J. 2007. Mammalian cell cytotoxicity analysis of soybean rust fungicides. *Bulletin of Environmental Contamination and Toxicology*. 78(6):474-478.

3620-22410-011-00D

DISCOVERY AND APPLICATION OF MICROBIAL PRODUCTION AND FORMULATION BIOTECHNOLOGIES TO ENHANCE BIOCONTROL OF FUNGAL PLANT DISEASES – David Schisler (P), Alejandro Rooney, and Christopher Dunlap; Peoria, Illinois.

- Burch, A.Y., Browne, P.J., Dunlap, C.A., Price, N.P., Lindow, S.E. 2011. Comparison of biosurfactant detection methods reveals hydrophobic surfactants and contact-regulated production. *Environmental Microbiology*. DOI:10.1111/j.1462-2920.2011.02534.x.
- Adiyaman, T., Schisler, D.A., Slininger, P.J., Sloan, J.M., Jackson, M.A., Rooney, A.P. 2011. Selection of biocontrol agents of pink rot based on efficacy and growth kinetics index rankings. *Plant Disease*. 95(1):24-30.
- Dunlap, C.A., Schisler, D.A., Price, N.P., Vaughn, S.F. 2011. Cyclic lipopeptide profile of three *Bacillus subtilis* strains; antagonists of *Fusarium* head blight. *Journal of Microbiology*. 49:603-609. DOI: 10.1007/s12275-011-1044-y.
- Dunlap, C.A., Schisler, D.A. 2010. Fluidized-Bed Drying and Storage Stability of *Cryptococcus flavecens* OH 182.9, a Biocontrol Agent of *Fusarium* Head Blight. *Biocontrol Science and Technology*. 20(5):465-474.
- Slininger, P.J., Dunlap, C.A., Schisler, D.A. 2010. Polysaccharide Production Benefits Dry Storage Survival of the Biocontrol Agent *Pseudomonas fluorescens* S11:P:12 Effective Against Several Maladies of Stored Potatoes. *Biocontrol Science and Technology*. *Biocontrol Science and Technology*. 20(3):227-244.
- Schisler, D.A., Slininger, P.J., Miller, J.S., Woodell, L.K., Clayson, S., Olsen, N. 2009. Bacterial Antagonists, Zoospore Inoculum Retention Time, and Potato Cultivar Influence Pink Rot Disease Development. *American Journal of Potato Research*. 86:102:111.

3640-21220-020-00D

GENETICS, POPULATION BIOLOGY, AND HOST-PARASITE INTERACTIONS OF CEREAL RUST FUNGI AND THEIR DISEASES – Les Szabo (P), James Kolmer, Martin Carson, and Yue Jin; St. Paul, Minnesota.

- Glover, K.D., Rudd, J.C., Devkota, R.N., Hall, R.G., Jin, Y., Osborne, L.E., Ingemansen, J.A., Rickertsen, J.R., Hareland, G.A. 2011. Registration of Select Wheat. *Journal of Plant Registrations*. 5:196-201.
- Singh, R., Huerta-Espino, J., Bhavani, S., Herreta-Foessel, S., Singh, D., Singh, P., Velu, G., Mason, R., Jin, Y., Njau, P., Crossa, J. 2011. Race-nonspecific resistance to rust diseases in CIMMYT spring wheats (2010). *Euphytica*. 179:175-186.
- Rouse, M.N., Wanyera, R., Njau, P., Jin, Y. 2011. Sources of resistance to stem rust race Ug99 in spring wheat germplasm. *Plant Disease*. 95:762-766.
- Kolmer, J.A., Anderson, J.A. 2011. First detection in North America of virulence in *Puccinia triticina* to wheat seedlings with Lr21. *Plant Disease*. 95:1032.
- Liu, W., Rouse, M.N., Friebe, B., Jin, Y., Gill, B., Pumphrey, M. 2011. Discovery and molecular mapping of a new gene conferring resistance to stem rust, Sr53, derived from *Aegilops geniculata* and characterization of spontaneous translocation stocks with reduced alien chromatin. *Chromosome Research*. 19(5):669-682.
- Kolmer, J.A., Long, D.L., Hughes, M.E. 2011. Physiologic specialization of *Puccinia triticina* on wheat in the United States in 2009. *Plant Disease*. 95:935-940.
- Park, R.F., Fetch, T., Hodson, D., Jin, Y., Nazari, K., Pretorius, Z. 2011. International surveillance of wheat rust pathogens: progress and challenges. *Euphytica*. 179:109-117.
- Kolmer, J.A., Ordonez, M.E., Manisterski, J., Anikster, Y. 2011. Genetic differentiation of *Puccinia triticina* populations in the Middle East and genetic similarity with populations in Central Asia. *Phytopathology*. 101:870-877.
- Liu, W., Pumphrey, M., Jin, Y., Rouse, M.N., Friebe, B., Gill, B. 2011. Development and characterization of wheat-Ae. searsii Robertsonian translocations and a recombinant chromosome conferring resistance to stem rust. *Theoretical and Applied Genetics*. 122:1537-1545.
- Singh, R., Hodson, D., Huerta-Espino, J., Jin, Y., Bhavani, S., Njau, P., Herreta-Foessel, S., Singh, P., Govindan, V. 2011. The emergence of Ug99 races of the stem rust fungus is a threat to world wheat production. *Annual Review of Phytopathology*. 49:465-481.
- Jin, Y. 2011. Role of *Berberis* spp. as alternate hosts in generating new races of *Puccinia graminis* and *P. striiformis*. *Euphytica*. 179:105-108.
- Duplessis, S., Cuomo, C.A., Lin, Y., Aerts, A., Tisserant, E., Veneault-Fourrey, C., Joly, D., Hacquard, S., Amselem, J., Cantarel, B., Chiu, R., Couthinho, P., Feau, N., Field, M., Frey, P., Gelhaye, E., Goldberg, J., Grabherr, M., Kodira, C., Kohler, A., Kues, U., Lindquist, E., Lucas, S., Mauceli, E., Morin, E., Murat, C., Pearson, M., Quesneville, H., Rouhier, N., Sakthikumar, S., Schmutz, J., Selles, B., Shapiro, H., Tangay, P., Tuskan, G.A., Van De Peer, Y., Henrissat, B., Rouze, P., Schein, J., Dodds, P.N., Zhong, S., Hamelin, R.C., Birren, B.W., Grigoriev, I.V., Szabo, L.J., Martin, F. 2011. Obligate biotrophy features unraveled by the genomic analysis of the rust fungi, *Melampsora larici-populina* and *Puccinia graminis* f. sp. *tritici*. *Phytopathology*. 108:9166-9171.
- Kolmer, J.A., Garvin, D.F., Jin, Y. 2011. Expression of a Thatcher wheat adult plant stem rust resistance QTL on chromosome arm 2BL is enhanced by Lr34. *Crop Science*. 51(2):526-533.
- Crouch, J., Szabo, L.J. 2011. Real-time PCR discrimination of the southern and common corn rust pathogens *Puccinia polysora* and *P. sorghi*. *Plant Disease*. 95(6):624-632.
- Rouse, M., Jin, Y. 2011. Stem rust resistance in A-genome diploid relatives of wheat. *Plant Disease*. 95:941-944.
- Kolmer, J.A., Long, D.L., Hughes, M.E. 2010. Physiologic Specialization of *Puccinia triticina* on Wheat in the United States in 2008. *Plant Disease*. 94:775-780.
- Maccaferri, M., Sanguineti, M.C., Mantovani, P., Demontis, A., Massi, A., Ammar, K., Kolmer, J.A., Czembor, J.H., Breiman, A., Tuberosa, R. 2010. Association Mapping of Leaf Rust Response in Durum Wheat. *Molecular Breeding*. 26:189-228.

- Anderson, J.A., Linkert, G.L., Busch, R.H., Kolmer, J.A., Jin, Y., Dill-Macky, R., Wiersma, J.V., Hareland, G.A., Mcvey, D.V. 2010. Registration of 'RB07' Wheat. *Journal of Plant Registrations*. 3:175-180.
- Glover, K.D., Rudd, J.C., Devkota, R.N., Hall, R.G., Jin, Y., Osborne, L.E., Ingemansen, J.A., Richtersen, J.R., Baltensperger, D.D., Hareland, G.A. 2010. Registration of Brick Wheat. *Journal of Plant Registrations*. 4:22-27.
- Zhang, W., Olson, E., Saintenac, C., Rouse, M., Abate, Z., Jin, Y., Akhunov, E., Pumphrey, M., Dubcovsky, J. 2010. Genetic maps of stem rust resistance gene Sr35 in diploid and hexaploid wheat. *Crop Science*. 50(6):2464-2474.
- Carson, M.L. 2010. Additional sources of broad-spectrum resistance to *Puccinia coronata* f. sp. *avenae* in Canadian accessions of *Avena barbata*. *Plant Disease*. 94:1405-1410.
- Kolmer, J.A. 2010. Genetics of Leaf Rust Resistance in the Soft Red Winter Wheat Cultivars Coker 9663 and Pioneer 26R61. *Plant Disease*. 94:628-632.
- Yu, L., Liu, S., Anderson, A., Singh, R., Jin, Y., Dubcovsky, J., Brown Guedira, G.L., Bhavani, S., A. Morgounov, He, Z., Heurta-Espino, J., Sorrells, M. 2010. Haplotype Diversity of Stem Rust Resistance Loci in Uncharacterized Wheat Lines. *Molecular Breeding*. DOI: 10.1007/s11032-010-9403-7.
- Tsilo, T., Jin, Y., Anderson, A. 2010. Identification of flanking markers for the stem rust resistance gene Sr6 in wheat. *Crop Science*. 50:1967-1970.
- Bushnell, W.R., Perkins Veazie, P.M., Russo, V.M., Collins, J.K., Seeland, T.M. 2010. Effects of Deoxynivalenol on Content of Chloroplast Pigments in Barley Leaf Tissues. *Biochemistry and Cell Biology*. 100(1):33-41.
- Ordenez, M.E., German, S.E., Kolmer, J.A. 2010. Genetic Differentiation within the *Puccinia triticina* Population in South America and Comparison with the North American Population Suggests Common Ancestry and Intercontinental Migration. *Phytopathology*. 100:376-383.
- Mantovani, P., Maccaferri, M., Tuberosa, R., Kolmer, J.A. 2010. Virulence Phenotypes and Molecular Genotypes of *Puccinia triticina* Isolates from Italy. *Plant Disease*. 94:420-424.
- Njau, P.N., Jin, Y., Huerta-Espino, J., Keller, B., Singh, R. 2010. Identification and evaluation of new sources of resistance to stem rust race Ug99 in wheat. *Plant Disease*. 94:413-419.
- Jin, Y., Szabo, L.J., Carson, M.L. 2010. Century-old Mystery of *Puccinia striiformis* Life History Solved with the Identification of *Berberis* as an Alternate Host. *Phytopathology*. 100(5):432-435.
- Liu, S., Yu, L., Singh, R., Jin, Y., Anderson, A. 2009. Diagnostic and co-dominant PCR markers for stem rust resistance genes Sr25 and Sr26. *Theoretical and Applied Genetics*. 120:691-697.
- Steffenson, B.J., Jin, Y., Brueggeman, R.S., Kleinhofs, A., Sun, Y. 2009. Resistance to Stem Rust Pathotype TTKSK Maps to the Rgp4/Rpg5 Complex of Chromosome 5H of Barley. *Phytopathology*. 99:1135-1141.
- Kolmer, J.A., Ordenez, M.E. 2009. Differentiation of Molecular Genotypes and Virulence Phenotypes of *Puccinia triticina* from Common Wheat in North America. *Phytopathology*. 99:750-758.
- Kolmer, J.A., Long, D.L., Hughes, M.E. 2009. Physiologic Specialization of *Puccinia triticina* on Wheat in the United States in 2007. *Plant Disease*. 98:538-544.
- Kolmer, J.A. 2009. Genetics of Leaf Rust Resistance in the Soft Red Winter Wheat Caldwell. *Crop Science*. 49:1187-1192.
- Carson, M.L. 2009. Broad spectrum resistance to crown rust, *Puccinia coronata* f. sp. *avenae*, in U.S. accessions of the tetraploid slender oat, *Avena barbata*. *Plant Disease*. 93:363-366.
- Jin, Y., Szabo, L.J., Rouse, M., Fetch, T., Pretorius, Z., Wanyera, R., Njau, P. 2009. Detection of Virulence to Resistance Gene Sr36 within Race TTKS Lineage of *Puccinia graminis* f. sp. *tritici*. *Plant Disease*. 93:367-370.
- Barnes, C.W., Szabo, L.J., Bowersox, V.C. 2009. Detection of *Phakopsora pachyrhizi* Spores in Rain Using a Real-Time PCR Assay. *Phytopathology*. 99:328-338.
- Kolmer, J.A., Long, D.L., Hughes, M.E. 2008. Physiologic Specialization of *Puccinia triticina* on Wheat in the United States in 2006. *Plant Disease*. 92:1241-1246.

- Jin, Y., Szabo, L.J., Pretorius, Z., Singh, R., Fetch, Jr., T. 2008. Detection of Virulence to Resistance Gene Sr24 within Race TTKS of *Puccinia graminis* f. sp. *tritici*. *Plant Disease*. 92:923-926.
- Zhang, X., Singh, R., Kolmer, J.A., Huerta-Espino, J., Jin, Y., Anderson, J. 2008. Inheritance of Leaf Rust Resistance in the CIMMYT Wheat Weebill 1. *Crop Science*. 47:1037-1047.
- Kolmer, J.A., Singh, R.P., Garvin, D.F., Viccars, L., William, H.M., Huerta-Espino, J., Ogonnaya, F.C., Raman, H., Orford, S., Bariana, H.S., Lagudah, E.S. 2008. Analysis of the Lr34/Yr18 Rust Resistance Region in Wheat Germplasm. *Crop Science*. 48(5):1841-1852.
- Zhang, X., Singh, R.P., Kolmer, J.A., Huerta-Espino, J., Jin, Y., Anderson, J.A. 2008. Genetics of leaf rust resistance in CIMMYT Brambling wheat. *Plant Disease*. 92:1111-1118.
- Vanegas, C.D., G., Kolmer, J.A., Garvin, D.F. 2008. Genetics of stem rust resistance in the spring wheat cultivar thatcher and the enhancement of stem rust resistance by Lr34. *Euphytica*. 159(3):391-401.
- Zhang, X., Jin, Y., Rudd, J., Bockelman, H.E. 2008. New fusarium head blight resistance spring wheat germplasm identified in the USDA National Small Grain Collection. *Crop Science*. 48:223-235.
- Tsilo, T.J., Jin, Y., Anderson, J.A. 2008. Diagnostic microsatellite markers for detection of stem rust resistance gene Sr36 in diverse genetic backgrounds of wheat. *Crop Science*. 48:253-261.
- Steffenson, B.J., Olivera, P., Roy, J., Jin, Y., Smith, K., Muehlbauer, G. 2007. A walk on the wild side: mining wild wheat and barley collections for rust resistance genes. *Australian Journal of Agricultural Research*. 58:532-544.
- Jin, Y., Singh, R.P., Ward, R.W., Wanyera, R., Kinyua, M., Njau, P., Fetch, T., Yahouyi, A., Pretorius, Z. 2007. Characterization of seedling infection types and adult plant infection responses of known Sr genes to race TTKS of *Puccinia graminis* f. sp. *tritici*. *Plant Disease*. 91:1096-1099.
- Kolmer, J.A., Ordonez, M.E. 2007. Genetic differentiation of *Puccinia triticina* populations in Central Asia and the Caucasus. *Phytopathology*. 97:1141-1149.
- Kolmer, J.A., Long, D.L., Hughes, M.E. 2007. Physiologic Specialization of *Puccinia triticina* on Wheat in the United States in 2005. *Plant Disease*. 91:979-984.
- Olivera, P.D., Steffenson, B.J., Anikster, Y., Kolmer, J.A. 2007. Resistance of Sharon Goatgrass (*Aegilops sharonensis*) to Fungal Diseases of Wheat. *Plant Disease*. 91:942-950.

3640-22000-023-00D

PATHOGEN POPULATION BIOLOGY AND GENOMICS, AND HOST RESISTANCE FOR FUSARIUM HEAD BLIGHT OF CEREALS – H.C. Kistler (P), Yue Jin, Les Szabo, and Martin Carson; St. Paul, Minnesota.

- Li, Y., Wang, C., Liu, W., Wang, G., Kang, Z., Kistler, H.C., Xu, J. 2011. The HDF1 histone deacetylase gene is important for conidiation, sexual reproduction, and pathogenesis in *Fusarium graminearum*. *Molecular Plant-Microbe Interactions*. 24:487-496.
- Breakspear, A., Pasquali, M., Broz, K.L., Dong, Y., Kistler, H.C. 2011. Npc1 is involved in sterol trafficking in the filamentous fungus *Fusarium graminearum*. *Fungal Genetics and Biology*. 48:725-730.
- Wang, Y., Liu, W., Hou, Z., Wang, C., Zhou, X., Jonkers, W., Ding, S., Kistler, H.C., Xu, J. 2011. A novel transcriptional factor important for pathogenesis and ascosporeogenesis in *Fusarium graminearum*. *Molecular Plant-Microbe Interactions*. 24(1):118-128.
- Rep, M., Kistler, H.C. 2010. Genomic Organization of Fungal Plant Pathogenicity. *Current Opinion in Plant Biology*. 13:420-426.
- Kumar, L., Breakspear, A., Kistler, H.C., Ma, L., Xie, X. 2010. Systematic Discovery of Regulatory Motifs in *Fusarium graminearum* by Comparing Four *Fusarium* Genomes. *Genome Biology*. 11(208):1-13.
- Seong, K., Pasquali, M., Hilburn, K.L., McCormick, S.P., Xu, J., Kistler, H.C. 2009. Global Gene Regulation by *Fusarium* Transcription Factors Tri6 and Tri10 Reveals Adaptations for Toxin Biosynthesis. *Molecular Microbiology*. 72:354-367.

- Ding, S., Mehrabi, R., Hou, Z., Seong, K., Kistler, H.C., Xu, J. 2009. The Transducin Beta Like Gene FTL1 is Essential for Pathogenesis in *Fusarium graminearum*. *Eukaryotic Cell*. 8:867-876.
- Lysoe, E., Pasquali, M., Klemsdahl, S., Kistler, H.C. 2008. The transcription factor FgStuAp influences spore development, pathogenicity, and secondary metabolism in *Fusarium graminearum*. *Molecular Plant-Microbe Interactions*. 90:S3.26-S3.27.
- Seong, K., Xu, J., Zhao, X., Guldener, U., Kistler, H.C. 2008. Conidial Germination in the Filamentous Fungus *Fusarium graminearum*. *Fungal Genetics and Biology*. 45:389-399.

3655-22000-019-00D

GENETICS OF THE PATHOGEN-HOST INTERACTION IN SNAP BEAN, TOMATO, AND POTATO – David Willis (P) and Philipp Simon; Madison, Wisconsin.

- Marquez, M., Weber, B., Witherell, A., Willis, D.K., Charkowski, A.O. 2011. The 3-hydroxy-2-butanone pathway is required for *Pectobacterium* pathogenesis. *PLoS One*. Available: <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0022974>.
- Willis, D.K., Wang, J., Stanford, J.R., Orth, A., Goodman, W.G. 2010. Microarray Analysis of Juvenile Hormone Response in *Drosophila melanogaster* S2 cells. *Journal of Insect Science*. 10(6). Available: <http://www.insectscience.org/10.66/i1536-2442-10-66.pdf>.
- Wang, J., Lindholm, J.R., Willis, D.K., Orth, A., Goodman, W.G. 2009. Juvenile Hormone Regulation of *Drosophila* Epac - A Guanine Nucleotide Exchange Factor for Rap1 Small GTPase. *Molecular and Cellular Endocrinology*. 305(1-2):30-37.
- Rotenberg, D., Krishna Kumar, N.K., Ullman, D.E., Montero-Astua, M., Willis, D.K., German, T.L., Whitfield, A.E. 2009. Variation in Tomato Spotted Wilt Virus Titer in *Frankliniella occidentalis* and Its Association with Frequency of Transmission. *Phytopathology*. 99(4):404-410.
- Wang, J., Stanford, J.R., Willis, D.K., Orth, A., Goodman, W.G. 2009. Juvenile Hormone Regulates the Expression of *Drosophila* Epac– a Guanine Nucleotide Exchange Factor for Rap1 Small GTPase. *Molecular and Cellular Endocrinology*. 305(1-2):30-37.
- Jahn, C.E., Charkowski, A.O., Willis, D.K. 2008. Evaluation of isolation methods for bacterial RNA quantitation in *Dickeya dadantii*. *Applied and Environmental Microbiology*. 75(2):318-324.
- Jahn, C.E., Willis, D.K., Charkowski, A.O. 2008. Contribution of Flagellar Sigma Factor (FlIA) to Virulence of *Dickeya dadantii*. *Molecular Plant-Microbe Interactions*. 21(11):1431-1442.
- Jahn, C.E., Willis, D.K., Charkowski, A.O. 2008. Contribution of Flagellar Sigma Factor (FlIA) to Virulence of *Dickeya Dadantii*. *Molecular Plant-Microbe Interactions*. 21(11):1431-1442.

5302-22000-008-00D

EPIDEMIOLOGY AND MANAGEMENT OF XYLELLA FASTIDIOSA (XF) AND OTHER EXOTIC AND INVASIVE DISEASES AND INSECT PESTS – Drake Stenger (P), Craig Ledbetter, Jianchi Chen, Elaine Backus, Christopher Wallis, Hong Lin, Rodrigo Krugner, Elizabeth Rogers, Mark Sisterson, and David Ramming; Parlier, California.

- Lin, H., Lou, B., Glynn, J.M., Doddapaneni, H., Civerolo, E.L., Chen, C., Duan, Y., Zhou, L., Vahling, C.M. 2011. The complete genome sequence of ‘*Candidatus Liberibacter solanacearum*’, the bacterium associated with potato Zebra Chip disease. *PLoS One*. 6(4):e19135. DOI:10.1371/journal.pone.0019135.
- Wang, X., Johnson, M.W., Opp, S.B., Krugner, R., Daane, K.M. 2011. Honeydew and insecticide-bait as competing food resources for a fruit fly and common parasitoids. *Entomologia Experimentalis et Applicata*. p.128-137.
- Stenger, D.C., Lee, M.W. 2011. Phylogeny of replication initiator protein TrfA reveals a highly divergent clade of incompatibility group P1 plasmids. *Applied and Environmental Microbiology*. 77:2522-2526.
- Liu, Q., Li, Y., Chen, J. 2011. First Report of Bacterial Wilt Caused by *Ralstonia solanacearum* on *Mesona chinensis* in China. *Plant Disease*. 95:222.

- Wallis, C.M., Huber, D.P., Lewis, K.J. 2011. Ecosystem, location, and climate effects on foliar secondary metabolites of lodgepole pine populations from central British Columbia. *Journal of Chemical Ecology*. 37(6):607-621.
- Backus, E.A., Morgan, D.J. 2011. Spatiotemporal colonization of *Xylella fastidiosa* in its vector supports two types of egestion in the inoculation mechanism of foregut-borne plant pathogens. *Phytopathology*. 101:912-922.
- Daane, K.M., Wistrom, C., Shapland, E.B., Sisterson, M.S. 2011. Seasonal abundance of *Draeculacephala minerva* and other *Xylella fastidiosa* vectors in California almond orchards and vineyards. *Journal of Economic Entomology*. 104:367-374.
- Liu, R., Zhang, P., Pu, X., Xing, X., Chen, J., Deng, X. 2011. Analysis of a prophage gene frequency revealed population variation of 'Candidatus *Liberibacter asiaticus*' from two geographically distinct citrus growing Provinces in China. *Plant Disease*. 95:431-435.
- Carpane, P., Wayadande, A., Backus, E.A., Dolezal, W., Fletcher, J. 2011. Characterization and correlation of new EPG waveforms for the corn leafhopper *Dalbulus maidis* (Hemiptera: Cicadellidae). *Annals of the Entomological Society of America*. 104(3):515-525.
- Chen, J., Civerolo, E.L., Lee, R.F., Jones, J., Deng, X., Hartung, J.S., Keremane, M.L., Brlansky, R. 2010. "Candidatus *Liberibacter* sp.", Without Koch's Postulates Completed, Can the Bacterium be Considered as the Causal Agent of Citrus Huanglongbing (Yellow Shoot Disease)? *Acta Phytopathologica Sinica*. 41(2):113-117.
- Yang, L., Lin, H., Takahashi, Y., Chen, F., Walker, M., Civerolo, E.L. 2011. Proteomic Analysis of Grapevine Tissues in Response to *Xylella fastidiosa* Infection. *Physiological and Molecular Plant Pathology*. 75(3):90-99.
- Chen, J., Xie, G., Han, S., Civerolo, E.L. 2010. Two whole genome sequences of *Xylella fastidiosa* (strains M12 and M23) causing almond leaf scorch disease in California. *Journal of Bacteriology*. 192:4543.
- Lee, M.W., Stenger, D.C., Rogers, E.E. 2010. Functional characterization of replication and stability factors of an incP-1 plasmid from *Xylella fastidiosa*. *Applied and Environmental Microbiology*. 76: 7734-7740.
- Stenger, D.C., Sisterson, M.S., French, R.C. 2010. Population Genetics of *Homalodisca vitripennis* Reovirus Validates Timing and Limited Introduction to California of Its Invasive Insect Host, the Glassy-winged Sharpshooter. *Virology*. 407:53-59.
- Wallis, C.M., Reich, R., Lewis, K.J., Huber, D.P. 2010. Lodgepole Pine Provenances Differ In Chemical Defense Capacities Against Foliage and Stem Diseases. *Canadian Journal of Forest Research*. 40:2333-2344.
- Son, Y., Groves, R.L., Daane, K.M., Morgan, D.J., Krugner, R., Johnson, M.W. 2010. Estimation of Feeding Threshold for *Homalodisca vitripennis* (Hemiptera: Cicadellidae) and Its Application to Prediction of Overwintering Mortality. *Environmental Entomology*. 39(4):1264-1275.
- Krugner, R. 2010. Differential Reproductive Maturity between Allopatric Populations of *Homalodisca vitripennis* (Hemiptera: Cicadellidae) in California. *Crop Protection*. 29:1521-1528.
- Lin, H., Chen, C., Doddapaneni, H., Duan, Y., Civerolo, E.L., Bai, X., Zhao, X. 2010. A New Diagnostic system for Ultra Sensitive and Specific Detection and Quantitation of "Candidatus *Liberibacter asiaticus*", the Bacterium Associated with Citrus Huanglongbing. *Journal of Microbiological Methods*. 81(1):17-25.
- Stenger, D.C., Lee, M.W., Rogers, E.E., Chen, J. 2010. Plasmids of *Xylella fastidiosa* Mulberry-Infecting Strains Share Extensive Sequence Identity and Gene Complement with pVEIS01 From the Earthworm Symbiont *Verminephrobacter Eiseniae*. *Physiological and Molecular Plant Pathology*. 74:238-245.
- Sisterson, M.S., Thimmiraju, S., Daane, K., Lynn-Patterson, K., Groves, R. 2010. Epidemiology of Diseases Caused by *Xylella fastidiosa* in California: Evaluation of Alfalfa As A Source of Vectors and Inocula. *Plant Disease*. 94:827-834.
- Chen, J., Deng, X., Sun, X., Jones, D., Irey, M., Civerolo, E.L. 2010. Guangdong and Florida Populations of "Candidatus *Liberibacter asiaticus*" Distinguished by a Genomic Locus With Short Tandem Repeats. *Phytopathology*. 100:567-572.

- Cheng, D.W., Lin, H., Takahashi, Y., Walker, A.M., Civerolo, E.L., Stenger, D.C. 2010. Transcriptional Regulation of the Grape Cytochrome P450 Monooxygenase Gene CYP736B Expression in Response to *Xylella fastidiosa* Infection. *Biomed Central (BMC) Plant Biology*. 10:135.
- Cheng, D.W., Lin, H., Civerolo, E.L. 2010. Extracellular Genomic DNA Mediates Enhancement of *Xylella fastidiosa* Biofilm Formation in Vitro. *Journal of Plant Pathology*. 92(2):405-410.
- Hannon, E., Sisterson, M.S., Stock, P., Carriere, Y., Tabashnik, B., Gassmann, A. 2010. Effects of Four Entomopathogenic Nematode Species on Fitness Costs of Pink Bollworm Resistance to *Bacillus thuringiensis* toxin Cry1Ac. *Journal of Economic Entomology*. 103:1821-1831.
- Wistrom, C., Sisterson, M.S., Pryor, M., Hashim, J., Daane, K.M. 2010. Distribution of Glassy-winged Sharpshooter and Threecornered Alfalfa Hopper on Plant Hosts in the San Joaquin Valley. *Journal of Economic Entomology*. 103(4):1051-1059.
- Yamaguchi, M., Valliyodan, B., Zhang, J., Lenoble, M.E., Yu, O., Rogers, E.E., Nguyen, H.T., Sharp, R.E. 2010. Regulation of Growth Response to Water Stress in the Soybean Primary Root. I. Proteomic Analysis Reveals Region-Specific Regulation of Phenylpropanoid Metabolism and Control of Free Iron in the Elongation Zone. *Plant Cell and Environment*. 33:223-243.
- Ledbetter, C.A., Rogers, E.E. 2009. Differential Susceptibility of *Prunus* Germplasm (Subgenus *Amygdalus*) to a California Strain of *Xylella fastidiosa*. *HortScience*. 44(7):1928-1931.
- Riaz, S., Tenschler, A.C., Graziani, R., Krivanek, A.F., Ramming, D.W., Walker, M. 2009. Using Marker-Assisted Selection to Breed Pierce's Disease-Resistant Grapes. *American Journal of Enology and Viticulture*. 60(2):199-207.
- Wen, A., Mallik, I., Alvarado, V.Y., Pasche, J.S., Wang, X., Li, W., Levy, L., Lin, H., Scholthof, H., Mirkov, E., Rush, C.M., Gudmestad, N.C. 2009. Detection, Distribution and Genetic Variability of 'Candidatus *Liberibacter*' Species Associated with Zebra Complex Disease of Potato in North America. *Plant Disease*. 93:1102-1115.
- Livingston, S., Chen, J., Civerolo, E.L. 2009. Seasonal Behavior of *Xylella fastidiosa* Causing Almond Leaf Scorch Disease Under Field Conditions and Improved Detection of the Bacteria by Means of Array-PCR. *Journal of Phytopathology*. 158:40-45.
- Krugner, R., Johnson, M.W., Morgan, D.J., Morse, J.G. 2009. Production of *Anagrus epos* Girault (Hymenoptera: Mymaridae) on *Homalodisca vitripennis* (Germar) (Hemiptera: Cicadellidae) eggs. *Biological Control*. 51(1):122-129.
- Ledbetter, C.A., Chen, J., Livingston, S., Groves, R.L. 2009. Winter curing of *Prunus dulcis* cv 'Butte,' *P. webbii* and their interspecific hybrid in response to *Xylella fastidiosa* infections. *Euphytica*. Available: www.springerlink.com/content/80775k3135586p81/fulltext.html.
- Lin, H., Doddapaneni, H., Munyaneza, J.E., Civerolo, E.L., Venkatesan, S.G., Buchman, J.L., Stenger, D.C. 2009. Molecular characterization and Phylogenetic analysis of 16S rRNA from a new *Candidatus Liberibacter* strain associated with Zebra chip disease of Potato (*Solanum tuberosum* L.) and the potato psyllid. *Journal of Plant Pathology*. 91:215-219.
- Cheng, D.W., Lin, H., Walker, M., Stenger, D.C., Civerolo, E.L. 2009. Effects of Grape Xylem Sap and Cell Wall Constituents on In Vitro Growth, Biofilm Formation, and Cellular Aggregation of *Xylella fastidiosa*. *European Journal of Plant Pathology*. 125:213-222.
- Stenger, D.C., Sisterson, M.S., Krugner, R., Backus, E.A., Hunter, W.B. 2009. A New Phytoreovirus Infecting the Glassy-Winged Sharpshooter (*Homalodisca vitripennis*). *Virology*. 386:469-477.
- Zhao, N., Boyle, B., Duval, I., Ferrer, J., Lin, H., Seguin, A., Mackay, J., Chen, F. 2009. SABATH Methyltransferases from White Spruce (*Picea glauca* [Moench] Voss): Gene Cloning, Functional Characterization and Structural Analysis. *Tree Physiology*. 29(7):947-957.
- Backus, E.A., Holmes, W., Schreiber, F., Reardon, B., Walker, G. 2009. Sharpshooter X-wave: Correlation of an Electrical Penetration Graph (EPG) Waveform With Xylem Penetration Supports a Hypothesized Mechanism For *Xylella Fastidiosa* Inoculation. *Annals of the Entomological Society of America*. 102(5):847-867.
- Rogers, E.E., Wu, X., Stacey, G., Nguyen, H.T. 2009. Two MATE Proteins Play a Role in Iron Efficiency in Soybean. *Journal of Plant Physiology*. 166:1453-1459.

- Sisterson, M.S. 2009. Transmission of Insect-Vectored Pathogens: Effects of Vector Fitness as a Function of Infectivity Status. *Environmental Entomology*. 38:345-355.
- Chen, J., Deng, X., Liu, S., Pu, X., Li, H., Civerolo, E.L. 2009. A phytoplasma related to *Candidatus Phytoplasma asteri* is associated with citrus showing Huanglongbing (yellow shoot disease) symptoms in Guangdong, P. R. China. *Phytopathology*. 99:236-242.
- Krugner, R., Groves, R.L., Johnson, M.W., Flores, A.P., Hagler, J.R., Morse, J.G. 2009. Seasonal Population Dynamics of *Homalodisca vitripennis* (Germar) (Hemiptera: Cicadellidae) in Sweet Orange Trees Maintained under Continuous Deficit Irrigation. *Journal of Economic Entomology*. 102(3):960-973.
- Yao, J., Lin, H., Vandeyne, A., Doddapaneni, H., Francis, M., Macedo Lemos, E., Civerolo, E.L. 2008. PrimerSNP: a web tool for whole-genome selection of allele-specific and common primers of phylogenetically-related bacterial genomic sequences. *BMC Microbiology*, 8:185 DOI:10.1186/1471-2180-8-185.
- Doddapaneni, H., Liao, H., Lin, H., Bai, X., Zhao, X., Civerolo, E.L., Irey, M., Coletta-Filho, H., Pietersen, G. 2008. Comparative phylogenomics and multi-gene cluster analyses of the CitrusHuanglongbing (HLB)-associated bacterium *Candidatus Liberibacter*. *BMC Research Notes*, 1:72.
- Deng, X., Chen, J., Li, H. 2008. Sequestering and characterization of sequence of a ribosomal RNA operon (rrn) from "*Candidatus Liberibacter asiaticus*". *Molecular and Cellular Probes*. 22:338-340.
- De Mello Varani, A., Souza, R., Nakaya, H., De Lima, W., De Almeida, L., Kitajima, E., Chen, J., Civerolo, E.L., Vasconcelos, A., Van Sluys, M. 2008. Origins of the *Xylella fastidiosa* prophage-like regions and their impact in genome differentiation. *PLoS One*. 3(12):e4059. DOI:10.1371/journal.pone.0004059.
- Christensen, L., Fidelibus, M.W., Katayama, D.G., Ramming, D.W. 2008. Early-ripening grapevine cultivars for dry-on-vine (DOV) raisins on an open-gable trellis. *HortTechnology*:18(4):740-745.
- Sisterson, M.S. 2008. Egg load dynamics of *Homalodisca vitripennis*. *Environmental Entomology*. 37(5):1200-1207(8).
- Chen, J., Civerolo, E.L. 2008. Morphological evidence for phages of *Xylella fastidiosa*. *Virology Journal*. 5:75.
- Sandanayaka, W., Backus, E.A. 2008. Quantitative comparison of stylet penetration behaviors of glassy-winged sharpshooter, *Homalodisca vitripennis*, on four crop plants important in New Zealand and the USA. *Journal of Economic Entomology*. 98:787-813.
- Krugner, R., Johnson, M.W., Daane, K.M., Morse, J.G. 2008. Olfactory responses of the egg parasitoid, *Gonatocerus ashmeadi* Girault (Hymenoptera: Mymaridae), to host plants infested by *Homalodisca vitripennis* (Germar) (Hemiptera: Cicadellidae). *Biological Control*. 47:8-15.
- Sisterson, M.S., Yacoub, R., Montez, G., Grafton-Cardwell, E., Groves, R.L. 2008. Distribution and Management of Citrus in California: Implications for Management of Glassy-winged Sharpshooter. *Journal of Economic Entomology*. 101:1041-1050.
- Doddapaneni, H., Lin, H., Walker, M., Yao, J., Civerolo, E.L. 2008. vitisExpDB: A database resource for grape functional genomics. *Biomed Central (BMC) Plant Biology*. 8:23 DOI:10.1186/1471-2229-8-23
- Cabrera-La Rosa, J., Johnson, M., Chen, J., Civerolo, E.L., Groves, R. 2008. Seasonal Population Dynamics of *Draeculacephala minerva* (Hemiptera: Cicadellidae) and Transmission Efficiency of *Xylella fastidiosa*. *Journal of Economic Entomology*. 101(4):1105-1113.
- Chen, J., Civerolo, E.L., Tubajika, K.M., Livingston, S., Higbee, B. 2008. Hyper-variation of Tandem Repeats at the PD0218 (pspB) locus of *Xylella fastidiosa* Almond Leaf Scorch and Grape Pierce's Disease Strains. *Applied and Environmental Microbiology*. 74:3652-3657.
- Gassmann, A.J., Stock, P.S., Sisterson, M.S., Carriere, Y., Tabashnik, B.E. 2008. Synergistic interactions between entomopathogenic nematodes and Bt crops: integrating biological control and resistance management. *Journal of Applied Ecology* 45:957-966.

- Nadel, H., Seligmann, R., Johnson, M.W., Hagler, J.R., Stenger, D.C., Groves, R.L. 2008. Effects of citrus and avocado irrigation and nitrogen-form soil amendment on host selection by adult *Homalodisca vitripennis*. *Environmental Entomology*. 37(3):787-795.
- Deng, X., Chen, J., Luo, Z., Feng, Z., Li, H., Civerolo, E.L. 2008. First report of graft-transmission and PCR detection of *Candidatus Liberibacter asiaticus* from *Atalantia buxifolia* in Guangdong, China. *Plant Disease*. 92: 314.

5302-22000-009-00D

CHARACTERIZATION & EPIDEMIOLOGY OF CITRUS TRISTEZA VIRUS & OTHER INVASIVE & EMERGING GRAFT-TRANSMISSIBLE DISEASES OF CITRUS IN CALIFORNIA – Raymond Yokomi (P); Parlier, California.

- Yokomi, R.K., Polek, M., Grafton-Cardwell, B., Vidalakis, G., O'Connell, N., Saponari, M. 2011. Assessment of the Citrus tristeza virus isolates detected in spring 2007 at the Lindcove Research and Extension Center, Exeter, California. *International Organization of Citrus Virologists Proceedings*. p. 28-35.
- Yokomi, R.K., Mello, A.F., Fletcher, J., Saponari, M. 2011. Estimation of Citrus Stubborn Disease Incidence in Citrus Groves by real-time PCR. *Conference of International Organization of Citrus Virologists*. p.131-141.
- Mello, A.F., Yokomi, R.K., Fletcher, J. 2011. Assessment of Stubborn Disease Incidence in Citrus. In: *Proceedings of the International Organization of Citrus Virologists*. p. 123-130.
- Vidal, E., Yokomi, R.K., Moreno, A., Bertolini, E., Cambra, M. 2011. Calculation of diagnostic parameters of advanced serological and molecular tissue-print methods for detection of Citrus tristeza virus. A model for other plant pathogens. *Phytopathology* DOI:10.1094/PHYTO-05-11-0139.
- Yokomi, R.K., Saponari, M. 2011. Molecular analysis among MCA13-reactive isolates reveals a rapid strategy for assessment of Citrus tristeza virus severity. *Acta Horticulturae*. 892:251-256.
- Saponari, M., Yokomi, R.K. 2011. Use of the Coat Protein (CP) and minor CP Intergene Sequence to Discriminate Severe Strains of Citrus tristeza virus. In: *Proceedings of the International Organization of Citrus Virologists*. p.43-57.
- Spear, A., Sisterson, M.S., Yokomi, R.K., Stenger, D.C. 2010. Plant-feeding insects harbor double-stranded RNA viruses encoding a novel proline-alanine rich protein and a polymerase distantly related to that of fungal viruses. *Virology*. 404:304-311.
- Mello, A.F., Yokomi, R.K., Melcher, U., Chen, J., Civerolo, E.L., Wayadande, A., Fletcher, J. 2010. New Perspectives on the Epidemiology of Citrus Stubborn Disease in California Orchards. *Plant Health Progress*. Online publication, DOI:10.1094/PHP-2010-0526-04-SY.
- Yokomi, R.K., Saponari, M., Sieburth, P.J. 2010. Rapid Differentiation and Identification of Potential Severe Strains of Citrus tristeza Virus by Real-Time Reverse Transcription Polymerase Chain Reaction Assays. *Phytopathology*. 100:319-327.
- Mello, A.F., Yokomi, R.K., Payton, M.E., Fletcher, J. 2010. Effect of Citrus Stubborn Disease on Navel Orange Production in a Commercial Orchard in California. *Journal of Plant Pathology*. 92:429-438.
- Mello, A.F., Wayadande, A., Yokomi, R.K., Fletcher, J. 2009. Transmission of different strains of *Spiroplasma citri* to carrot and citrus by *Circulifer tenellus* Baker (Hemiptera:Cicadellidae). *Journal of Economic Entomology*. 102(4):1417-1422.
- Mello, A.F., Yokomi, R.K., Melcher, U., Chen, J., Fletcher, J. 2009. Citrus Stubborn Severity is Associated with *Spiroplasma Citri* Titer but Not with Bacterial Genotype. *Plant Disease*. 94:75-82.
- Mello, A.F., Yokomi, R.K., Melcher, U., Chen, J., Wayadande, A., Fletcher, J. 2008. Genetic Diversity of *Spiroplasma citri* strains from Different Regions, Hosts, and Isolation Dates. *Phytopathology*. 98:960-968.
- Yokomi, R.K., Mello, A., Saponari, M., Fletcher, J. 2008. PCR-based detection of *spiroplasma citri* associated with citrus stubborn disease. *Plant Disease*. 92:253-260.

5305-22000-011-00D

BIOLOGY, EPIDEMIOLOGY, PATHOGENESIS, AND VECTOR SPECIFICITY OF SUGARBEET AND VEGETABLE VIRUSES –William Wintermantel (P) and Hsing Yeh Liu; Salinas, California.

- Tzanetakis, I.E., Wintermantel, W.M., Poudel, B., Zhou, J. 2011. Diodia vein chlorosis virus is a group-1 crinivirus. *Archives of Virology*. DOI:10.1007/s00705-011-1055-3.
- Gulati Sakhuja, A.N., Rains, L., Tian, T., Liu, H. 2011. The complete nucleotide sequence and genome organization of a novel carmovirus - Honeysuckle ringspot virus isolated from honeysuckle. *Archives of Virology*. 156:1635-1640.
- Wintermantel, W.M. 2011. A comparison of disinfectants to prevent spread of potyviruses in greenhouse tomato production. *Plant Health Progress*. DOI: 10.1094/PHP-2011-0221-01-RS.
- Gulati Sakhuja, A.N., Liu, H. 2011. Infectious full-length clones of Calibrachoa Mottle Virus (CbMV). *Journal of Antivirals and Antiretrovirals*. 3(1): 001-007.
- Wintermantel, W.M., Hladky, L.L. 2010. Methods for detection and differentiation of existing and new crinivirus species through multiplex and degenerate primer RT-PCR. *Journal of Virological Methods*. 170(1-2):106-114.
- Xu, D., Liu, H., Koike, S.T., Li, F., Li, R. 2010. Biological characterization and complete genomic sequence of Apium virus Y infecting celery. *Virus Research*. 155:76-82.
- Koike, S.T., Tian, T., Liu, H. 2010. First report of Tobacco rattle virus in spinach in California.. *Plant Disease*. 94-125.
- Gulati Sakhuja, A.N., Liu, H. 2010. Complete Nucleotide Sequence and Genome Organization of Calibrachoa Mottle Virus (CbMV) - a new Species in the Genus Carmovirus, Family Tombusviridae. *Virus Research*. 147:216-223.
- Wintermantel, W.M., Hladky, L.L., Gulati Sakhuja, A.N., Li, R., Liu, H., Tzanetakis, L.E. 2009. The complete nucleotide sequence and genome organization of Tomato infectious chlorosis virus: A distinct crinivirus most closely related to Lettuce infectious yellows virus. *Archives of Virology*. 154:1335-1341.
- Liu, H., Sears, J.L., Mou, B. 2009. Spinach: A new natural host of Impatiens necrotic spot virus in California.. *Plant Disease* 93:673, 2009
- Wintermantel, W.M., Hladky, L.L., Cortez, A.A., Natwick, E.T. 2009. A new expanded host range of Cucurbit yellow stunting disorder virus includes three agricultural crops. *Plant Disease* 93: 685-690.
- Wintermantel, W.M., Hladky, L.L. 2008. Resistance to curly top viruses through virus induced gene silencing. *Phytopathology*. 92:S172
- Wintermantel, W.M., Cortez, A.A., Anchieta, A.G., Gulati Sakhuja, A.N., Hladky, L.L. 2008. Co-infection by two criniviruses alters accumulation of each virus in a host-specific manner and influences efficiency of virus transmission. *Phytopathology* 98: 1340-1345.
- Tian, T., Liu, H., Koike, S. 2008. First Report of Apium Virus Y on Cilantro, Celery, and Parsley in California. *Plant Disease* 92:1254.
- Polston, J.E., Hladky, L.L., Akad, F., Wintermantel, W.M. 2008. First Report of Cucurbit Yellow Stunting Disorder Virus in Cucurbits in Florida. *Plant Disease*. 92:1251
- Liu, H., Lewellen, R.T. 2008. Suppression of Resistance-breaking Beet Necrotic Yellow Vein Virus Isolates by Beet Oak-leaf Virus in Sugar Beet. *Plant Disease* 92:1043-1047

5306-21220-004-00D

SUSTAINABLE VINEYARD PRODUCTION SYSTEMS –Kendra Baumgartner (P), Mysore Sudarshana, Daniel Kluepfel, Kerri Steenwerth, and Andrew McElrone; Davis, California.

- Petit, E., Barriault, E., Baumgartner, K., Wilcox, W., Roshausen, P.E. 2011. Identification of *Cylindrocarpus* species associated with Black-Foot of grapevine in Northeastern United States and Southeastern Canada. *American Journal of Enology and Viticulture*. 62:177-183.
- Baumgartner, K., Coetzee, M.P., Hoffmeister, D. 2011. Secrets of the subterranean pathosystem of *Armillaria*. *Molecular Plant Pathology*. 12:515-534.

- Alcorta, M., Fidelibus, M.W., Steenwerth, K.L., Shrestha, A. 2011. Effect of vineyard row orientation on growth and phenology of glyphosate-resistant and glyphosate-susceptible horseweed (*Conyza canadensis* L. Cronq.). *Weed Science*. 59:55-60.
- Broderson, C.R., Lee, E., Mcelrone, A.J., Shackel, K., Choat, B., Phillips, R., Matthews, M.A. 2011. Analyzing 3D xylem networks in *Vitis vinifera* using High Resolution Computed Tomography (HRCT). *New Phytologist*. DOI: 10.1111/j.1469-8137.2011.03754.x.
- Eastburn, D.M., Mcelrone, A.J., Bilgin, D.B. 2011. Influence of atmospheric and climatic change on plant-pathogen interactions. *Plant Pathology*. 60(1):54-69.
- Gambetta, G.A., Matthews, M.A., Shaghasi, T.H., Mcelrone, A.J., Castellarin, S.D. 2010. Sugar and abscisic acid signaling orthologs are activated at the onset of ripening in grape. *Planta*. DOI: 10.1007/s00425-010-1165-52.
- Broderson, C.R., Mcelrone, A.J., Choat, B., Matthews, M.A., Shackel, K. 2010. Dynamics of embolism repair in xylem: in vivo visualizations using High Resolution Computed Tomography. *Plant Physiology*. 154(3):1088-1095.
- Steenwerth, K.L., Baumgartner, K., Belina, K.M., Veilleux, L. 2010. Vineyard weed seedbank composition responds to glyphosate and cultivation after three years. *Weed Science*. 58:310-316.
- Baumgartner, K., Travadon, R., Bruhn, J., Bergemann, S.E. 2010. Contrasting patterns of genetic diversity and population structure of *armillaria mellea sensu stricto* in the eastern and western United States. *Phytopathology*. 100:708-718.
- Steenwerth, K.L., Belina, K.M. 2010. Vineyard weed management practices influence nitrate leaching and nitrous oxide emissions. *Agriculture, Ecosystems and Environment*. 38:127-131.
- Bleby, T.M., Mcelrone, A.J., Pockman, W.T., Jackson, R.B. 2010. Water uptake and hydraulic redistribution across large woody root systems to 20 m depth. *Plant Cell and Environment*. 33(12):2132-2148.
- Baumgartner, K., Foster, G.D., Bailey, A.M. 2010. Agrobacterium-mediated transformation for the investigation of somatic recombination in the fungal pathogen *Armillaria*. *Applied and Environmental Microbiology*. 76:7990-7996.
- Mcelrone, A.J., Grant, J.A., Kluepfel, D.A. 2010. The role of tyloses in crown hydraulic failure of mature walnut trees afflicted with apoplexy disorder. *Tree Physiology*. 30:761-772.
- Choat, B., Drayton, W., Brodersen, C., Matthews, M., Shackel, K., Wada, H., Mcelrone, A.J. 2010. Measurement of vulnerability to water stress-induced cavitation in grapevine: a comparison of four techniques applied to a long-veined species. *Plant Cell and Environment*. DOI: 10-1111/j.1365-3040.
- Baumgartner, K., Bhat, R., Fujiyoshi, P.T. 2010. A rapid infection assay for *armillaria* and real-time pcr quantitation of the fungal biomass in planta. *Fungal Biology*. 114:107-119.
- Baumgartner, K., Fujiyoshi, P.T., Smith, R., Bettiga, L. 2010. Weed Flora and Dormant-season cover crops have no effects on arbuscular mycorrhizae of grapevine. *Weed Research*. 50:456-466.
- Steenwerth, K.L., Pierce, D.L., Carlisle, E.A., Spencer, R.G., Smart, D.R. 2010. A Vineyard Agroecosystem: Disturbance and Precipitation Affect Soil Respiration under Mediterranean Conditions. *Soil Science Society of America Journal*. 74:231-239.
- Drenovsky, R.E., Steenwerth, K.L., Jackson, L.E., Scow, K.M. 2010. Land use and climatic factors structure regional patterns in soil microbial communities. *Global Ecology and Biogeography*. 19:27-39.
- Steenwerth, K.L., Smukler, S.M., Jackson, L.E., Sanchez Moreno, S., Fonte, S.J., H.Ferris, H., Klonsky, K., O'Green, A.T., Scow, K.M. 2010. Biodiversity and multiple ecosystem functions in an organic farmscape. *Agriculture, Ecosystems and Environment*. 139:80-97.
- Baumgartner, K., Grubisha, L.C., Fujiyoshi, P.T., Garbelloto, M., Bergemann, S.E. 2009. Microsatellite markers for the diploid Basidiomycete fungus, *Armillaria mellea*. *Molecular Ecology Resources*. 9:943-946.
- Gadoury, D.M., Andrews, J., Baumgartner, K., Bjerkness, M., Burr, T.J., Kennelly, M.M., Lichens-Park, A., Macdonald, J., Savary, S., Scherm, H., Tally, A., Wang, G. 2009. Disciplinary, institutional, funding, and demographic trends in plant pathology: What does the future hold for the profession? *Plant Disease*. 93:1228-1237.

- Baumgartner, K., Bergemann, S.E., Fujiyoshi, P.T., Rolshausen, P.E., Gubler, W.D. 2008. Microsatellite markers for the grapevine pathogen, *Eutypa lata*. *Molecular Ecology Resources*. 9:222-224.
- Steenwerth, K.L., Belina, K.M. 2008. Cover crops and cultivation: Impacts on soil N dynamics, nitrous oxide efflux, and microbiological function in a mediterranean vineyard agroecosystem. *Applied Soil Ecology*. Vol. 40, Issue 2, pp370-380.
- Mcelrone, A.J., Jackson, S., Habdas, P. 2008. Hydraulic disruption and passive migration by a bacterial pathogen in oak tree xylem. *Journal of Experimental Botany* 59(10):2649-2657.
- Smith, R.F., Bettiga, L., Cahn, M., Baumgartner, K., Jackson, L., Bensen, T. 2008. Vineyard floor management strategies affect soil properties & microbiology, water relations, and crop nutrition. *California Agriculture*. 62:184-190.
- Baumgartner, K., Steenwerth, K.L., Veilleux, L.M. 2008. Cover crop systems affect weed communities in a California vineyard. *Weed Science*. 56:596-605.
- Steenwerth, K.L., Belina, K.M. 2008. Cover crops enhance soil organic matter, carbon dynamics and microbiological function in a Mediterranean vineyard agroecosystem. *Applied Soil Ecology*. Vol. 40, Issue 2, pp359-369.
- Mcelrone, A.J., Bichler, J., Pockman, W.T., Addington, R.N., Linder, C., Jackson, R.B. 2007. Aquaporin-mediated changes in hydraulic conductivity of deep tree roots accessed via caves. *Plant Cell and Environment*.

5306-22000-014-00D

INTEGRATED STRATEGIES FOR ADVANCE MANAGEMENT OF FRUIT, NUT, AND OAK TREE DISEASES – Daniel Kluepfel (P), Takao Kasuga, Mysore Sudarshana, and Greg Browne; Davis, California.

- Koehmstedt, A., Velasco, D., Aradhya, M.K., Kluepfel, D.A. 2011. First international symposium on wild relatives of subtropical and temperate fruit and nut crops. *Symposium Proceedings*. 51:38-39.
- Alkowni, R., Zhang, Y., Rowhani, A., Uyemoto, J.K., Minafra, A. 2011. Biological, molecular, and serological studies of a novel strain of grapevine leafroll associated virus 2. *Virus Genes*. DOI: 10.1007/s11262-011-0607-7.
- Browne, G.T., Schmidt, L.S., Prichard, T.J., Krueger, W.H. 2011. Evaluation of phosphonate treatments for control of *Phytophthora* crown rot of walnut. *Plant Health Progress*. DOI:10.1094/PHP-2011-0601-01-RS.
- Moyne, A., Sudarshana, M.R., Blessington, T., Koike, S.T., Cahn, M.D., Harris, L.J. 2011. Fate of *Escherichia coli* O157:H7 in field-inoculated lettuce. *Food Microbiology*. DOI:10.1016/j.fm.2011.02.001.
- Browne, G.T., Grant, J.A., Schmidt, L.S., Leslie, C.A., Mcgranahan, G.H. 2011. Resistance to *Phytophthora* and graft compatibility with Persian walnut among seedlings of Chinese wingnut from different sources. *HortScience*. 46:371-376.
- Addle, M., Pynn, J., Skellern, P., Kasuga, T., Grimwade, K. 2010. Chronic disseminated histoplasmosis with prolonged latency. *Journal of Internal Medicine*. 61:272-274.
- Reddy, D., Sudarshana, M.R., Fuchs, M., Rao, C.N., Thottappilly, G. 2010. Genetically engineered virus-resistant plants in developing countries: Current status and future prospects. *Advances in Virus Research*. 75:185-220.
- Yakabe, L., Parker, S., Kluepfel, D.A. 2010. Effect of pre-plant soil fumigants on *Agrobacterium tumefaciens*, pythiaceae species, and subsequent soil recolonization by *A. tumefaciens*. *Crop Protection*. 29:583-590.
- Kluepfel, D.A., Yakabe, L., Parker, S., McClean, A.E., Maccree, M.M. 2010. Detection and implications of early *Agrobacterium tumefaciens* infection of paradox seeds and seedlings. *Acta Horticulturae*. 861:497-500.
- Hasey, J., Lampinen, B., Anderson, K., Grant, J., Caprile, J., Beede, R., Kluepfel, D.A. 2010. Crown gall incidence: seedling paradox walnut rootstock versus own-rooted English walnut trees. *Acta Horticulturae*. 861:453-455.

- Shrestha, A., Browne, G.T., Lampinen, B.D., Schneider, S.M., Trout, T.J. 2009. Weed community composition in tree fruit nurseries treated with methyl bromide and alternative fumigants. *International Journal of Fruit Science*. 9(1):78-91.
- Kasuga, T., Mannhaupt, G., Glass, N.L. 2009. Relationship between phylogenetic distribution and genomic features in *neurospora crassa*. *PLoS One*. 10.1371/journal.pone.0005286.
- Videira, A., Kasuga, T., Tian, C., Lemos, C., Castro, A., Glass, N. 2009. Transcriptional analysis of the reponse of *neurospora crassa* to phytochingosine reveals links to mitochondrial function. *Microbiology*. 115:3134-3141.
- Mcclean, A.E., Kluepfel, D.A. 2009. Genetic loci involved in rubrifacine production in the walnut pathogen *Brennaria Rubrifaciens*. *Phytopathology*. 99:145-151.
- Kasuga, T., Glass, N.L. 2008. Dissecting colony development of *neurospora crassa* using mRNA profiling and comparative genomics approaches. *Eukaryotic Cell*. Vol. 7, No. 9, pp1549-1564.
- Hagen, C., Rojas, M.R., Sudarshana, M.R., Xoconostle-Cazares, B., Natwick, E.T., Turini, T.A., Gilbertson, R.L. 2008. Biology and Molecular Characterization of Cucurbit leaf crumple virus, an Emergent Cucurbit-Infecting Begomovirus in the Imperial Valley of California. *Plant Disease*. 95:5, pp.781-793.
- Mcclean, A.E., Sudarshana, P., Kluepfel, D.A. 2008. Enhanced detection and isolation of the walnut pathogen *brennaria rubrifaciens*: causal agent of deep bark canker. *European Journal of Plant Pathology*. 10.1007/s 10658-008-9308.
- Shaw, D.V., Hansen, J., Browne, G.T., Shaw, S.M. 2008. Components of genetic variation for resistance of strawberry to *phytophthora cactorum* estimated using segregating seedling populations and their parent genotypes. *Plant Pathology*. 57:210-215.
- Bhat, R.G., Browne, G.T. 2007. Genetic diversity in populations of *phytophthora citricola* associated with horticultural crops in California. *Plant Disease*. 91:1556-1563
- Al Rwahnih, M., Uyemoto, J.K., Falk, B.W., Rowhani, A. 2007. Molecular characterization and detection of plum bark necrosis stem pitting-associated virus. *Archives of Virology*. 152(12):2197-206. Epub 2007Sep 21. <http://www.ncbi.nlm.nih.gov/pubmed/17885796>.

5335-22000-007-00D

RESOURCES FOR IDENTIFICATION OF PLANT DISEASE RESISTANCE REGULATORY SEQUENCES, GENES AND SIGNALING COMPONENTS FOR CROP PROTECTION STRATEGIES – Barbara Baker (P); Albany, California.

- Kuang, H., Padmanabhan, C., Li, F., Kamei, A., Bhaskar, P.B., Ouyang, S., Jiang, J., Buell, C., Baker, B.J. 2008. Identification of miniature inverted-repeat transposable elements (MITEs) and biogenesis of their siRNAs in the Solanaceae: New functional implications for MITEs. *Genome Research*. 19:42-56.

5348-22000-013-00D

BIOLOGY, BIOLOGICAL CONTROL, AND MOLECULAR GENETICS OF ROOT DISEASES OF WHEAT, BARLEY AND BIOFUELS BRASSICAS – David Weller (P), Timothy Paulitz, Linda Thomashow, and Patricia Okubara; Pullman, Washington.

- Chekali, S., Gargouri, S., Paulitz, T.C., Nicol, J., Rezgui, M. 2011. Effects of *Fusarium culmorum* and water stress on durum wheat in Tunisia. *Crop Protection*. 30: 718-725.
- D'Aes, J., Khuong, H.G., De Maeyer, K., Pannecoucq, J., Forrez, I., Ongena, M., Dietrich, L.E., Thomashow, L.S., Mavrodi, D.V., Mavrodi, O.V., Hofte, M. 2011. Biological Control of Rhizoctonia Root Rot on Bean by Phenazine- and Cyclic Lipopeptide-Producing *Pseudomonas* CMR12a. *Phytopathology*. 101:996-1004.
- Okubara, P.A., Jones, S.S. 2011. Seedling Tolerance to Rhizoctonia and Pythium in Wheat Chromosome Group 4 Addition Lines from *Thinopyrum* spp.. *Canadian Journal of Plant Pathology*. 33(3): 415-422.

- Li, Q., Mavrodi, D.V., Thomashow, L.S., Roessle, M., Blankenfeldt, W. 2011. Ligand binding induces an ammonia channel in 2-amino-2-desoxyisochorismate (adC) synthase phze. *Journal of Biological Chemistry*. 286:18213-18221.
- Mavrodi, D.V., Joe, A., Mavrodi, O., Hassan, K.A., Weller, D.M., Paulsen, I.T., Loper, J.E., Alfano, J.R., Thomashow, L.S. 2011. Structural and functional analysis of the type III secretion system from *Pseudomonas fluorescens* Q8r1-96. *Journal of Bacteriology*. 193:177-189.
- Babiker, E.M., Hulbert, S.H., Schroeder, K.L., Paulitz, T.C. 2011. Optimum Timing of Pre-Plant Applications of Glyphosate to Manage Rhizoctonia Root Rot in Barley. *Plant Disease*. 95:304-310.
- Kwak, Y., Han, S., Thomashow, L.S., Topham, J., Paulitz, T.C., Kim, D., Weller, D.M. 2011. *Saccharomyces cerevisiae* genome-wide mutant screen for sensitivity to 2,4-diacetylphloroglucinol, a biocontrol antibiotic produced by *Pseudomonas fluorescens*. *Applied and Environmental Microbiology*. Volume 77: pages 1770-1776.
- Okubara, P.A., Call, D.R., Kwak, Y., Skinner, D.Z. 2010. Induction of defense gene homologues in wheat roots during interactions with *pseudomonas fluorescens*. *Biological Control*. 55:118-125.
- Mavrodi, D.V., Peever, T.L., Mavrodi, O.V., Parejko, J.A., Raaijmakers, J.M., Lemanceau, P., Mazurier, S., Heide, L., Blankenfeldt, W., Weller, D.M., Thomashow, L.S. 2010. Diversity and Evolution of the Phenazine Biosynthesis Pathway. *Applied Microbiology and Biotechnology*. Feb, 2010, p. 866-879.
- Mavrodi, D.V., Peever, T.L., Mavrodi, O.V., Parejko, J.A., Raaijmakers, J.M., Lemanceau, P., Mazurier, S., Heide, L., Blankenfeldt, W., Thomashow, L.S., Weller, D.M. 2010. Diversity and Evolution of the Phenazine Biosynthesis Pathway. *Applied and Environmental Microbiology*. Feb, 2010, p. 866-879.
- Yin, C., Jones, K.L., Peterson, D.E., Garrett, K.A., Hulbert, S.H., Paulitz, T.C. 2010. Members of soil bacterial communities sensitive to tillage and crop rotation. *Soil Biology and Biochemistry*. 42: 2111-2118.
- Babiker, E.M., Hulbert, S., Burke, I.C., Paulitz, T.C. 2009. Influence of weed species and time of glyphosate application on Rhizoctonia root rot of barley. *Phytopathology* 99: S6.
- Peter, R.R., Dessaux, Y., Thomashow, L.S., Weller, D.M. 2009. Rhizosphere engineering and management for sustainable agriculture. *Plant and Soil Journal*, 321 (1-2): 363-383.
- Mavrodi, D.V., Loper, J.E., Paulsen, I.T., Thomashow, L.S. 2009. Mobile genetic elements in the genome of the beneficial rhizobacterium *Pseudomonas fluorescens* Pf-5. *BMC Microbiology*. 9:8.
- Kwak, Y., Bakker, P.A., Glandorf, D., Topham, J., Paulitz, T.C., Weller, D.M. 2009. Diversity, virulence and 2,4-diacetylphloroglucinol sensitivity of *Gaeumannomyces graminis* var. *tritici* isolates from Washington State. *Phytopathology* Vol. 99, No. 5, p. 472-479.
- Okubara, P.A., Steber, C.M., Demacon, V.L., Walter, N., Paulitz, T.C., Kidwell, K.K. EMS-treated hexaploid wheat genotype Scarlet has enhanced tolerance to the soilborne necrotrophic pathogens *Rhizoctonia solani* AG-8 and *R. oryzae*. 2009. *Theor. Appl. Genet.* 119(February): 293-303. *Theoretical and Applied Genetics*.
- Baley, G.J., Campbell, K., Yenish, J., Kidwell, K.K., Paulitz, T.C. 2009. Influence of Glyphosate, Crop Volunteer and Root Pathogens on Glyphosate-Resistant Wheat under Controlled Environment Conditions. *Pest Management Science* Vol 65, No. 3, p.288-299.
- Mentel, M., Ahuja, E.G., Mavrodi, D.V., Breinbauer, R., Thomashow, L.S., Blankenfeldt, W. 2009. Of Two Make One: The Biosynthesis of Phenazines. *ChemBioChem* 2009, 10, 2295-2304.
- Thomashow, L.S. 2008. PhzA/B catalyzes the formation of the tricycle in phenazine biosynthesis. *Journal of the American Chemical Society*, 130 (50): 17053-17061.
- Yan, G., Smiley, R., Okubara, P.A., Skantar, A.M., Easley, S.A., Sheedy, J.G., Thompson, A.L. 2008. Detection and Discrimination of *Pratylenchus neglectus* and *P. thornei* in DNA Extracts from Soil. *Plant Disease*. 92(11):1480-1487.
- Haiming, L., Yanjing, H., Haixia, J., Huasong, P., Xianqing, H., Xuehong, Z., Thomashow, L.S., Yuquan, X. 2007. Characterization of a phenazine-producing strain *Pseudomonas chlororaphis* GP72 with broad-spectrum antifungal activity from green pepper rhizosphere. *Current Microbiology*.

- Mavrodi, O.V., Mavrodi, D.V., Thomashow, L.S., Weller, D.M. 2007. Quantification of 2,4-diacetylphloroglucinol-producing *Pseudomonas fluorescens* strains in the plant rhizosphere by real-time PCR. *Applied and Environmental Microbiology*. 73:5531-5538.
- Bonsall, R., Thomashow, L.S., Weller, D.M. 2007. Extraction and detection of antibiotics in the rhizosphere metabolome. *LC GC North America*. 11:14-19.
- Mavrodi, O.V., Mavrodi, D.V., Weller, D.M., Thomashow, L.S. 2006. The role of ptsP, orfT, and sss recombinase in root colonization by *Pseudomonas fluorescens* Q8r1-96. *Applied and Environmental Microbiology*. 72:7111-7122.

5348-22000-014-00D

CONTROL OF RUSTS OF CEREAL CROPS – Xianming Chen (P) and Daniel Skinner; Pullman, Washington.

- Haley, S., Johnson, J., Peairs, F., Stromberger, J., Heaton, E., Seifert, S., Kottke, R., Rudolph, J., Martin, T., Bai, G., Chen, X., Bowden, R.L., Jin, Y., Kolmer, J.A., Seifers, D., Chen, M., Seabourn, B.W. 2011. Registration of 'Snowmass' wheat. *Journal of Plant Registrations*. 5:1-4.
- Gao, Y., Sun, Q., Wang, R., Feng, J., Lin, F., Cui, N., Chen, X., Xu, S., Bai, Y., Xu, X. 2011. Inheritance of stripe rust resistance to predominant Chinese races in six spring wheat cultivars from the Pacific Northwest of the United States. *Cereal Research Communications*. 39:44-52.
- Sharma-Poudyal, D., Chen, X. 2011. Models for predicting potential yield loss of wheat caused by stripe rust in the US Pacific Northwest. *Phytopathology*. 101:544-554.
- Chen, X., Coram, T., Huang, X., Wang, M., Dolezal, A.L. 2011. Toward understanding molecular mechanisms of durable and non-durable resistance to stripe rust in wheat. *Euphytica*. Pages 70-81.
- Chen, X., Wood, D.A. 2011. Control of stripe rust of winter wheat with foliar fungicides, 2010. *Plant Disease Management Reports*. 5:CF004.
- Cheng, P., Chen, X. 2010. Molecular mapping of a gene for stripe rust resistance in spring wheat cultivar IDO377s. *Theor. Appl. Genet.* 121:195-204.
- Chen, X., Wood, D.A. 2010. Control of stripe rust of spring wheat with foliar fungicides, 2009. *Plant Disease Management Reports* 4:CF002.
- Chen, X., Wood, D.A. 2010. Control of stripe rust of spring barley with foliar fungicides, 2009. *Plant Disease Management Reports* 4:CF004.
- Chen, X., Wood, D.A. 2010. Control of stripe rust of winter wheat with foliar fungicides, 2009. *Plant Disease Management Reports* 4:CF003.
- Jones, S.S., Lyons, S.R., Balow, K.A., Gollnick, M.A., Murphy, K.M., Kuehner, J.S., Murray, T.D., Chen, X., Engle, D.A., Garland Campbell, K.A. 2010. Registration of 'Xerpha' Wheat. *Journal of Plant Registrations* 4:137-140.
- Wang, X.J., Liu, W., Chen, X., Ma, J.B., Huang, X.L., Dong, Y.L., Liu, B., Zhao, J., Wei, G.R., Huang, L.L., Kang, Z.S. 2010. Differential gene expression in incompatible interaction between wheat and stripe rust fungus revealed by the cDNA-AFLP and comparison to compatible interaction. *BMC Plant Biology* 10:9.
- Yu, X.M., Wang, X.J., Wang, C.F., Chen, X., Qu, Z.P., Yu, X.D., Han, Q.M., Zhao, J., Guo, J., Huang, L.L., Kang, Z.S. 2010. Induction of wheat defense related genes in response to *Puccinia striiformis*. *Funct. Integr. Genomics*: 10:227-239.
- Xia, N., Zhan, G., Sun, Y., Lin, Z., Xu, L., Chen, X., Liu, B., Yu, Y., Wang, X., Huang, L., Kang, Z. 2010. TaNAC8, a novel NAC transcription factor gene in wheat, responds to stripe rust pathogen infection and abiotic stresses. *Physiological and Molecular Approaches to Plant Improvement in Tropics*. 74:394-402.
- Nirmala, J., Drader, T., Chen, X., Steffenson, B., Kleinhofs, A. 2010. Stem rust spores elicit rapid RPG1 phosphorylation. *Molecular Plant Microbe International Symposium*. 23:135-1642.
- Feng, H., Wang, X., Sun, Y., Wang, X., Chen, X., Guo, J., Duan, Y., Huang, L., Kang, Z. 2010. Cloning and characterization of a calcium binding EF-hand protein gene TaCab1 from wheat and its expression in response to *Puccinia striiformis* f. sp. tritici and abiotic stresses. *Molecular Biology Reports*. 38:3857-3866.

- Li, Q., Chen, X., Wang, M., Jing, J. 2010. Yr45, A new wheat gene for stripe rust resistance mapped on the long arm of chromosome 3D. *Theoretical and Applied Genetics*. 122:189-197.
- Tabassum, S., Ashraf, M., Chen, X. 2010. Evaluation of Pakistan wheat germplasms for stripe rust resistance using molecular markers. *Science China Life Science*. 53(9):1-12.
- Kokhmetova, A., Chen, X., Rsaliev, S. 2010. Identification of *Puccinia striiformis* f. sp. tritici, characterization of wheat cultivars for resistance, identification of resistant germplasm, and inheritance of resistance to stripe rust in Kazakhstan wheat cultivars. *Asian and Australasian Journal of Plant Science and Biotechnology*. (Special Issue 1):64-70.
- Dong, Y., Yin, C., Hulbert, S., Chen, X., Kang, Z. 2010. Cloning and expression analysis of three secreted protein genes from wheat stripe rust fungus *Puccinia striiformis* f. sp. tritici. *World Journal of Microbiology and Biotechnology*. 27:1261-1265.
- Chen, X., Penman, L., Wan, A., Cheng, P. 2010. Virulence races of *Puccinia striiformis* f. sp. in 2006 and 2007 and development of wheat stripe rust and distributions, dynamics, and evolutionary relationships of races from 2000 to 2007 in the United States. *Canadian Journal of Plant Pathology*. 32:315-323.
- Coram, T., Huang, X., Zhan, G., Settles, M.L., Chen, X. 2010. Meta-analysis of transcripts associated with race-specific resistance to stripe rust in wheat demonstrates common induction of blue copper-binding protein, heat-stress transcription factor, ... synthase transcripts. *Functional and Integrative Genomics* 10:383-392.
- Liu, B., Xue, X.D., Cui, S.P., Zhang, X.Y., Han, Q.M., Zhu, L., Liang, X.F., Wang, X.J., Huang, L.L., Chen, X., Kang, Z.S. 2009. Cloning and characterization of a wheat β -1,3-glucanase gene induced by the stripe rust pathogen *Puccinia striiformis* f. sp. tritici. *Mol. Bio. Rep.* 37:1045-1052.
- Kidwell, K.K., Shelton, G.B., Demacon, V.L., Kuehner, J.S., Baik, B., Engle, D.A., Bosque-Perez, N.A., Burke, A., Carter, A.H., Chen, X. 2009. Registration of 'Whit' wheat. *Journal of Plant Registrations* 3:279-282.
- Kidwell, K., Shelton, G., Demacon, V.L., Chen, X., Kuehner, J.S., Baik, B., Engle, D.A., Carter, A.H., Bosque-Perez, N.A. 2009. Registration of 'Kelse' wheat. *Journal of Plant Registrations* 3:269-272.
- Ma, J., Chen, X., Wang, M., Kang, Z. 2009. Constructing physical and genomic maps for *Puccinia striiformis* f. sp. tritici, the wheat stripe rust pathogen, by comparing its EST sequences to the genomic sequence of *P. graminis* f. sp. tritici, the wheat stem rust pathogen. *Comparative and Functional Genomics Comparative and Functional Genomics Vol. 2009*, Article ID 302620.
- Ma, J., Huang, X., Wang, X., Chen, X., Qu, Z., Huang, L., Kang, Z. 2009. Isolation of expressed genes during compatible interaction between stripe rust (*Puccinia striiformis*) and wheat using a cDNA library. *BMC Genomics* 10:586.
- Yin, C., Chen, X., Wang, X., Han, Q., Kang, Z., Hulbert, S. 2009. Generation and analysis of expression sequence tags from haustoria of the wheat stripe rust fungus *Puccinia striiformis* f. sp. tritici. *BMC Genomic* 10:626.
- Carter, A.H., Chen, X., Garland Campbell, K.A., Kidwell, K.K. 2009. Identifying QTL for high-temperature adult-plant resistance to stripe rust (*Puccinia striiformis* f. sp. tritici) in the spring wheat (*Triticum aestivum* L.) cultivar 'Louise'. *Theor. Appl. Genet.* 119:1119-1128.
- Liu, B., Xue, X.D., Cui, S.P., Han, Q., Zhu, L., Wang, X., Huang, L., Chen, X., Kang, Z. 2009. Cloning and characterization of a wheat β -1,3-glucanase gene induced by the stripe rust pathogen *Puccinia striiformis* f. sp. tritici. *Mol. Bio. Rep.* 37:1045-1052.
- Sui, X.X., Wang, M.N., Chen, X. 2009. Molecular Mapping of a Stripe Rust Resistance Gene in Spring Wheat Cultivar 'Zak'. *Phytopathology* 99:1209-1215.
- Randhawa, H.S., Mutti, J.S., Kidwell, K.K., Morris, C.F., Chen, X., Gill, K.S. 2009. Rapid and Targeted Introgression of Genes into Popular Cultivars Using Marker-Assisted Background Selection. *PLoS One* 4(6):e5752.
- Haley, S.D., Johnson, J.J., Westra, P.H., Peairs, F.B., Stromberger, J.A., Heaton, E.E., Seifert, S.A., Kottke, R.A., Rudolph, J.B., Bai, G., Bowden, R.L., Chen, M., Chen, X., Jin, Y., Kolmer, J.A., Seabourn, B.W. 2009. Registration of 'Thunder CL' Wheat. *Journal of Plant Registration*. 3(2):181-184.

- Wang, X., Tang, C., Zhang, G., Li, Y., Wang, C., Liu, B., Qu, Z., Zhao, J., Han, Q., Huang, L., Chen, X., Kang, Z. 2009. cDNA-AFLP analysis reveals differential gene expression in compatible reaction of wheat challenged with *Puccinia striiformis* f. sp. tritici. *BMC Genomics* 10:289.
- Lin, F., Sun, Q., Xu, S., Chen, X., Zhang, L., Zhang, C., Xu, Y., Miao, Q., Qu, B., Li, N. 2009. Identification of wheat-*Thinopyrum* intermedium alien disomic addition lines conferring resistance to stripe rust. *Canadian Journal of Plant Science* 89:569-574.
- Coram, T., Settles, M.L., Chen, X. 2009. Large-scale analysis of antisense transcription in wheat using the Affymetrix GeneChip Wheat Genome Array. *BMC Genomics* 10:253.
- Haley, S.D., Johnson, J.J., Peairs, F.B., Quick, J.S., Stromberger, J.A., Butler, J.D., Miller, H.R., Heaton, E.E., Rudolph, J.B., Seabourn, B.W., Bai, G., Jin, Y., Kolmer, J.A., Chen, X. 2008. Registration of 'Bill Brown' wheat. *Journal of Plant Registrations*. 2:218-223.
- Li, Y., Niu, Y.C., Chen, X. 2008. Mapping a stripe rust resistance gene YrC591 in wheat variety C591 with SSR and AFLP marker. *Theor. Appl. Genet.* 118:339-346.
- Coram, T., Brown Guedira, G.L., Chen, X. 2008. Using transcriptomics to understand the wheat genome. *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources*. 3:083.
- Lin, F., Chen, X. 2008. Quantitative trait loci for non-race-specific, high-temperature adult-plant resistance to stripe rust in wheat cultivar Express. *Theor. and Appl. Genet.* 118:631-642.
- Zhang, L., Lavery, L., Gill, U., Gill, K., Steffenson, B., Yan, G.P., Chen, X., Kleinhofs, A. 2008. Loss of function of the barley *Nad1* gene, encoding a cation/proton exchanging protein, results in necrosis and defense response to stem rust. *Theor. Appl. Genet.* 118:385-397.
- Lin, F., Chen, X. 2008. Molecular mapping of genes for race-specific overall resistance to stripe rust in wheat cultivar Express. *TAG* 116:797-806.
- Yan, G.P., Chen, X. 2008. Identification of a major quantitative trait locus (QTL) for high-temperature adult-plant (HTAP) resistance against *Puccinia striiformis* f. sp. hordei in 'Bancroft' barley. *Phyto* 98:120-127.
- Santra, D.K., Chen, X., Santra, M., Garland Campbell, K.A., Kidwell, K.K. 2008. Identification and mapping QTL for high-temperature adult-plant resistance to stripe rust in winter wheat (*Triticum aestivum* L.) cultivar 'Stephens'. *TAG* <http://dx.doi.org/10.1007/s0122-008-0820-5>.
- Coram, T., Settles, M.L., Chen, X. 2008. Transcriptome analysis of high-temperature adult-plant resistance conditioned by Yr39 during the wheat-*Puccinia striiformis* f. sp. tritici interaction. *MPP* 9:479-493.
- Coram, T., Settles, M.L., Wang, M., Chen, X. 2008. Surveying expression level polymorphism and single-feature polymorphism in near-isogenic wheat lines differing for the Yr5 stripe rust resistance locus. *TAG* 117:401-411.

5350-22000-015-00D

BIOLOGICAL INTEGRATED MANAGEMENT OF FIRE BLIGHT OF POME FRUITS – Paul Pusey (P); Wenatchee, Washington.

- Wang, D., Korban, S.S., Pusey, P.L., Zhao, Y. 2011. Characterization of the RcsC sensor kinase from *Erwinia amylovora* and other enterobacteria. *Phytopathology*. 101:710-716.
- Pusey, P.L., Stockwell, V.O., Mazzola, M. 2009. Epiphytic bacteria and yeasts on apple blossoms and their potential as antagonists of *Erwinia amylovora*. *Phytopathology*. 99:571-581.
- Pusey, P.L., Stockwell, V.O., Rudell Jr, D.R. 2008. Antibiosis and acidification by *Panoea* agglomerans strain E325 may contribute to suppression of *Erwinia amylovora*. *Phytopathology*. 98:1136-1143.
- Temple, T.N., Stockwell, V.O., Pusey, P.L., Johnson, K.B. 2007. Evaluation of Likelihood of Co-occurrence of *Erwinia amylovora* with Mature Fruit of Winter Pear. *Journal of Phytopathology*. 97(10):1263-1273.

5350-22000-016-00D

SYSTEMATICS OF ALTERNARIA SPP. ASSOCIATED WITH TREE FRUITS AND INTERNATIONAL COMMERCE – Rodney Roberts (P); Wenatchee, Washington.

- Roberts, R.G., Reymond, S.T., Bischoff, J.F. 2011. Differential gene expression in *Alternaria gaisen* exposed to dark and light. *Mycological Progress*. DOI: 10.1007/s11557-011-0752-3.
- Roberts, R.G. 2008. *Alternaria undulata*, a new species from *Citrus sinensis*. *Mycotaxon*. 104:29-34.
- Roberts, R.G. 2008. *Alternaria roseogrisea*, a new species from achenes of *Helianthus annuus* (sunflower). *Mycotaxon*. 103:21-26.

5358-12220-003-00D

BIOLOGY AND MANAGEMENT OF SOILBORNE DISEASES OF HORTICULTURAL CROPS – Joyce Loper (P), Gerald Weiland, and Inga Zasada; Corvallis, Oregon.

- Kidarsa, T.A., Goebel, N.C., Zabriskie, T., Loper, J.E. 2011. Phloroglucinol mediates crosstalk between the pyoluteorin and 2,4-diacetylphloroglucinol biosynthetic pathways in *Pseudomonas fluorescens* Pf-5. *Molecular Microbiology*. 81(2):395-414.
- Subramoni, S., Gonzalez, J.F., Johnson, A., Pechy-Tarr, M., Rochat, L., Paulsen, I., Loper, J.E., Keel, C., Venturi, V. 2011. Bacterial subfamily of LuxR regulators that respond to plant compounds. *Applied and Environmental Microbiology*. 77(13):4579-4588.
- Hartney, S., Mazurier, S., Kidarsa, T.A., Quecine, M., Lemanceau, P., Loper, J.E. 2011. TonB-Dependent outer-membrane proteins and siderophore utilization in *Pseudomonas fluorescens* Pf-5. *Biometals*. 24(2):193.
- Stockwell, V., Johnson, K.J., Sugar, D., Loper, J.E. 2011. Mechanistically compatible mixtures of bacterial antagonists improve biological control of fire blight of pear. *Phytopathology*. 101(1):113-123.
- Weiland, G.E. 2011. Influence of isolation method on recovery of *Pythium* species from forest nursery soils in Oregon and Washington. *Plant Disease*. 95:547-553.
- Stockwell, V., Johnson, K.J., Sugar, D., Loper, J.E. 2010. Control of fire blight by *Pseudomonas fluorescens* A506 and *Pantoea vagans* C9-1 applied as single strains and mixed inocula. *Phytopathology*. 100(12):1330-1339.
- Zasada, I.A., Walters, T.W., Hanson, B.D. 2010. Challenges in producing nematode and pathogen free fruit and nut nursery crops in the United States. *Outlooks on Pest Management*. 21:246-250.
- Zasada, I.A., Pinkerton, J., Forge, T. 2010. Occurrence and distribution of plant-parasitic nematodes in Pacific Northwest blueberry production systems. *International Journal of Fruit Science*. 10:123-133.
- Treonis, A.M., Austin, E.A., Buyer, J.S., Maul, J.E., Spicer, L., Zasada, I.A. 2010. Effects of organic amendments and tillage on soil microorganisms and microfauna. *Applied Soil Ecology*. 46(1):103-110.
- Zasada, I.A., Halbrecht, J.M., Burelle, N.K., Lamondia, J., Mckenry, M.V., Noling, J. 2010. Managing nematodes without methyl bromide. *Annual Review of Phytopathology*. 48:15.1-15.18.
- Olcott, M.H., Henkels, M.D., Rosen, K., Walker, F., Sneh, B., Loper, J.E., Taylor, B. 2010. Lethality and developmental delay of *Drosophila melanogaster* following ingestion of selected *Pseudomonas fluorescens* strains. *PLoS One*. 5(9):e12504.
- Hassan, K., Johnson, A., Shaffer, B.T., Ren, Q., Kidarsa, T.A., Elbourne, L.H., Hartney, S., Duboy, R., Goebel, N., Zabriskie, M.T., Paulsen, I.T., Loper, J.E. 2010. Inactivation of the GacA response regulator in *Pseudomonas fluorescens* Pf-5 has far-reaching transcriptomic consequences. *Environmental Microbiology*. 12(4):899-915.
- Weiland, G.E., Nelson, A.H., Hudler, G.W. 2010. Aggressiveness of *Phytophthora cactorum*, *P. citricola* I, and *P. plurivora* from European beech. *Plant Disease*. 94(8):1009-1014.
- Zasada, I.A., Meyer, S.L., Morra, M.J. 2010. Brassicaceous seed meals as soil amendments to suppress the plant-parasitic nematodes *Pratylenchus penetrans* and *Meloidogyne incognita*. *Journal of Nematology*. 41:221-227.

- Nelson, A., Weiland, G.E., Hudler, G. 2010. Prevalence, distribution and identification of Phytophthora species from bleeding canker on European beech. *Phytopathology*. 28(3):150-158.
- Walters, T.W., Pinkerton, J.M., Riga, E., Zasada, I.A., Particka, M., Yoshida, H., Ishida, H. 2009. Managing plant-parasitic nematodes in established red raspberry fields. *HortTechnology*. 19:762-768.
- Weiland, G.E., Nelson, A., Hudler, G. 2009. Effects of mefenoxam, phosphonate, and paclobutrazol on in vitro characteristics of *Phytophthora cactorum* and *P. citricola* and on canker size of European Beech. *Plant Disease*. 93(7):741-746.
- Zasada, I.A., Masler, E.P., Rogers, S.T., Halbrendt, J.M. 2009. Behavioral response of *Meloidogyne incognita* to benzyl isothiocyanate. *Nematology*. 11:603-610.
- Thowthampitak, J., Shaffer, B.T., Prathuangwong, S., Loper, J.E. 2008. Role of rpfF in virulence and exoenzyme production of *Xanthomonas axonopodis* pathovar *glycines*, the causal agent of bacterial pustule of soybean. *Phytopathology*. 98(12):1252-1260.
- Pechy-Tarr, M., Bruck, D.J., Maurhofer, M., Fischer, E., Vogne, C., Henkels, M.D., Donahue, K.M., Grunder, J., Loper, J.E., Keel, C. 2008. Molecular analysis of a novel gene cluster encoding an insect toxin in plant-associated strains of *Pseudomonas fluorescens*. *Environmental Microbiology*. 10(9):2368-2386.
- Loper, J.E., Henkels, M.D., Shaffer, B.T., Valeriotte, F.A., Gross, H. 2008. Isolation and identification of rhizoxin derivatives from *Pseudomonas fluorescens* Pf-5 using a genomic mining strategy. *Applied and Environmental Microbiology*. 74(10):3085-3093.

5358-22000-033-00D

INTEGRATED MANAGEMENT OF VIRUS DISEASES OF SMALL FRUIT CROPS – Robert Martin (P); Corvallis, Oregon.

- Quito, D.F., Jelkmann, W., Tzanetakis, I.E., Keller, K.E., Martin, R.R. 2011. Complete sequence and genetic characterization of Raspberry latent virus, a novel member of the family Reoviridae. *Virus Research*. 155:397-405.
- Martin, R.R., Zhou, J., Tzanetakis, I.E. 2011. Blueberry latent virus: An amalgam of the Totiviridae and Partitiviridae. *Virus Research*. 155:175-180.
- Kraus, J., Cleveland, S., Tzanetakis, I.E., Keller, K.E., Putnam, M., Martin, R.R. 2010. A new Potyvirus sp. infects *Verbena* exhibiting leaf mottling symptoms. *Plant Disease*. 94:1132-1136.
- Fuchs, M., Abawi, G.S., Marsella-Herrick, P., Cox, R., Cox, K.D., Carrol, J.E., Martin, R.R. 2010. Tomato ringspot virus and tobacco ringspot virus in highbush blueberry in New York State. *Journal of Plant Pathology*. 92:451-459.
- Brown, J.K., Rogan, D., Idris, A.M., Martin, R.R., Rehman, M. 2010. First report of *Candidatus Liberibacter psyllauros* (synonym "*Ca. L. solanacearum*") associated with 'tomato vein-greening' and 'tomato psyllid yellows' diseases in commercial greenhouses in Arizona. *Plant Disease*. 94(3):376.
- Tzanetakis, I.E., Martin, R.R., Scott, S.W. 2010. Genomic sequences of Blackberry chlorotic ringspot virus and Strawberry necrotic shock virus and the phylogeny of viruses insubgroup 1 of the genus *Illavirus*. *Archives of Virology*. 155:557-561.
- Alabi, O.J., Martin, R.R., Naidu, R.A. 2010. Sequence diversity, populationgenetics and potential recombination events in *Rupestris* stem pitting-associated virus in Pacific Northwest vineyards. *Journal of General Virology*. 91:265-276.
- Jarugula, S., Martin, R.R., Naidu, R.A. 2010. Molecular diversity of Grapevine leafroll-associated virus-2 isolates in Pacific Northwest vineyards. *Phytopathology*. 100:698-707.
- Martin, R.R., Pinkerton, J.M., Kraus, J.E. 2009. The use of collagenase to improve the detection of plant viruses in vector nematodes by RT/PCR. *Journal of Virological Methods*. 155:91-95.
- Mekuria, T.A., Karasev, A.V., Martin, R.R., Naidu, R.A. 2009. First Report of Grapevine leafroll-associated virus-3 in wine grape cultivars in Idaho. *Plant Disease*. 93:1218.
- Tzanetakis, I.E., Tsai, C., Martin, R.R., Dreher, T.W. 2009. A tymovirus with an atypical 3'-UTR illuminates the possibilities for 3'-UTR evolution. *Virology*. 392:238-245.

- Mekuria, T., Gutha, L.R., Martin, R.R., Naidu, R.A. 2009. Genome diversity and intra- and inter-species recombination events in Grapevine fanleaf virus. *Phytopathology*. 99(12):1394-1402.
- Sabanadzovic, S., Vlaverde, R.A., Brown, J.K., Martin, R.R., Tzanetakis, I.E. 2009. Southern tomato virus: the link between the families Totiviridae and Partitiviridae. *Virus Research*. 140(1-2):130-137.
- Martin, R.R., Tzanetakis, I.E. 2008. First report of *Rosa multiflora* cryptic virus in *Rosa multiflora* in the Eastern United States. *Plant Disease*. 92(12):1706.
- Mekuria, T., Martin, R.R., Naidu, R.A. 2008. First report of the occurrence of Grapevine fanleaf virus in the Pacific Northwest region vineyards. *Plant Disease*. 92:1250.
- Malowicki, S.M., Qian, M.C., Martin, R.R. 2008. Comparison of aroma-active compounds in Raspberry bushy dwarf virus-resistant transgenic 'Meeker' red raspberries using stir bar sorptive extraction-gas chromatography-mass spectrometry. *Journal of Agricultural and Food Chemistry*. 56:6648-6655.
- Kraus, J., Tzanetakis, I.E., Putnam, M.L., Martin, R.R. 2008. Complete nucleotide sequence of an isolate of *Coleus vein necrosis virus* from *Verbena*. *Archives of Virology*. 152:381-384.
- Tzanetakis, I.E., Martin, R.R. 2008. Nucleotide Sequence of the tripartite *Fragaria chiloensis* cryptic virus and presence of the virus in the Americas. *Virus Genes*. 36:267-272.
- Tzanetakis, I.E., Martin, R.R. 2008. A new method for extraction of double-stranded RNA from plants. *Journal of Virological Methods*. 149:167-170.
- Susaimuthu, J., Tzanetakis, I.E., Gergerich, R., Kim, K.S., Martin, R.R. 2008. Viral interactions lead to decline of blackberry plants. *Plant Disease*. 92(9):1288-1292.
- Walton, V.M., Dreves, A., Gent, D.H., James, D.G., Martin, R.R., Chambers, U., Skinkis, P.A. 2007. Relationship between rust mites, *Calepitrimerus vitis* (Acari: Eriophyidae), bud mites *Colomeris vitis* (Acari: Eriophyidae) and short shoot syndrome in Oregon vineyards. *International Journal of Acarology*. 33:307-318.
- Susaimuthu, J., Tzanetakis, I.E., Gergerich, R., Martin, R.R. 2007. A member of a new genus in the Potyviridae infects *rubus*. *Virus Research*. 131:145-151.
- Tzanetakis, I.E., Halgren, A., Martin, R.R. 2007. Identification, detection and characterization of Raspberry mottle virus, a novel member of the Closteroviridae. *Virus Research*. 127:26-33.

5358-22000-034-00D

EXOTIC, EMERGING, RE-EMERGING, AND INVASIVE PLANT DISEASES OF HORTICULTURAL CROPS – Walter Mahaffee (P) and Niklaus Grunwald; Corvallis, Oregon.

- Goss, E.M., Cardenas, M.E., Myers, K., Forbes, G.A., Fry, W.E., Restrepo, S.O., Grunwald, N.J. 2011. The plant pathogen *Phytophthora andina* emerged via hybridization of an unknown *Phytophthora* species and the Irish famine pathogen, *P. infestans*. *PLoS One*. 6(9):e24543.
- Wallace, P., Arey, B., Mahaffee, W.F. 2011. Subsurface examination of a foliar biofilm using scanning electron- and focused-ion-beam microscopy. *Micron*. 42:579-585.
- Goss, E.M., Larsen, M.M., Vercauteren, A., Werres, S., Heungens, K., Grunwald, N.J. 2011. *Phytophthora ramorum* detections in Canada: evidence for migration within North America and from Europe. *Phytopathology*. 101:166-171.
- Cardenas, M., Grajales, A., Sierra, R., Rojas, A., Garavito, M., Lozano, G., Gonzalez-Almarino, A., Vargas, A., Marin, M., Fermin, G., Lagos, L.E., Grunwald, N.J., Bernal, A., Salazar, C., Restrepo, S. 2011. Genetic diversity of *Phytophthora infestans* in the Northern-Andean region. *BMC Evolutionary Biology*. 12:23.
- Elliot, M., Sumampong, G., Varga, A., Shamoun, S.F., James, D., Masri, S., Grunwald, N.J. 2011. Phenotypic differences among three clonal lineages of *Phytophthora ramorum*. *Forest Pathology*. 41:7-14.
- Kang, S., Mansfield, M., Park, B., Geiser, D., Coffey, M., Grunwald, N.J. 2010. The promise and pitfalls of sequence-based identification of plant pathogenic fungi and oomycetes. *Phytopathology*. 100: 732-737.

- C., Gomez, D., Morin, L., Evans, K., Mahaffee, W.F., Neill, T.M., Grunwald, N.J., Molecular Ecology Resources Primer Development Consortium. 2010. Permanent genetic resources added to molecular ecology resources database 1 December 2009–31 January 2010. *Molecular Ecology Resources*. 10:576-579.
- Rauscher, G., Simko, I., Mayton, H., Bonierbale, M., Smart, C.D., Grunwald, N.J., Greenland, A., Fry, W.E. 2010. Quantitative resistance to late blight from *Solanum berthaultii* cosegregates with RPi-ber: insights in stability through isolates and environment. *Theoretical and Applied Genetics*. 121:1553-1567.
- Gomez, D., Morin, L., Evans, K., Mahaffee, W.F., Neill, T.M., Grunwald, N.J. 2010. Development of 11 polymorphic microsatellite markers for the blackberry rust fungus *Phragmidium violaceum*. *Molecular Ecology Resources*. 10:576-579.
- Johnson, K., Mahaffee, W.F. 2010. Factors influencing epidemiology and management of blackberry rust in cultivated *Rubus laciniatus*. *Plant Disease*. 94:581-588.
- Goss, E.M., Larsen, M.M., Chastagner, G., Givens, D., Grunwald, N.J. 2009. Population genetic analysis infers migration pathways of *Phytophthora ramorum* in U.S. nurseries. *PLoS Pathogens*. 5(9):e1000538.
- Vercauteren, A., De Dobbelaere, I., Grunwald, N.J., Bonants, P., Van Bockstaele, E., Maes, M., Heungens, K. 2009. Clonal expansion of the Belgian *Phytophthora ramorum* populations based on new microsatellite markers. *Molecular Ecology*. 19:92-107.
- Grunwald, N.J., Goss, E.M., Ivors, K., Garbelotto, M., Martin, F.N., Prospero, S., Hansen, E., Bonants, P., Hamelin, R., Chastagner, G., Werres, S., Rizzo, D.M., Abad, G., Beales, P., Bilodeau, G.J., Blomquist, C., Brasier, C., Briere, S., Chandelier, A., Davidson, J.M., Denman, S., Elliott, M., Fichtner, E.J., Frankel, S.J., Goheen, E.M., De Gruyter, H., Heungens, K., James, D., Kanaskie, A., McWilliams, M., Moralejo, E., Osterbauer, N.K., Palm, M.E., Parke, J.L., Shamoun, S.F., Shishkoff, N., Tooley, P.W., Vettraino, A., Webber, J., Widmer, T.L. 2009. Standardizing the nomenclature for clonal lineages of the sudden oak death pathogen, *Phytophthora ramorum*. *Phytopathology*. 99:792-795.
- Prospero, S., Grunwald, N.J., Winton, L.M., Hansen, E.M. 2009. Migration patterns of the emerging plant pathogen *Phytophthora ramorum* on the west coast of the United States of America. *Phytopathology*. 99:739-749.
- Elliott, M., Sumampong, G., Varga, A., Shamoun, S.F., James, D., Masri, S., Briere, S.C., Grunwald, N.J. 2009. PCR-RFLP markers identify three lineages of the North American and European populations of *Phytophthora ramorum*. *Forest Pathology*. 39:266-278.
- Goss, E.M., Carbone, I., Grunwald, N.J. 2009. Ancient isolation and independent evolution of the three clonal lineages of the emerging sudden oak death pathogen *Phytophthora ramorum*. *Molecular Ecology*. 18(6):1161-1174.
- Malvick, D.K., Grunwald, N.J., Dyer, A.T. 2009. Population structure, races, and host range of *Aphanomyces euteiches* from alfalfa production fields in the central U.S.A. *European Journal of Plant Pathology*. 123(2):171-182.
- Peetz, A., Mahaffee, W.F., Gent, D.H. 2009. Effect of temperature on the sporulation and infectivity of *Podosphaera macularis* on *Humulus lupulus*. *Plant Disease*. 93:281-286.
- Grunwald, N.J., Davis, E.A., Rolfe, K.J. 2009. Efficacy of registered and unregistered fungicides for control of ramorum blight on camellia. *Plant Disease Management Reports*. 2:OT015.
- Kohn, L., Anderson, J.B., Schaffer, M.R., Grunwald, N.J. 2008. Marker stability throughout 400 Days of hyphal growth of *Sclerotinia sclerotiorum*. *Fungal Genetics and Biology*. 45:613-617.
- Grunwald, N.J., Kitner, M., McDonald, V., Goss, E.M. 2008. Susceptibility in *Viburnum* to *Phytophthora ramorum*. *Plant Disease*. 92:210-214.
- Grunwald, N.J., Goss, E.M., Larsen, M.M., Press, C.M., McDonald, V.T., Blomquist, C.L., Thomas, S.L. 2008. First report of the European lineage of *Phytophthora ramorum* in a California nursery. *Plant Disease*. 92:314.
- Grunwald, N.J., Goss, E.M., Press, C.M. 2008. *Phytophthora ramorum*: A pathogen with a remarkably wide host range causing sudden oak death on oaks and ramorum blight on woody ornamentals. *Molecular Plant Pathology*. 9(6):729-740.

Malvarez, G., Carbone, I., Grunwald, N.J., Subbarao, K.V., Schafer, M., Kohn, L.M. 2007. New populations of *Sclerotinia sclerotiorum* from lettuce in California and peas and lentils in Washington. *Phytopathology*. 97(4): 470-483.

5358-22000-035-00D

EPIDEMIOLOGY AND MANAGEMENT OF FUNGAL DISEASES OF GRASSES GROWN FOR SEED – William Pfender (P) and Stephen Alderman; Corvallis, Oregon.

- Pfender, W.F., Gent, D.H., Mahaffee, W.F., Coop, L.B., Fox, A. 2011. Decision Aids for Multiple-Decision Disease Management as Affected by Weather Input Errors. *Phytopathology*. 101:644-653.
- Alderman, S.C., Rao, S., Martin, R.C. 2010. First report of *Dicyma pulvinata* on *Epichloë typhina* and its potential for *E. typhina* control. *Plant Health Progress*. DOI:10.1094/PHP-2010-0216-01-RS.
- Pfender, W.F. 2009. A Damage Function for Stem Rust of Perennial Ryegrass Seed Crops. *Phytopathology*. 99:498-505.
- Pfender, W.F., Eynard, J. 2009. Field assessment of a model for fungicide effects on within-plant spread of stem rust in perennial ryegrass seed crops. *Phytopathology*. 99:696-703.
- Alderman, S.C., Rao, S. 2008. Ascospore fertilization of *Epichloë typhina* in *Dactylis glomerata* seed production fields in Oregon and implications for choke management. *Plant Health Progress*. DOI:10.1094/PHP-2008-0421-01-BR

5440-22000-023-00D

WHEAT STREAK MOSAIC VIRUS INTERACTIONS WITH HOST AND VECTOR – Roy French (P); Lincoln, Nebraska.

- Tatineni, S., Van Winkle, D.H., French, R.C. 2011. The N-terminal region of Wheat streak mosaic virus coat protein is a host- and strain-specific long-distance transport factor. *Journal of Virology*. 85: 1718-1731.
- Tatineni, S., McMechan, A., Hein, G., French, R.C. 2011. Efficient and stable expression of GFP through Wheat streak mosaic virus-based vectors in cereal hosts using a range of cleavage sites: Formation of dense fluorescent aggregates for sensitive virus tracking. *Virology* 410 (2011) 268-281, DOI:10.1016/j.virol.2010.10.043.
- Tatineni, S., Gowda, S., Dawson, W.O. 2010. Heterologous Minor Coat Proteins of Citrus Tristeza Virus Strains Affect Encapsidation, but the Coexpression of HSP70h and p61 Restores Encapsidation to Wild-Type Levels. *Virology*. Volume 402:262-270.
- Tatineni, S., Graybosch, R.A., Hein, G.L., Wegulo, S.N., French, R.C. 2010. Wheat Cultivar-Specific Disease Synergism and Alteration of Virus Accumulation During Co-Infection with Wheat Streak Mosaic Virus and Triticum Mosaic Virus. *Phytopathology*, volume 100, pages 230-238.
- Albiach-Marti, M.R., Robertson, C., Gowda, S., Tatineni, S., Belliure, B., Garnsey, S.M., Folimonova, S.Y., Moreno, P., Dawson, W.O. 2010. The Pathogenicity Determinant of Citrus Tristeza Virus Causing the Seedling Yellow Syndrome is Located at the 3'-Terminal Region of the Viral Genome. *Molecular Plant Pathology*, Volume 11 (1), pages 55-67.
- Gowda, S., Tatineni, S., Folimonova, S.V., Hilf, M.E., Dawson, W.O. 2009. Accumulation of a 5' proximal subgenomic RNA of Citrus tristeza virus is correlated with encapsidation by the minor coat protein. *Virology* 389, 122-131.
- Tatineni, S., Ziems, A.D., Wegulo, S.N., French, R.C. 2009. Triticum Mosaic Virus: A Distinct Member of the Family Potyviridae with an Unusually Long Leader Sequence. *Phytopathology*. 99:943-950.
- Tatineni, S., Afunian, M.R., Hilf, M.E., Gowda, S., Dawson, W.O., Garnsey, S.M. 2009. Molecular Characterization of Citrus tatter leaf virus Historically Associated with Meyer Lemon Trees: Complete Genome Sequence and Development of Biologically Active In Vitro Transcripts. *Phytopathology* Volume 99, Pages 423-431.

- Stenger, D.C., French, R.C. 2009. Wheat streak mosaic virus genotypes introduced to Argentina are closely related to isolates from the American Pacific Northwest and Australia. *Archives of Virology*: 154:331-336.
- Tatineni, S., Afunian, M.R., Gowda, S., Hilf, M.E., Bar-Joseph, M., Dawson, W.O. 2009. Characterization of the 5'- and 3'-terminal subgenomic RNAs produced by a capillovirus: evidence for a CP subgenomic RNA. *Virology* 385 (2009) 521–528.
- Folimonova, S.Y., Folimonov, A.S., Tatineni, S., Dawson, W.O. 2008. Citrus tristeza virus: survival at the edge of the movement continuum. *Journal of Virology*, Volume 82, page 6546-6556.
- Stenger, D.C., French, R.C. 2008. Complete nucleotide sequence of a maize chlorotic mottle virus isolate from Nebraska. *Archives of Virology* 153: 995-997.
- Young, B.A., Hein, G.L., French, R.C., Stenger, D.C. 2007. Substitution of conserved cysteine residues in Wheat streak mosaic virus HC-Pro abolishes virus transmission by the wheat curl mite. *Archives of Virology* 152:2107-2111.

5442-22000-042-00D

ENHANCING PATHOGEN DETECTION AND CROP PROTECTION IN SUGARBEET USING MOLECULAR TECHNOLOGIES – Melvin Bolton (P) and Jeffrey Suttle; Fargo, North Dakota.

- Dejonge, R., Bolton, M.D., Thomma, B.P.H.J. 2011. How filamentous pathogens co-opt plants; the ins and outs of fungal effectors. *Current Opinion in Plant Biology*. 14:400-406.
- Gonzalez, M., Pujol, M., Metraux, J.P., Gonzalez-Garcia, V., Bolton, M.D., Borrás-Hidalgo, O. 2011. Tobacco leaf spot and root rot caused by *Rhizoctonia solani* Kuhn. *Molecular Plant Pathology*. 12(3):209-216.
- Bolton, M.D., Panella, L.W., Campbell, L.G., Khan, M.F. 2010. Temperature, Moisture, and Fungicide Effects in Managing *Rhizoctonia* Root and Crown Rot of Sugar Beet. *Phytopathology*. 100(7):689-697.
- DeTemmerman, N., Anfinrud, M., Meulemans, M., Rick, K., Burkholz, A., DeBruyne, E., Weyens, G., Barnes, S., Horemans, S., Lefebvre, M., Bolton, M.D. 2009. Rhizomania Resistance in the Tandem Sugar Beet Variety. *International Sugar Journal*. 111(1325):313-317.
- Bolton, M.D. 2009. Primary Metabolism and Plant Defense - Fuel for the Fire. *Molecular Plant-Microbe Interactions*. 22(5):487-497.
- deSilva, A.P., Bolton, M.D., Nelson, B.D. 2009. Transformation of *Sclerotinia sclerotiorum* with the Green Fluorescent Protein Gene and Fluorescence of Hyphae in Four Inoculated Hosts. *Plant Pathology*. 48:487-496.
- van Esse, H.P., van't Klooster, J.W., Bolton, M.D., Yadeta, K.A., Van Baarlen, P., Boeren, S., Vervoort, J., de Wit, P.J.G.M., Thomma, B.P.H.J. 2008. The *Cladosporium fulvum* Virulence Protein Avr2 Inhibits Host Proteases Required for Basal Defense. *The Plant Cell*. 20:1948-1963.
- Bolton, M.D., Thomma, B.P.H.J. 2008. The complexity of nitrogen metabolism and nitrogen-regulated gene expression in plant pathogenic fungi. *Physiological and Molecular Plant Pathology*. 72:104-110.

5442-22000-043-00D

CHARACTERIZATION OF HOST-PATHOGEN INTERACTIONS IN BARLEY AND WHEAT – Michael Edwards (P) and Timothy Friesen; Fargo, North Dakota.

- Edwards, M.C., Weiland, J.J. 2011. Presence of a polyA tail at the 3'-end of Maize rayado fino virus RNA. *Archives of Virology*. 156:331–334.
- Leng, Y., Wu, C., Liu, Z., Friesen, T.L., Rasmussen, J.B., Zhong, S. 2011. RNA-mediated Gene Silencing in the Cereal Fungal Pathogen *Cochliobolus sativus*. *Molecular Plant Pathology*. 12(3):289-298.
- Liu, Z.H., Friesen, T.L. 2010. Identification of *Pyrenophora teres* f. *maculata*, Causal Agent of Spot Type Net Blotch of Barley in North Dakota. *Plant Disease*. 94(4):480.

- Liu, Z., Faris, J.D., Edwards, M.C., Friesen, T.L. 2010. Development of Expressed Sequence Tag (EST)-based Markers for Genomic Analysis of a Barley 6H Region Harboring Multiple Net Form Net Blotch Resistance Genes. *The Plant Genome*. 3:41-52.
- Edwards, M.C., Weiland, J.J. 2010. First Infectious Clone of the Propagatively Transmitted Oat Blue Dwarf Virus. *Archives of Virology*. 155(4):464-471.
- Chu, C.G., Faris, J.D., Xu, S.S., Friesen, T.L. 2010. Genetic Analysis of Disease Susceptibility Caused by Compatible Tsn1-SnToxA and Snn1-SnTox1 Interactions in the Wheat-Stagonospora Nodorum Pathosystem. *Theoretical and Applied Genetics*. 120:1451-1459.
- Mergoum, M., Frohberg, R., Rasmussen, J., Friesen, T.L., Hareland, G.A., Simsek, S. 2009. Breeding for CLEARFIELD Herbicide Tolerance: Registration of 'ND901CL' Spring Wheat. *Journal of Plant Registrations*. 3:170-174.
- Edwards, M.C., Weiland, J.J. 2009. Maize as a New Host for Oat Blue Dwarf Virus. *Plant Disease*. 93:972.
- Liu, Z., Faris, J.D., Oliver, R.P., Tan, K., Solomon, P.S., Mcdonald, M.C., Mcdonald, B.A., Nunez, A., Lu, S., Rasmussen, J.B., Friesen, T.L. 2009. SnTox3 Acts in Effector Triggered Susceptibility to Induce Disease on Wheat Carrying the Snn3 Gene. *PLoS Pathogens*. 5:(9) 1-15.
- Chu, C.G., Friesen, T.L., Xu, S.S., Faris, J.D., Kolmer, J.A. 2009. Identification of Novel QTL for Seeding and Adult Plant Leaf Rust Resistance in a Wheat Doubled Haploid Population. *Theoretical and Applied Genetics*. 119:263-269.
- Friesen, T.L., Chu, C.G., Liu, Z.H., Xu, S.S., Halley, S., Faris, J.D. 2009. Host-selective toxins produced by *Stagonospora nodorum* confer disease susceptibility in adult wheat plants under field conditions. *Theoretical and Applied Genetics*. 118:1489-1497.
- Zhong, S., Leng, Y., Friesen, T.L., Faris, J.D., Szabo, L.J. 2009. Development and characterization of expressed sequence tag (EST)-derived microsatellite markers for the wheat stem rust fungus, *Puccinia graminis* f.sp. *tritici*. *Phytopathology* 99:282-289.
- Mergoum, M., Frohberg, R.C., Stack, R.W., Rasmussen, J.W., Friesen, T.L. 2008. Registration of 'Faller' Spring Wheat. *Journal of Plant Registrations*. (3) 2:224-229.
- Abu, Q.M., Liu, Z., Faris, J.D., Chao, S., Edwards, M.C., Lai, Z., Franckowiak, J.D., Friesen, T.L. 2008. A region of barley chromosome 6H harbors multiple major genes associated with net type blotch resistance. *Theoretical and Applied Genetics*. 117:1261-1270.
- Friesen, T.L., Faris, J.D., Solomon, P.S., Oliver, R.P. 2008. Host specific toxins; effectors of necrotrophic pathogenicity. *Cellular Microbiology*. 10(7) 1421-1428.
- Mergoum, M., Frohberg, R.C., Stack, R.W., Singh, P.K., Ali, S., Rasmussen, J.W., Friesen, T.L., Adhikari, T.B. 2008. Registration of Spring Wheat Germplasm ND 756 Combining Resistances to Foliar Diseases and Fusarium Head Blight. *Journal of Plant Registrations*. 2:61-64.
- Friesen, T.L., Zhang, Z., Solomon, P.S., Oliver, R.P., Faris, J.D. 2008. Genetic characterization of a novel wheat-*Stagonospora nodorum* host-selective toxin interaction and its role in disease susceptibility. *Plant Physiology*. 146:682-693.
- Oliver, R.E., Cai, X., Wang, R., Xu, S.S., Friesen, T.L. 2008. Resistance to Tan Spot and *Stagonospora nodorum* Blotch in Wheat-Alien Species Derivatives. *Plant Disease*. 92:150-157.
- Sun, Y., Zhong, S., Steffenson, B.J., Friesen, T.L., Neate, S.M. 2007. Amplified fragment length polymorphism and virulence polymorphism in *Puccinia hordei*. *Canadian Journal of Plant Pathology*. (29) 25-34.
- Chu, C.G., Xu, S.S., Faris, J.D., Nevo, E., Friesen, T.L. 2007. Seedling resistance to tan spot and *Stagonospora nodorum* leaf blotch in wild emmer wheat (*Triticum dicoccoides*). *Plant Disease*. 92:1239-1236.

6202-22000-026-00D

TOWARD CONTROL STRATEGIES OF EMERGING PATHOGENS AND NEMATODES OF COTTON – Robert Stipanovic (P), Enrique Medrano, Jinggao Liu, and Alois Bell; College Station, Texas.

- Gutierrez, O.A., Robinson, A.F., Jenkins, J.N., McCarty, J.C., Wubben, M.J., Callahan, F.E., Nichols, R.L. 2011. Identification of QTL regions and SSR markers associated with resistance to reniform nematode in *Gossypium barbadense* L. accession GB713. *Journal of Theoretical and Applied Genetics*. 122(2):271-280.
- Rathore, K.S., Sabarinath, S., Sunilkumari, G., Campbell, L.M., Puckhaber, L.S., Marcel, S., Palle, S., Stipanovic, R.D., Wedegaertner, T.C. 2011. Ultra-low gossypol cottonseed: Generational stability of the seed-specific, RNAi mediated phenotype and resumption of terpenoid profile following seed germination. *Plant Biotechnology Journal*. DOI: 10.1111/j.1467-7652.2011.00652x/pp.1-10.
- Liu, J., Puckhaber, L.S. 2011. The induction of lycopene in germinating cottonseed with 2-(4-methylphenoxy)triethylamine (MPTA). *American Journal of Agricultural and Biological Science*. 6(1):1-6.
- Stipanovic, R.D., Wheeler, M.H., Puckhaber, L.S., Liu, J., Bell, A.A., Williams, H.J. 2011. Nuclear Magnetic Resonance (NMR) studies on the biosynthesis of fusaric acid from *Fusarium oxysporum* f. sp. *vasinfectum*. *Journal of Agricultural and Food Chemistry*. 59:5351-5356.
- Pshenichonov, E., Khashimova, N., Akhunov, A., Golubenko, Z., Stipanovic, R.D. 2011. Participation of chitin-binding peroxidase isoforms in the wilt pathogenesis of cotton. *American Journal of Plant Science*. 2:43-49.
- Stipanovic, R.D., Puckhaber, L.S., Bell, A.A., Liu, J. 2010. Phytotoxicity of fusaric acid and analogues to cotton. *Toxicon*. 57:176-178.
- Parkhi, V., Kumar, V., Campbell, L.M., Bell, A.A., Shah, J., Rathore, K.S. 2010. Resistance against various fungal pathogens and reniform nematode in transgenic cotton plants expressing *Arabidopsis* NPR1. *Transgenic Research*. DOI: 10.1007/s11248-010-9374-9.
- Parkhi, V., Kumar, V., Campbell, L.M., Bell, A.A., Rathore, K.S. 2010. Expression of *Arabidopsis* NPR1 in transgenic cotton confers resistance to non-defoliating isolates of *Verticillium dahliae* but not the defoliating isolates. *Journal of Phytopathology*. 158:822-825.
- Cai, Y., Xiaohong, H., Mo, J., Sun, Q., Yang, J., Liu, J. 2009. Molecular research and genetic engineering of resistance to *Verticillium* wilt in cotton: A review. *African Journal of Biotechnology*. 8(25):7363-7372.
- Medrano, E.G., Esquivel, J.F., Bell, A.A., Greene, J., Roberts, P., Bachelor, J., Marois, J.J., Wright, D.L., Nichols, R.L., Lopez, J. 2009. Potential for *Nezara viridula* (Hemiptera: Pentatomidae) to transmit bacterial and fungal pathogens into cotton bolls. *Current Microbiology*. 59:405-412.
- Stipanovic, R.D., Puckhaber, L.S., Liu, J., Bell, A.A. 2009. Total and percent atropisomers of gossypol and gossypol-6-methyl ether in seeds from Pima cottons and accessions of *Gossypium barbadense* L. *Journal of Agricultural and Food Chemistry*. 57:566-571.
- Medrano, E.G., Esquivel, J.F., Nichols, R.L., Bell, A.A. 2009. Temporal analysis of cotton boll symptoms resulting from southern green stink bug (*Nezara viridula* L.) feeding and transmission of a bacterial pathogen. *Journal of Economic Entomology*. 102:36-42.
- Dighe, N.D., Robinson, A.F., Bell, A.A., Menz, M.A., Cantrell, R.G., Stelly, D.M. 2009. Linkage mapping of *Gossypium longicalyx* resistance to reniform nematode during introgression into cotton *Gossypium hirsutum*. *Crop Science*. 49:1151-1164.
- Akhunov, A.A., Golubenko, N.R., Khashimova, N.R., Beresneva, Y.V., Abdurashidova, N.A., Mustakimova, E.C., Bokov, A.F., Vshivkov, S.O., Stipanovic, R.D. 2008. Role of anionic isoforms of peroxidase during phytopathogenic infection of plants from the family Malvaceae. *Chemistry of Natural Compounds*. 44:352-356.
- Wheeler, M.H., Abramczyk, D., Puckhaber, L.S., Naruse, M., Ebizuka, Y., Fujii, I., Szaniszlo, P.J. 2008. New biosynthetic step in the melanin pathway of *Wangiella* (*Exophiala*) dermatitidis: Evidence for 2-Acetyl-1,3,6,8-tetrahydroxynaphthalene as a novel precursor. *Eukaryotic Cell* 7:1699-1711.

- Liu, J., Stipanovic, R.D., Bell, A.A., Puckhaber, L.S., Magill, C.W. 2008. Stereospecific coupling of hemigossypol to (+)-gossypol in MOCO cotton is mediated by a dirigent protein. *Phytochemistry*. 69:3038-3042.
- Robinson, A.F., Westphal, A., Overstreet, C., Padgett, G., Greenberg, S.M., Stetina, S.R., Wheeler, T.A. 2008. Detection of suppressiveness against *Rotylenchulus reniformis* in soil from cotton (*Gossypium hirsutum*) fields in Texas and Louisiana. *Journal of Nematology*. 40(1):35-38.
- Stipanovic, R.D., Lopez, J., Dowd, M.K., Puckhaber, L.S., Duke, S.E. 2008. Effect of racemic, (+)- and (-)-gossypol on the survival and development of the specialist herbivore *Heliothis virescens* (Fabricius). *Environmental Entomology*. 37:1081-1085.
- Taylor, R.E., French, A.D., Gamble, G.R., Himmelsbach, D.S., Stipanovic, R.D., Thibodeaux, D.P., Wakelyn, P.J., Dybowski, C. 2007. 1h and 13c solid-state NMR of *Gossypium barbadense* (Pima) cotton. *J. Mol. Struct.* DOI:10.1016/j.molstruc.207.08.006.

6202-22000-027-00D

SORGHUM FUNGAL PATHOGEN BIOLOGY AND DISEASE RESISTANCE – Louis Prom (P); College Station, Texas.

- Radwan, G.L., Isakeit, T., Magill, C.W., Perumal, R., Prom, L.K., Little, C.R. 2011. Screening exotic sorghum germplasm, hybrids and elite lines for resistance to a new virulent pathotype (P6) of *Peronosclerospora sorghi* causing downy mildew. *Plant Health Progress*. Available: DOI:10.1094/PHP-2011-0323-01-RS.
- Prom, L.K., Isakeit, T., Perumal, R., Erpelding, J.E., Rooney, W.L., Magill, C.W. 2011. Evaluation of the Ugandan sorghum accessions for grain mold and anthracnose resistance. *Crop Protection Journal*. 30(5):566-571.
- Prom, L.K., Perumal, R., Erattaimuthu, S., Erpelding, J.E., Montes-Garcia, N., Odvody, G., Greenwald, C., Jin, Z., Frederiksen, R., Magill, C. 2011. Virulence and molecular genotyping studies of *Sporisorium reilianum* isolates in sorghum. *Plant Disease*. 95:523-529.
- Montes-Garcia, N., Prom, L.K., Montes-Rodriguez, N., Garcia-Garcia, M., Pecina-Quintero, V., Diaz-Franco, A. 2010. Effect of systemic fungicides in the control of sorghum grain parasitic mycoflora. *Mexican Journal of Phytopathology*. 28(2):156-158.
- Chala, A., Prom, L.K., Tronsmo, A. 2010. Effect of host genotypes and weather variables on the severity and temporal dynamics of sorghum anthracnose in Ethiopia. *Plant Pathology Journal*. 9(1):39-46.
- Prom, L.K., Montes-Garcia, N., Erpelding, J.E., Perumal, R., Medina-Ocegueda, S. 2010. Response of sorghum accessions from Chad and Uganda to natural infection by the downy mildew pathogen, *Peronosclerospora sorghi* in Mexico and the USA. *Journal of Plant Diseases and Protection*. 117(1):2-8.
- Montes-Garcia, N., Prom, L.K., Isakeit, T. 2009. Effect of temperature and relative humidity on sorghum ergot development in northern Mexico. *Australian Journal of Plant Physiology*. 38(6):632-637.
- Prom, L.K., Perumal, R., Erpelding, J.E., Isakeit, T., Montes-Garcia, N., Magill, C.W. 2009. A pictorial technique for mass screening of sorghum germplasm for anthracnose (*Colletotrichum sublineolum*) resistance. *Open Agriculture Journal*. 3:20-25.
- Ramasamy, P., Menz, M.A., Metha, P.J., Katile, S., Gutierrez, R.L., Klein, R.R., Klein, P.E., Prom, L.K., Schlueter, J.A., Rooney, W.L., Magill, C.W. 2009. Molecular mapping of cgl, a gene for resistance to anthracnose (*Colletotrichum sublineolum*) in sorghum. *Euphytica*. 165:597-606.
- Prom, L.K., Erpelding, J.E. 2009. New sources of grain mold resistance among accessions from Sudan. *Tropical and Subtropical Agroecosystems*. 10:457-463.
- Montes-Garcia, N., Williams, H., Prom, L.K., Isakeit, T., Odvody, G.N., Narro-Sanchez, J., Rooney, W.L. 2008. Disease severity and susceptibility of sorghum [*Sorghum bicolor* (L.)] to infection by *Claviceps africana* Frederickson, Mantle and de Milliano in Mexico and the United States of America. *Mexican Journal of Phytopathology*. 26(2):121-126.

- Perumal, R., Nimmakayala, P., Erattaimuthu, S., No, E.G., Reddy, U.K., Prom, L.K., Odvody, G.N., Luster, D.G., Magill, C. 2008. Simple sequence repeat markers useful for sorghum downy mildew (*Peronosclerospora sorghi*) and related species. *BMC Genetics*. 9:77.
- Prom, L.K., Perumal, R. 2008. Leaf-footed bug, *Leptoglossus phyllopus* (Hemiptera: Coreidae), as a potential vector of sorghum fungal pathogens. *Southwestern Entomologist*. 33(2):161-164.
- Isakeit, T., Rooney, W., Collins, S.D., Prom, L.K. 2008. Reaction of sorghum hybrids to anthracnose, grain mold and grain weathering in Burleson County, Texas, 2007. *Plant Disease Management Reports* (online). Report 2:fc003. DOI:10.1094/pdmr02.
- Prom, L.K., Erpelding, J.E., Montes-Garcia, N. 2008. Evaluation of sorghum germplasm from China against *Claviceps africana*, causal agent of sorghum ergot. *Plant Health Progress* (online). DOI:10.1094/PHP-2008-0519-01-RS.
- Isakett, T., Prom, L.K., Wheeler, M.H., Puckhaber, L.S., Liu, J. 2008. Mycotoxigenic potential of ten *Fusarium* species grown on sorghum and in vitro. *Plant Pathology Journal*. 7:183-186.
- Pecina-Quintero, V., Montes-Garcia, N., Williams-Alanis, H., Hernandez-Delgado, S., Mayek-Perez, N., Prom, L.K. 2007. Diversidad genetica de aislamientos de cornezuelo (*Claviceps africana* Fredrickson, Mantle, y de Milliano) de sorgo [*Sorghum bicolor* (L.) Moench] en Mexico. *Revista Mexicana de Fitopatologia*. 25(001):43-47.

6401-21220-002-00D

SOYBEAN DISEASES AS INFLUENCED BY AGRONOMIC PRACTICES, SOYBEAN GENOTYPES, AND REDUCED TILLAGE – Alemu Mengistu (P) and Lawrence Young; Stoneville, Mississippi

- Mengistu, A., Ray, J.D., Bellaloui, N., Smith, J.R. 2011. Effects of charcoal rot on four soybean genotypes in irrigated and non-irrigated environments and its impact on yield. *Plant Disease*. 1159-1166.
- Mengistu, A., Smith, J.R., Bellaloui, N., Paris, R.L., Wrather, A. 2010. Evaluation of selected soybean accessions against *Phomopsis longicolla* in two irrigation environments and at physiological and post physiological maturity harvesting. *Crop Science*. 50:2055-2064.
- Walker, E.R., Mengistu, A., Bellaloui, N., Koger III, C.H., Roberts, R.K., Larson, J.A. 2010. Plant population and row spacing effects on maturity group III soybean for nonirrigated production in the upper midsouthern United States. *Agronomy Journal*. 102(3):821-826.

6402-21220-009-00D

GENETIC AND CULTURAL METHODS TO MANAGE CYST NEMATODE IN SOYBEANS – Prakash Arelli (P) and Patricia Donald; Stoneville, Mississippi.

- Arelli, P.R., Concibido, V.C., Young, L.D. 2010. QTLs associated with resistance in soybean PI567516C to synthetic nematode population infecting cv. Hartwig. *Journal of Crop Science and Biotechnology*. 13:163-167.
- Kazi, S., Schultz, J., Bond, J., Arelli, P.R., Hashmi, R., Lightfoot, D.A. 2009. Iso-lines and Inbred-lines Confirmed Loci that Underlie Resistance from Cultivar ‘Hartwig’ to Three Soybean Cyst Nematode Populations. *Theoretical and Applied Genetics*. 120:633-644.
- Niblack, T.L., Tylka, G.L., Arelli, P.R., Bond, J.P., Diers, B., Donald, P.A., Faghihi, J., Ferris, V.R., Gallo, K., Heinz, R.D., Lopez, N.H., Von Qualen, R., Welacky, T., Wilcox, J.A. 2009. A Standard Greenhouse Method for Assessing Soybean Cyst Nematode Resistance in Soybean: SCE08 (Standardized Cyst Evaluation 2008). *Plant Health Progress*. DOI:10-194/PHP-2009-0513-01-RV.
- Donald, P.A., Tyler, D.D., Boykin, D.L. 2009. Short and Long-term Tillage Effects on *Heterodera Glycines* Reproduction in Soybean Monoculture in West Tennessee. *Soil & Tillage Research*. 104:126-133.
- Arelli, P.R., Wang, D. 2008. Inheritance of cyst nematode resistance in a new genetic source; *Glycine max* PI 494182. *Journal of Crop Science and Biotechnology*. 11(3):83-90.

Arelli, P.R., Young, L.D., Concibido, V.C. 2008. Inheritance of Resistance in Soybean PI 567516C to LY1 Nematode Population Infecting cv. Hartwig. *Euphytica*. 151:38-41.

6402-22000-005-00D

GENETIC AND CULTURAL METHODS TO MANAGE RENIFORM NEMATODE IN COTTON – Salliana Stetina (P), John Erpelding, and Lawrence Young; Stoneville, Mississippi.

- Echt, C.S., Saha, S., Krutovsky, K., Wimalanathan, K., Erpelding, J.E., Liang, C., Nelson, C.D. 2011. An annotated genetic map of loblolly pine based on microsatellite and cDNA markers. *BioMed Central (BMC) Genetics*. 12:17.
- Stetina, S.R., Molin, W.T., Pettigrew, W.T. 2010. Effects of varying planting dates and tillage systems on reniform nematode and browntop millet populations in cotton. *Plant Health Progress*. DOI:10.1094/php-2010-1227-01-RS.
- Xiao, J., Wu, K., Fang, D.D., Stelley, D.M., Yu, J., Cantrell, R.G. 2009. New DNA Markers for the Use in Cotton (*Gossypium* spp.) Improvement. *Journal of Cotton Science*. 13(2):75-157.
- Sacks, E.J., Robinson, A.F. 2009. Introgression of resistance to reniform nematode (*Rotylenchulus reniformis*) into upland cotton (*Gossypium hirsutum*) from *Gossypium arboreum* and a *Gossypium hirsutum*/*Gossypium aridum* bridging line. *Field Crops Research*. 112:1-6.
- Stetina, S.R., Sciumbato, G.L., Young, L.D., Blessitt, J.A. 2009. Cotton Cultivars Evaluated for Tolerance to Reniform Nematode. *Plant Health Progress*. DOI:10.1094/PHP-2009-0312-01-RS.
- Sacks, E.J. 2008. Ovule Rescue Efficiency of *Gossypium Hirsutum* x *G. Arboreum* Progeny from Field-Grown Fruit is Affected by Media Composition and Antimicrobial Compounds. *Plant Cell Tissue And Organ Culture*. DOI: 10.1007/s11240-007-9316-2.

6402-42000-003-00D

AGRICULTURAL PRACTICES, ECOLOGICAL AND VARIETAL EFFECTS ON AFLATOXINS AND OTHER MYCOTOXINS IN CORN – Hamed Abbas (P), Walker Jones, and Mark Weaver; Stoneville, Mississippi.

- Trucksess, M.W., Abbas, H.K., Weaver, C.M., Shier, W.T. 2011. Distribution of aflatoxins in shelling and milling fractions of naturally contaminated rice. *Journal of Food Additives & Contaminants*. 28,1076-1082.
- Abbas, H.K., Zablutowicz, R.M., Horn, B.W., Phillips, N.A., Johnson, B.J., Jin, X., Abel, C.A. 2011. Comparison of major biocontrol strains of non-aflatoxigenic *Aspergillus flavus* for the reduction of aflatoxins and cyclopiazonic acid in maize. *Journal of Food Additives & Contaminants*. 28:198-208.
- Bruns, H.A. 2009. A Survey of Factors Involved in Crop Maturity. *Agronomy Journal*. 101:60-66.
- Abbas, H.K., Zablutowicz, R.M., Bruns, H.A. 2008. Modeling the Colonization of Maize by Toxigenic and Non-toxigenic *Aspergillus flavus* Strains: Implications for Biological Control. *World Mycotoxin Journal*. 1:333-340.
- Accinelli, C., Sacca, M.L., Abbas, H.K., Zablutowicz, R.M., Wilkinson, J.R. 2009. Use of a Granular Bioplastic Formulation for Carrying Conidia of a Non-aflatoxigenic Strain of *Aspergillus flavus*. *Biological Control*. 100:3997-4004.
- Myung, K., Li, S., Butchko, R.A., Busman, M., Proctor, R., Abbas, H.K., Calvo, A.M. 2009. FvVE1 Regulates Biosynthesis of the Mycotixins and Fumonisin and Fusarins verticillioides. *Journal of Agriculture and Food Chemistry*. 57(11):5089-94.
- Abbas, H.K. 2008. Introduction to the Special Issues on Emerging Issues in Mycotoxin Research. *Journal of Toxicology Toxins Reviews*. 28(2&3):61-62.
- Abbas, H.K., Accinelli, C., Zablutowicz, R.M., Abel, C.A., Bruns, H.A., Dong, Y., Shier, W.T. 2008. Dynamics of Mycotoxin Concentrations in Aging Corn Residues Under Mississippi No-Till Conditions. *Journal of Agricultural and Food Chemistry*. 56:7578-7585.
- Shier, W.T., Abbas, H.K., Baird, R., Ramezani, M., Sciumbato, G. 2008. (-)-botryodiplodin, a unique ribose analog toxin. *Journal of Toxicology Toxins Reviews*. (26:343-386).

- Accinelli, C., Abbas, H.K., Zablutowicz, R.M., Wilkinson, J.P. 2008. *Aspergillus flavus* Aflatoxin Occurrence and Expression of Aflatoxin Biosynthesis Genes in Soil. *Canadian Journal of Microbiology*. (54:371-379).
- Abbas, H.K., Shier, W.T., Cartwright, R.D. 2008. Effect of Planting Date on Aflatoxin and Fumonisin Contamination in Commercial Corn Hybrids in Arkansas. *Phytoprotection*. 88:41-50.
- Abbas, H.K., Zablutowicz, R.M., Bruns, H.A., Abel, C.A. 2008. Development of non-toxigenic strains of *Aspergillus Flavus* for control of Aflatoxin in maize.. *Crop Protection Journal*. 7:181-192.
- Bruns, H.A., Pettigrew, W.T., Meredith Jr, W.R., Stetina, S.R. 2007. Corn Yields Benefit in Rotation with Cotton. *Crop Management*. DOI:10.1094/CM-2007-0424-01-RS.
- Bruns, H.A., Abbas, H.K., Mascagni, Jr, H.J., Carwright, R.D., Allen, F. 2007. Evaluations of Short-Season Corn Hybrids in the Mid South USA. *Crop Management*. DOI:10.1094/CM-2007-1005-01-RS.

6410-22000-013-00D

DISEASE CONTROL THROUGH THE ENHANCEMENT OF RESISTANT SUGARCANE GERMPLASM – Michael Grisham (P), Yong Bao Pan, and Edward Richard Jr.; Houma, Louisiana.

- Gao, S., Pan, Y.-B., Rukai, C. 2010. Detection of sugarcane yellow leaf virus by direct antigen coated enzyme-linked immunosorbent assay. *Chinese Journal of Tropical Crops*. 31(8):1356-1361.
- Grisham, M.P., Johnson, R.M., Zimba, P.V. 2010. Detecting Sugarcane yellow leaf virus infection in asymptomatic leaves with hyperspectral remote sensing and associated leaf pigment analysis. *Journal of Virology*. 167:140-145.
- Grisham, M.P., Johnson, R.M., Viator, R.P. 2009. Effect of ratoon stunting disease on yield of recently released sugarcane cultivars in Louisiana. *Journal of the American Society of Sugar Cane Technologists*. 29:119-127.
- Grisham, M.P., Eggleston, G., Hoy, J.W., Viator, R.P. 2009. The effect of sugarcane yellow leaf virus infection on yield of sugarcane in Louisiana. *Sugar Cane International*. 27(3):92-95.

6602-21220-013-00D

INTEGRATED MANAGEMENT OF PLANT-PARASITIC NEMATODES IN COTTON AND PEANUT – Patricia Timper (P), Brian Scully, and Richard Davis; Tifton, Georgia.

- Timper, P., Davis, R.F., Webster, T.M., Brenneman, T., Meyer, S.L., Zasada, I.A., Cai, G., Rice, C. 2011. Response of root-knot nematodes and Palmer amaranth to tillage and rye green manure. *Agronomy Journal*. 103(3):813-821.
- Davis, R.F., Chee, P., Lubbers, E., May, O. 2011. Registration of GA 120R1B3 Germplasm Line of Cotton. *Journal of Plant Registrations*. 5:1-4.
- Lu, P., Davis, R.F., Kemerait, R.C. 2011. Effect of mowing cotton stalks and preventing plant re-growth on post-harvest reproduction of *Meloidogyne incognita*. *Journal of Nematology*. 42:91-100.
- Shen, X., He, Y., Lubbers, E.L., Davis, R.F., Nichols, R.L., Chee, P.W. 2010. Fine mapping QMi-C11 a major QTL controlling root-knot nematodes resistance in Upland cotton. *Journal of Theoretical and Applied Genetics*. 121:1623-1631.
- Davis, R.F., Kemerait, R.C. 2010. The multi-year effects of repeatedly growing cotton with moderate resistance to *Meloidogyne incognita*. *Journal of Nematology*. 41:140-145.
- Timper, P. 2009. Population dynamics of *Meloidogyne arenaria* and *Pasteuria penetrans* in a long-term crop rotation study. *Journal of Nematology*. 41:291-299.
- Timper, P.N., Kone, D., Yin, J., Ji, P., McSpadden, G.B. 2009. Evaluation of an antibiotic producing strain of *Pseudomonas fluorescens* for suppression of plant-parasitic nematodes. *Journal of Nematology*. 41:234-240.

- Davis, R.F. 2009. Alternate row placement is ineffective for cultural control of *Meloidogyne incognita* in cotton. *Journal of Nematology*. 40:197-200.
- Davis, R.F. 2007. Effect of *Meloidogyne incognita* on watermelon yield. *Nematropica*. 37:287-293.

6606-22000-013-00D

NEMATODE AND DISEASE MANAGEMENT OF DECIDUOUS FRUITS – Andrew Nyczepir (P); Byron, Georgia.

- Nyczepir, A.P. 2011. Host suitability of an endophyte-friendly tall fescue grass to *Mesocriconema xenoplax* and *Pratylenchus vulnus*. *Nematropica*. 41:41-48.
- Nyczepir, A.P., Meyer, S.L. 2010. Host status of endophyte-infected and noninfected tall fescue grass to *Meloidogyne* spp. *Journal of Nematology*. 42(2):151-158.
- Nyczepir, A.P. 2009. Dynamics of concomitant populations of *Pratylenchus vulnus* and *Meloidogyne incognita* on peach. *Nematropica*. 39:373-279.
- Nyczepir, A.P., Nagel, A.K., Schnabel, G. 2009. Host status of three transgenic plum lines to *Mesocriconema xenoplax*. *HortScience*. 44(7):1932-1935.
- Nyczepir, A.P., Wood, B.W. 2009. Interaction of concurrent populations of *Meloidogyne partityla* and *Mesocriconema xenoplax* on pecan. *Journal of Nematology*. 40:221-225.
- Nyczepir, A.P., Brito, J.A., Dickson, D.W., Beckman, T.G. 2008. Host status of selected peach rootstocks to *Meloidogyne mayaguensis*. *HortScience*. 43(3):804-806.

6618-22000-034-00D

DOMESTIC, EXOTIC, AND EMERGING DISEASES OF CITRUS, VEGETABLES, AND ORNAMENTALS – Scott Adkins (P), William Turechek, Yon Ping Duan, Mark Hilf, and Timothy Gottwald; Fort Pierce, Florida.

- Webster, C.G., Turechek, W., Mellinger, C.H., Frantz, G., Roe, N., Yonce, H., Vallad, G.E., Adkins, S.T. 2011. Expansion of Groundnut ringspot virus host and geographic ranges in solanaceous vegetables in peninsular Florida. *Plant Health Progress*. DOI:10.1094/PHP-2011-0725-01-BR.
- Sundaraj, S., Srinivasan, R., Webster, C.G., Adkins, S.T., Perry, K.L., Riley, D. 2011. First report of tomato chlorosis virus in tomato in Georgia. *Plant Disease*. 95(7):881.
- Webster, C.G., Reitz, S.R., Perry, K.L., Adkins, S.T. 2011. A natural M RNA reassortant arising from two species of plant-and-insect-infecting bunyaviruses and comparison of its sequences and biological properties to parental species. *Virology*. 413/216-225.
- Adkins, S.T., Webster, C.G., Kousik, C.S., Webb, S.E., Roberts, P.D., Stansly, P.A., Turechek, W. 2011. Ecology and management of whitefly-transmitted vegetable viruses in Florida. *Virus Research*. 159:110-114.
- Webster, C.G., Kousik, C.S., Roberts, P., Roskopf, E.N., Turechek, W., Adkins, S.T. 2011. Cucurbit yellow stunting disorder virus detected in pigweed in Florida. *Plant Disease*. 95(3):360.
- Koh, E., Zhou, L., Kang, B., Williams, D.S., Duan, Y. 2011. Callose deposition and inhibited symplastic transport in the phloem of citrus leaves infected with *Candidatus Liberibacter asiaticus*. *Plant Physiology*. DOI: 10.1007/s00709-011-0312-3.
- Zhu, B., Lou, M., Xie, G., Wang, G., Zhou, Q., Wang, F., Fang, Y., Su, T., Li, B., Duan, Y. 2011. *Enterobacter morus* sp. nov., a novel *Enterobacter* species associated with bacterial wilt on mulberry. *International Journal of Systematic and Evolutionary Microbiology*. DOI:10.1099/ijs.0.028613-0.
- Zhang, S., Flores-Cruz, Z., Kang, B., Fleites, L., Wulff, N., Davis, M.J., Zhou, L., Duan, Y., Gabriel, D. 2011. *Ca. Liberibacter asiaticus* carries two prophage lysogens - one replicating as an excision plasmid and another that becomes lytic in plant infections. *Molecular Plant-Microbe Interactions*. 11(4):458-468.
- Zhang, M., Powell, C., Zhou, L., He, Z., Stover, E.W., Duan, Y. 2011. A new combination of antibiotics effective against the citrus huanglongbing bacterium, '*Candidatus Liberibacter asiaticus*'. *Phytopathology*. 11(09):1097.

- Chellemi, D.O., Webster, C.G., Baker, C.A., Annamalai, M., Achor, D., Adkins, S.T. 2011. Widespread occurrence and low genetic diversity of Colombian datura virus in *Brugmansia* suggest an anthropogenic role in virus selection and spread. *Plant Disease*. 95:755-761.
- Parnell, S., Gottwald, T.R., Irely, M., Van Den Bosch, F. 2011. A stochastic optimisation method to estimate the spatial distribution of an invasive plant pathogen. *Journal of Phytopathology*. 101:1184-1190.
- Chellemi, D.O., Ajwa, H.A., Sullivan, D.A., Alessandro, R.T., Gilreath, J.A., Yates, S.R. 2011. Soil Fate of Agricultural Fumigants in Raised-Bed, Plastic-Mulch Crop Production Systems. *Journal of Environmental Quality*. 40:(no page).
- Lian, L., Wu, Z., Xie, L., Benyon, L.S., Duan, Y. 2011. Antagonistic activity of *Bacillus subtilis* SB1 and its biocontrol effect on tomato bacterial wilt. *Biocontrol*. 41(2):219-224(2011).
- Wu, Z., Wu, J., Adkins, S.T., Xie, L., Li, W. 2010. Rice ragged stunt virus segment S6-encoded nonstructural protein Pns6 complements cell-to-cell movement of Tobacco mosaic virus-based chimeric virus. *Virus Research*. DOI:10.1016/j.virus.2010.06.003.
- Gottwald, T.R. 2010. Current epidemiological understanding of Citrus Huanglongbing. *Annual Review of Phytopathology*. 48:119-139.
- Behlau, F., Amorim, L., Belasque Jr., J., Bergamin Filho, A., Leite Jr., R., Gottwald, T.R. 2010. Annual and polyetic progression of citrus canker on trees protected with copper sprays. *Plant Pathology*. DOI: 10.1111/j.1365-3059.2010.02344.x.
- Webster, C.G., Perry, K., Lu, X., Horsman, L., Frantz, G., Mellinger, C., Adkins, S.T. 2010. First report of Groundnut ringspot virus infecting tomato in south Florida. *Plant Health Progress*. DOI:10.1094/PHP-2010-0707-01-BR.
- Webster, C.G., Adkins, S.T., Perry, K., Lu, X., Horsman, L., Frantz, G., Mellinger, C. 2010. Groundnut ringspot virus detected infecting tomato in south Florida. *Pest Alert*. http://entomology.ifas.ufl.edu/pestaalert/groundnut_ringspot.htm.
- Turechek, W., Kousik, C.S., Adkins, S.T. 2010. Patterns of virus distribution in single and mixed infections of Florida watermelons. *Phytopathology*. DOI:10.1094/PHYTO-01-10-0018.
- Peres, N., Seijo, T., Turechek, W. 2010. Pre- and post-inoculation activity of protectant and systemic fungicides for control of anthracnose fruit rot of strawberry under different wetness durations. *Crop Protection*.
- Trivedi, P., Duan, Y., Wang, N. 2010. Citrus huanglongbing shapes the structure of bacterial community associated with citrus roots. *Applied and Environmental Microbiology*.
- Folimonova, S., Robertson, C., Shilts, T., Folimonov, A., Hilf, M.E., Garnsey, S., Dawson, W. 2010. Strains of Citrus tristeza virus do not exclude superinfection by other strains of the virus. *Journal of Virology*. 84:1314-1325.
- Bock, C., Gottwald, T.R., Parker, P., Ferrandino, F., Welham, S. 2010. Some consequences of using the Horsfall-Barratt scale for hypothesis testing. *Phytopathology*. 100:1030-1041.
- Bock, C., Poole, G.H., Parker, P., Gottwald, T.R. 2010. Estimation of plant disease severity visually, by digital photography and image analysis, and by hyperspectral imaging. *Critical Reviews in Plant Sciences*. 29:59-107.
- Lewandowski, D., Hayes, A.J., Adkins, S.T. 2010. Surprising results from a search for effective disinfectants for Tobacco mosaic virus-contaminated tools. *Plant Disease*. 94:5:542-550.
- Zhang, M., Duan, Y., Turechek, W., Stover, E.W., Powell, C.A. 2010. Screening molecules for control of citrus Huanglongbing (HLB) using an optimized regeneration system for 'Candidatus *Liberibacter asiaticus*' infected periwinkle (*Catharanthus roseus*) cuttings. *Phytopathology*. 100:239-245.
- Adkins, S.T., Webster, C.G., Baker, C.A., Weaver, R., Roskopf, E.N., Turechek, W. 2009. Detection of three whitefly-transmitted viruses infecting the cucurbit weed, *Cucumis melo* var. *dudaim*, in Florida. *Plant Health Progress*. DOI:10.1094/PHP-2009-1118-01-BR.
- Bock, C., Parker, P., Cook, A., Gottwald, T.R. 2009. Automated image analysis of the severity of foliar citrus canker symptoms. *Plant Disease*. 93:660-665.
- Parnell, S., Gottwald, T.R., Van Den Bosch, F., Gilligan, C. 2009. Optimal strategies for the eradication of Asiatic citrus canker in heterogeneous host landscapes. *Phytopathology* 99:1370-1376. DOI:10.1094/PHYTO-99-12-1370

- Parnell, S., Gilligan, C., Gottwald, T.R., Cunniffe, N., Van Den Bosch, F. 2009. The effect of landscape pattern on the optimal eradication zone of an invading epidemic. *Phytopathology*. Vol. 100, No. 7:638-644.
- Bock, C., Parker, P., Cook, A., Riley, T., Gottwald, T.R. 2009. Comparison of Assessment of Citrus Canker Foliar Symptoms by Experienced and Inexperienced Raters. *Plant Disease*. 93:412-424.
- Li, W., Abad, J.A., French-Monar, R.D., Rascoe, J., Wen, A., Gudmestad, N.C., Secor, G.A., Lee, I., Duan, Y., Levy, L. 2009. Multiplex real-time PCR for detection, identification and quantification of 'Candidatus *Liberibacter solanacearum*' in potato plants with zebra chip. *Journal of Microbiological Methods*. 78:59-65.
- Duan, Y., Zhou, L., Hall, D.G., Li, W., Doddapaneni, H., Lin, H., Liu, L., Gabriel, D., Vahling, C.M., Williams, K., Dickerman, A., Sun, Y., Gottwald, T.R. 2009. Complete Genome sequence of citrus huanglongbing bacterium, 'Candidatus *Liberibacter asiaticus*' obtained through metagenomics. *Molecular Plant-Microbe Interactions*. 22:1011-1020.
- Matos, L., Hilf, M.E., Comejo, J. 2009. First report of Candidatus *Liberibacter asiaticus* infecting citrus in the Dominican Republic. *Plant Disease*. 93:668.
- Li, W., Lewandowski, D.J., Hilf, M.E., Adkins, S.T. 2009. Identification of domains of the Tomato spotted wilt virus NSm protein involved in tubule formation, movement and symptomatology. *Virology*. 390:110-121.
- Wang, G., Kawicha, P., Xie, G., Liu, B., Huang, J., Benyon, L.S., Duan, Y. 2009. Identification and characterization of new strains of *Enterobacter* spp. causing Mulberry (*Morus alba*) wilt disease in China. *European Journal of Plant Pathology*. 126:465-478.
- Overholt, W., Markle, L., Roskopf, E.N., Manrique, V., Albano, J.P., Cave, E., Adkins, S.T. 2009. The interactions of Tropical soda apple mosaic tobamovirus and *Gratiana boliviana* (Coleoptera: Chrysomelidae), an introduced biological control agent of tropical soda apple (*Solanum viarum*). *Biological Control* 48:294-300.
- Gottwald, T.R., Graham, J., Bock, C., Bonn, G., Civerolo, E.L., Irey, M., Leite, R., Lopez, M., Mccollum, T.G., Parker, P., Ramallo, J., Riley, T., Schubert, T., Stein, B., Taylor, E.L. 2009. The epidemiological significance of post-packinghouse survival of *Xanthomonas citri* ssp. *citri* for dissemination of Asiatic citrus canker via infected fruit. *Crop Protection*. 29:508-524.
- Pethybridge, S., Gent, D.H., Esker, P., Turechek, W., Hay, F., Nutter, F. 2009. Site-specific risk factors for ray blight in Tasmanian pyrethrum fields. *Plant Disease*. 93:299-308.
- Bock, C., Gottwald, T.R., Parker, P., Ferrandino, F., Parnell, S., Van Den Bosch, F. 2009. Horsfall-Barratt recalibration and replicated severity estimates of citrus canker. *European Journal of Plant Pathology*. 125:23-38.
- Turechek, W., Peres, N. 2009. Hot Water Treatment to Reduce Angular Leaf Spot of Strawberry, Caused by *Xanthomonas fragariae*, in Nursery Production. *Plant Disease*. 93:299-308.
- Norman, D.J., Zapata, M., Gabriel, D.W., Duan, Y., Yuen, J.F., Mangravita-Novo, A., Donahoo, R. 2009. Genetic diversity and host range variation of *Ralstonia solanacearum* strains entering the United States. *Phytopathology*. 99:1070-1077.
- Adkins, S.T., Polston, J.E., Turechek, W. 2008. Cucurbit leaf crumple virus Identified in Common Bean in Florida. *Plant Disease* 93:320.
- Parker, P., Bock, C., Cook, A., Gottwald, T.R. 2008. Dispersal of *Xanthomonas citri* subsp. *citri* bacteria downwind from harvested, infected fruit. *Phytopathology*. 98:S121.
- Duan, Y., Sun, X., Zhou, L., Gabriel, D., Benyon, L.S., Gottwald, T.R. 2008. Bacterial brown leaf spot of citrus, a new disease caused by *Burkholderia andropogonis*. *Plant Disease*. 93:607-614.
- Cook, A., Gibson, G., Gottwald, T.R., Gilligan, C. 2008. Constructing the effect of alternative intervention strategies on historic epidemics. *Proceedings of the Royal Society of London B*. DOI:10.1098/rsif.2008.0030.
- Li, W., Hilf, M.E., Webb, S.E., Baker, C.A., Adkins, S.T. 2008. Presence of P1b and absence of HC-Pro in Squash vein yellowing virus suggests a general feature of the genus *Ipomovirus* in the family *Potyviridae*. *Virus Research*. DOI:10.1016/j.virusres.2008.03.015.

- Akad, F., Webb, S., Nyoike, T., Liburd, O., Turechek, W., Adkins, S.T., Polston, J. 2008. Detection of Cucurbit leaf crumple virus in Florida cucurbits. *Plant Disease*. 92:648.
- Duan, Y., Zhou, L., Gottwald, T.R., Gabriel, D. 2008. First Report of Dodder Transmission of *Candidatus Liberibacter asiaticus* to Tomato (*Lycopersicon esculentum*). *Plant Disease*. 92:831.
- Novelli, V., Freitas-Astua, J., Segatti, N., Mineiro, J., Arthur, V., Bastaniel, M., Hilf, M.E., Gottwald, T.R., Machado, M. 2008. Effects of radiation (Cobalt-60) on the elimination of *Brevipalpus phoenicis* (Acari: Tenuipalpidae) *Cardinum* endosymbiont. *Experimental and Applied Acarology*. DOI: 10.1007/s10493-008-9176-4.
- Young, J., Allen, C., Alvarez, A., Coutinho, T., Denny, T., Fegan, M., Gillings, M., Gottwald, T.R., Graham, J., Janse, J., Leach, J., Lopez, M., Morris, C., Parkinson, N., Rodrigues Neto, J., Scortichini, M., Takikawa, Y., Upper, C. 2008. Plant Pathogenic Bacteria as Bioterror Weapons – a Real Threat? *Phytopathology*. 98:1060-1065.
- Baker, C.A., Roskopf, E.N., Irey, M.S., Jones, L., Adkins, S.T. 2008. *Bidens* mottle virus and *Apium* virus Y identified in *Ammi majus* in Florida. *Plant Disease*. 92:6:975.
- Behlau, F., Belasque Jr., J., Bergamin-Filho, A., Graham, J., Leite, Jr., R., Gottwald, T.R. 2008. Copper Sprays and Windbreaks for Control of Citrus Canker on Young Orange Trees in Southern Brazil. *Crop Protection Journal*. 27:807-813.
- Adkins, S.T., Webb, S., Baker, C., Kousik, C.S. 2008. Squash vein yellowing virus detection using nested polymerase chain reaction demonstrates *Momordica charantia* is a reservoir host. *Plant Disease*. 92:1119-1123.
- Hilf, M.E. 2008. An Immunocapture RT-PCR Procedure Using Apple stem grooving virus Antibodies Facilitates Molecular Genetic Characterization of Citrus tatter leaf virus from the Original Meyer Lemon Host. *Plant Disease*. 92:746-750.
- Montero-Astua, M., Vasquez, V., Turechek, W., Merz, U., Rivera, C. 2008. Incidence, distribution and association of *Spongospora subterranea* and Potato mop-top virus in Costa Rica. *Plant Disease*. 92:1171-1176.
- Hilf, M.E., Garnsey, S., Robertson, C., Gowda, S., Satyanarayana, T., Irey, M., Sieburth, P., Dawson, W. 2007. Characterization of Recently Introduced HLB and CTV Isolates. *Proceedings of Florida State Horticultural Society*. 120:138-141.
- Weng, Z., Barthelson, R., Gowda, S., Hilf, M.E., Dawson, W., Galbraith, D., Xiong, Z. 2007. Persistent infection and promiscuous recombination of multiple genotypes of an RNA virus within a single host generate extensive diversity.. *PLoS One*. 2(a):e917. DOI:10.1371/journal.pone.0000917.
- Gottwald, T.R. 2007. Citrus Canker and Citrus Huanglongbing, Two exotic bacterial diseases threatening the citrus industries of the Western Hemisphere. *Outlooks on Pest Management*. 18(6):274-9.
- Dewdney, M., Biggs, A., Turechek, W. 2007. A statistical comparison of the blossom blight forecasts of maryblyt and cougarblight with receiver operating characteristic curve analysis. *Phytopathology*. 97:1164-1176.
- Zhou, L., Gabriel, D., Duan, Y., Halbert, S., Dixon, W. 2007. First Report of Dodder Transmission of Huanglongbing from Naturally Infected *Murraya paniculata* to Citrus. *Plant Disease*. 91:227.
- Al-Saadi, A., Reddy, J., Duan, Y., Brunings, A.M., Gabriel, D.W. 2007. All Five Host-Range Variants of *Xanthomonas citri* Carry One *pthA* Homolog With 17.5 Repeats That Determines Pathogenicity on Citrus, but None Determine Host-Range Variation. *Molecular Plant-Microbe Interactions*. 20:934-943.
- Adkins, S.T., Mcavoy, G., Roskopf, E.N. 2007. Tropical soda apple mosaic virus Identified in *Solanum capsicoides* in Florida. *Plant Disease*. 91:1204.

6625-22000-009-00D

BIOLOGY AND CONTROL OF SUGARCANE DISEASES BY SCREENING FOR RESISTANT GERmplasm – Jack Comstock (P) and Neil Glynn; Canal Point, Florida.

- Comstock, J.C., Glynn, N.C., Davidson, W. 2010. Sugarcane Rusts in Florida. International Society of Sugar Cane Technologists Proceedings. Sugar Cane Technol. 27:1-9.
- Flores, C., Loyo, R., Ojeda, A., Rangel, C.A., Ceron, F., Marquez, W., Guerra-Moreno, A.S., Hernandez, H.M., Gonzalez, R.E., Castlebury, L.A., Dixon, L.J., Glynn, N.C., Comstock, J.C., Flynn, J., Amador, J. 2009. First Report of Orange Rust of Sugarcane Caused by *Puccinia kuehnii* in Mexico, El Salvador and Panama. Plant Disease. 93:1347.
- Sood, S.G., Comstock, J.C., Glynn, N.C. 2009. LEAF WHORL INOCULATION METHOD FOR SCREENING SUGARCANE RUST RESISTANCE. Plant Disease. 93:12 1335-1340.
- Chavarria, E., Subiros, F., Vega, J., Ralda, G., Glynn, N.C., Comstock, J.C., Castlebury, L.A. 2009. First report of Orange Rust of Sugarcane Caused by *Puccinia kuehnii* in Costa Rica and Nicaragua. Plant Disease. 93:425.
- Ovalle, W., Comstock, J.C., Glynn, N.C., Castlebury, L.A. 2008. First report of *Puccinia kuehnii*, causal agent of orange rust of sugarcane, in Guatemala. Plant Disease. 92:973.
- Comstock, J.C. 2008. Sugarcane yield loss due to ratoon stunt. J. American Society of Sugar Cane Technologists. 28:22-31.

6659-22000-019-00D

GENETIC AND BIOLOGICALLY-BASED MANAGEMENT OF VEGETABLE CROP DISEASES – Kai Shu Ling (P) and William Wechter; Charleston, South Carolina.

- Ling, K., Lin, H., Lewis Ivey, M.L., Zhang, W., Miller, S. 2011. First Report of 'Candidatus *Liberibacter Solanacearum*' Naturally Infecting Tomatoes in the State of Mexico, Mexico. Plant Disease. 95:1026.
- Ling, K., Zhang, W. 2011. First Report of Pepino Mosaic Virus Infecting Tomato in Mexico. Plant Disease. 95:1035.
- Zhang, S., Ling, K. 2011. Genetic Diversity of Sweetpotato Begomoviruses in the United States and Identification of a Natural Recombinant between Sweet Potato Leaf Curl Virus and Sweet Potato Leaf Curl Georgia Virus. Archives of Virology. 156(6):955-968.
- Ling, K., Wechter, W.P., Walcott, R.R., Keinath, A.P. 2011. Development of a Real-Time PCR Assay for Squash Mosaic Virus Useful for Broad Spectrum Detection of Various Serotypes and Its Incorporation in a Multiplex Seed Health Assay. Journal of Phytopathology. 159:649-656.
- Wechter, W.P., Levi, A., Ling, K., Kousik, C.S., Block, C.C. 2011. Identification of resistance to *Acidovorax avenae* subsp. *citrulli* among melon (*Cucumis* spp.) Plant Introductions. HortScience. 46(2):207-212.
- Ling, K., Harrison Jr, H.F., Simmons, A.M., Zhang, S., Jackson, D.M. 2011. Experimental Host Range and Natural Reservoir of Sweet Potato Leaf Curl Virus in the United States. Crop Protection. 30:1055-1062.
- Ling, K., Sfetcu, D. 2010. First Report of Natural Infection on Greenhouse Tomatoes by Potato Spindle Tuber Viroid in the United States. Plant Disease. 94(11):1376.
- Ling, K., Jackson, D.M., Harrison Jr, H.F., Simmons, A.M., Pesic-Valesbroeck, Z. 2010. Field Evaluation on Yield Effects of U.S.A. Heirloom Sweetpotato Cultivars Infected by Sweet potato leaf curl virus. Crop Protection. 29 (2010):757-765.
- Ling, K., Wechter, W.P., Somai, B.M., Walcott, R.R., Keinath, A.P. 2010. An Improved Real-Time PCR System for Broad-Spectrum Detection of *Didymella bryoniae*, the Causal Agent of Gummy Stem Blight of Cucurbits. Seed Science and Technology. 38:692-703.
- Wechter, W.P., Keinath, A.P., Farnham, M.W., Smith, J.P. 2010. First Report of Bacterial Leaf Blight on Broccoli and Cabbage Caused by *Pseudomonas syringae* pv. *alisalensis* in South Carolina. Plant Disease. 94:132.
- Ling, K. 2010. Effectiveness of Chemo- and Thermo-Therapeutic Treatments on Pepino Mosaic Virus in Tomato Seeds. Plant Disease. 94:325-328.

- Ling, K., Zhang, W. 2009. First Report of a Natural Infection of Mexican Papita Viroid and Tomato Chlorotic Dwarf Viroid on Greenhouse Tomatoes in Mexico. *Plant Disease*. 93:1216.
- Ling, K., Bledsoe, M. 2009. First Report of Mexican Papita Viroid Infecting Greenhouse Tomato in Canada. *Plant Disease*. 93:839.
- Ling, K., Verhoeven, J.J., Singh, R.P., Brown, J.K. 2009. First Report of Tomato Chlorotic Dwarf Viroid in Greenhouse Tomatoes in Arizona. *Plant Disease*. 93:1075.
- Ling, K., Harris, K.R., Meyer, J.D., Levi, A., Guner, N., Wehner, T.C., Bendahmane, A., Havey, M.J. 2009. Non-Synonymous Single Nucleotide Polymorphisms in the Watermelon eIF4E Gene Are Closely Associated with Resistance to Zucchini Yellow Mosaic Virus. *Theoretical and Applied Genetics*. 120:191-200.
- El Salamouny, S., Shapiro, M., Ling, K., Shepard, B.M. 2009. Black Tea and Lignin as Ultraviolet Protectants for the Beet Armyworm Nucleopolyhedrovirus. *Journal of Entomological Science*. 44(1):50-58.
- Ha, Y., Fessehaie, A., Ling, K., Wechter, W.P., Keinath, A.P., Walcott, R.R. 2009. Simultaneous Detection of *Acidovorax avenae* Subsp. *Citrulli* and *Didymella Bryoniae* in Cucurbit Seedlots Using Magnetic Capture Hybridization and Real-Time Polymerase Chain Reaction. *Phytopathology*. 99:666-678.
- Wechter, W.P., Levi, A., Harris, K.R., Davis, A.R., Fei, Z.J., Giovannoni, J.J., Trebitsh, T., Salman, A., Hernandez, A., Thimmapuram, J., Tadmor, V., Portnoy, V., Katzir, N. 2008. Est-derived expression analysis of watermelon fruit development. *Biomed Central (BMC) Genomics*. 9:275-282.
- Ling, K., Wintermantel, W.M., Bledsoe, M. 2008. Genetic Composition of Pepino mosaic virus Population in North American Greenhouse Tomatoes. *Plant Disease*. 92:1683-1688.
- Ling, K., Kousik, C.S., Keinath, A.P. 2008. First Report of Southern Blight on Bottle Gourd (*Lagenaria siceraria*) caused by *Sclerotium Rolfsii* in South Carolina. *Plant Disease*. 92:656.
- Wechter, W.P., Keinath, A.P., Smith, J.P., Farnham, M.W. 2008. First Report of Severe Outbreaks of Bacterial Leaf Spot of Leafy Brassica Greens Caused by *Xanthomonas Campestris* pv. *Campestris* in South Carolina. *Plant Disease*. 92:1134.
- Ling, K. 2008. Pepino Mosaic Virus on Tomato Seed: Virus Location and Mechanical Transmission. *Plant Disease*. 92:1701-1705.

6659-22000-020-00D

IDENTIFICATION, ELUCIDATION, AND DEVELOPMENT OF DISEASE AND NEMATODE RESISTANCES IN VEGETABLE CROPS – Judy Thies (P) and Chandrasekar Kousik; Charleston, South Carolina.

- Kousik, C.S., Donahoo, R.S., Webster, C.G., Turechek, W., Adkins, S.T., Roberts, P.D. 2011. Outbreak of Powdery Mildew on Watermelon Fruit caused by *Podosphaera Xanthii* in Southwest Florida. *Plant Disease*. First Look paper, DOI: 10.1094/PDIS-06-11-0521, posted 09/07/2011.
- Keinath, A.P., Kousik, C.S. 2011. Sensitivity of Isolates of *Phytophthora capsici* from the Eastern United States to Fluopicolide. *Plant Disease*. First Look paper, DOI: 10.1094/PDIS-03-11-0242, posted 06/21/2011.
- Kousik, C.S., Adams, M.L., Jester, W.R., Hassell, R., Harrison Jr, H.F., Holmes, G.J. 2011. Effect of Cultural Practices and Fungicides on *Phytophthora* Fruit Rot of Watermelon in the Carolinas. *Crop Protection*. 30:888-894.
- Thies, J.A., Ariss, J., Hassell, R., Kousik, C.S., Olsen, S., Levi, A. 2010. Grafting for Managing Southern Root-knot Nematode, *Meloidogyne Incognita*, in Watermelon. *Plant Disease*. 94:1195-1199.
- Kousik, C.S., Adkins, S.T., Turechek, W., Roberts, P.D. 2009. Sources of Resistance in Watermelon Plant Introductions (PI) to Squash Vein Yellowing Virus (SqVYV), the Cause of Watermelon Vine decline in Florida. *Plant Disease*. 44(2):256-262.
- Thies, J.A., Ariss, J. 2009. Comparison between the N and Me3 genes conferring resistance to the root-knot nematode (*Meloidogyne incognita*) in genetically different pepper lines

- (*Capsicum annuum*). *European Journal of Plant Pathology*. DOI: 10.1007/s10658-009-9502-7.
- Kousik, C.S., Levi, A., Ling, K., Wechter, W.P. 2008. Potential Sources of Resistance to Cucurbit Powdery Mildew (*Podosphaera xanthii*) in US Plant Introductions (PI) of *Lagenaria Siceraria* (bottle gourd). *HortScience*. 43(5):1359-1364.
- Kousik, C.S., Keinath, A.P. 2008. First Report of Insensitivity to Cyazofamid among Isolates of *Phytophthora capsici* from the Southeastern United States. *Plant Disease*. 92:979.
- Brito, J.A., Stanley, R., Kaur, R., Cetintas, R., Di Vito, M., Thies, J.A., Dickson, D.W. 2007. Effects of the Mi-1, N and tabasco genes on infection and reproduction of *meloidogyne mayaguensis* on tomato and pepper genotypes. *Journal of Nematology*. 39:327-332.

APPENDIX 3

National Program 303 – Plant Diseases

ACCOMPLISHMENT REPORT 2007 – 2011

ARS Variety and Germplasm Releases for Disease and Pest Resistance*

FIBER CROPS

- Cotton:** GA 120R1B3 Cotton Germplasm Line, released by ARS scientists in Tifton, Georgia, FY 2010. GA 120R1B3 was created to combine high yielding, high fiber quality characteristics with resistance to the southern root-knot nematode.
- Cotton:** MD 9ne and MD 25 Cotton Germplasm Lines, released by ARS scientists in Stoneville, Mississippi, FY 2010. MD 9ne and MD 25 cotton germplasm lines confer resistance to plant bugs, *Lygus* species; plant bugs accounted for about 50 percent of the 2008 United States cotton losses due to insects.
- Cotton:** MT2468 Ren1, MT2468 Ren2, MT2468 Ren3 Upland Cotton Germplasm Lines, released by ARS scientists in Mississippi State, Mississippi, FY 2009. MT2468 Ren1, MT2468 Ren2, MT2468 Ren3 upland cotton germplasm lines were bred for resistance to the reniform nematode.
- Cotton:** LonRen-1 and LonRen-2 Upland Cotton Germplasm Lines, released by ARS scientists in College Station, Texas, FY 2007. LonRen-1 and LonRen-2 have a strong resistance to the reniform nematode.
- Cotton:** SJ-07P-FR01, SJ-07P-FR02, SJ-07P-FR03, and SJ-07P-FR04 Cotton Germplasm Lines, released by ARS scientists in Shafter, California, FY 2007. SJ-07P-FR01, SJ-07P-FR02, SJ-07P-FR03, and SJ-07P-FR04, four pima cotton germplasm lines, possess good levels of resistance to Fusarium wilt race 4, moderate lint yield, and good to superior fiber length and strength.

FLORICULTURE AND NURSERY CROPS

- Hibiscus:** Lufkin Red, Red Hardy Native Ornamental Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2011. Lufkin Red was selected for its outstanding red flowers and outstanding resistance to prevalent leaf-spotting diseases in the southeast.
- Hibiscus:** Lufkin White, White Hardy Native Ornamental Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2011. Lufkin White was selected for its exceptional blushed white flowers and outstanding resistance to prevalent leaf-spotting diseases in the southeast.
- Hibiscus:** Sahara Sunset, African Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2008. Sahara Sunset's broad environmental adaptation and tolerance of common insects and diseases make it an ideal plant for low maintenance plantings.

* A number of these releases are collaboratively released with our University and Industry partners.

GRAIN CROPS

- Barley:** STARS 1006B, STARS 1007B, STARS 1008B, STARS 1009B, STARS 1010B, STARS 1011B, STARS 1012B, and STARS 1013B Barley Germplasm Lines, released by ARS scientists in Stillwater, Oklahoma, FY 2010. All of these germplasm are highly resistant to the Russian wheat aphid (RWA) when seedlings are tested in the greenhouse with greenhouse-reared RWA colonies.
- Barley:** 95SR316A Spring Malt Barley Germplasm, released by ARS scientists in Aberdeen, Idaho, FY 2007. 95SR316A is an agronomically attractive line with excellent values for most malt quality characteristics, and it is resistant to most races of barley stripe rust.
- Barley:** RWA-1758 Barley Germplasm Line, released by ARS scientists in Aberdeen, Idaho, FY 2007. RWA-1758 has shown resistance to Russian wheat aphid feeding damage.
- Corn:** MP718 and MP719 Corn Germplasm, released by ARS scientists in Mississippi State, Mississippi, FY 2011. Corn germplasm lines MP718 and MP719 were released as sources of resistance to aflatoxin accumulation.
- Hop:** USDA 21087M Hop Germplasm Line, released by ARS scientists in Corvallis, Oregon, FY 2011. The defining characteristics of USDA 21087M are its resistance to downy mildew and potential for good storability in offspring. This germplasm may be used in breeding programs as a parent for downy mildew resistant aroma-type hop breeding material.
- Hop:** USDA 21089M Hop Germplasm Line, released by ARS scientists in Corvallis, Oregon, FY 2011. The release of USDA 21089M provides a new hop germplasm exhibiting high breeding value for yield, potential resistance to aphids, and good storability in female offspring.
- Hop:** USDA 21267M Hop Germplasm Line, released by ARS scientists in Corvallis, Oregon, FY 2011. The release of USDA 21267M provides a new hop germplasm exhibiting good breeding value, resistance to powdery mildew and intermediate resistance to downy mildew, and potential for excellent storability in offspring.
- Hop:** USDA 21272M Hop Germplasm Line, released by ARS scientists in Corvallis, Oregon, FY 2011. The release of USDA 21272M provides a new hop germplasm exhibiting high breeding value, moderate resistance to downy mildew, and potential for excellent storability in offspring.
- Hop:** USDA 58111M Hop Germplasm Line, released by ARS scientists in Corvallis, Oregon, FY 2011. The release of USDA 58111M provides a new hop germplasm exhibiting good breeding value, resistance to powdery mildew and intermediate resistance to downy mildew, and potential for excellent storability in offspring.
- Hop:** Mt. Rainier, released by ARS scientists in Corvallis, Oregon, FY 2009. The release of Mt. Rainier provides a new aroma hop exhibiting high yields and excellent brewing quality coupled with adequate disease and pest resistance under current production practices.
- Rice:** RIL103, RIL158, RIL186, RIL220 and RIL221 Rice Germplasm Lines, released by ARS scientists in Stuttgart, Arkansas, FY 2010. RIL103, RIL158, RIL186, RIL220, and RIL221 contain the major and minor alleles associated with sheath blight resistance and have good grain quality traits, early maturity, and glabrous leaves and hulls.
- Rice:** Presidio, released by ARS scientists in Beaumont, Texas, FY 2008. Presidio long grain rice has improved resistance to rice blast disease (caused by *Magnaporthea grisea*) and sheath blight disease (caused by *Rhizoctonia solani*).
- Rice:** Deletion Mutant Population that consists of 15,192 lines of 'Katy' rice, released by ARS scientists in Stuttgart, Arkansas, FY 2007. This population has been useful to identify signaling components of the resistance to the blast pathogen.

- Rice:** Indica-16, 17, and 18 Rice Germplasm Lines, released by ARS scientists in Stuttgart, Arkansas, FY 2007. The early maturity and blast resistance of these rice germplasm lines make them useful sources of Indica diversity for United States rice improvement programs.
- Rice:** RU9101001 / 'Katy' Mapping Population which consists of 235 F9 generation recombinant inbred lines of rice, released by ARS scientists in Stuttgart, Arkansas, FY 2007. This population has been used to map major genes that provide resistance to the rice blast pathogen and is expected to be useful for mapping additional genes that are segregating in the population.
- Wheat:** KS09WGGRC51-J and KS09WGGRC51-C Hard Red Winter Wheat Germplasm Lines, released by ARS scientists in Manhattan, Kansas, FY 2011. KS09WGGRC51-J and KS09WGGRC51-C hard red winter wheat germplasm have resistance to Hessian fly and were released for breeding and experimental purposes.
- Wheat:** KS09WGGRC51-P Spring Wheat Germplasm Line, released by ARS scientists in Manhattan, Kansas, FY 2011. KS09WGGRC51-P spring wheat germplasm has resistance to Hessian fly and was released for breeding and experimental purposes.
- Wheat:** KS12WGGRC56 Wheat Germplasm Line, released by ARS scientists in Manhattan, Kansas, FY 2011. KS12WGGRC56 wheat germplasm with resistance to stem rust Sr51 was released for breeding and experimental purposes.
- Wheat:** KS12WGGRC57 Hard Red Winter Wheat Germplasm Line, released by ARS scientists in Manhattan, Kansas, FY 2011. KS12WGGRC57 hard red winter wheat germplasm with the stem rust resistance gene Sr52 was released for breeding and experimental purposes.
- Wheat:** KS12WGGRC58 Wheat Germplasm Line, released by ARS scientists in Manhattan, Kansas, FY 2011. KS12WGGRC58 wheat germplasm with resistance to stem rust Sr53 was released for breeding and experimental purposes.
- Wheat:** KS12WGGRC59 Hard Red Winter Wheat Germplasm Line, released by ARS scientists in Manhattan, Kansas, FY 2011. KS12WGGRC59 hard red winter wheat germplasm with resistance to *Wheat streak mosaic virus* and *Triticum mosaic virus* was released for breeding and experimental purposes.
- Wheat:** Appalachian White, Hard White Winter Wheat, released by ARS scientists in Raleigh, North Carolina, FY 2009. Appalachian White has a higher level of resistance than its predecessor to powdery mildew, stripe rust, leaf rust, and Hessian fly.
- Wheat:** Cara, released by ARS scientists in Pullman, Washington, FY 2007. The club wheat, Cara, was released because of its combination of yield potential, and resistance to multiple diseases including resistance to stripe rust, powdery mildew, and strawbreaker foot rot, with the quality characteristics desired for the club wheat market class.
- Wheat:** Centerfield, Hard Red Winter Wheat, released by ARS scientists in Stillwater, Oklahoma, FY 2007. Centerfield is resistant to *Wheat spindle streak mosaic virus* and to *Wheat soilborne mosaic virus*.
- Wheat:** STARS 0601W, Hard Red Winter Wheat, released by ARS scientists in Stillwater, Oklahoma, FY 2007. STARS 0601W is a hard red winter wheat with resistance to biotypes 1 and 2 of the Russian wheat aphid.
- Wheat:** Duster, released by ARS scientists in Stillwater, Oklahoma, FY 2007. As a high-tillering cultivar, Duster exhibits excellent biomass accumulation prior to fall grazing and canopy regeneration during grazing, and exceptional recovery from grazing; contributing also to its dual-purpose adaptation is resistance to natural field infestations of Hessian fly.

LEGUMES

- Black Bean:** TARS-MST1 and SB-DT1 Black Bean Germplasm, released by ARS scientists in Mayagüez, Puerto Rico, FY 2011. TARS-MST1 and SB-DT1 are black bean germplasm lines selected for multiple stress tolerance, including tolerance to high ambient temperature and drought stress, and resistance to root rots. In addition, TARS-MST1 possesses resistance to bacterial blight.
- Chickpea:** CA0469C025C Café Kabuli Chickpea Germplasm, released by ARS scientists in Pullman, Washington, FY 2010. CA0469C025C has excellent resistance to *Ascochyta* blight.
- Chickpea:** Sawyer, Café-type Kabuli chickpea, released by ARS scientists in Pullman, Washington, FY 2008. Sawyer was developed to have a high level of resistance to *Ascochyta* blight.
- Common Bean:** Badillo, released by ARS scientists in Mayagüez, Puerto Rico, FY 2009. Badillo was bred for resistance to common bacterial blight and *Bean common mosaic virus*. This is the first light red kidney bean cultivar that combines resistance to these important diseases.
- Common Bean:** ABC-WeiHING, Great Northern Common Bean, released by ARS scientists in Lincoln, Nebraska, FY 2007. Great northern common bean germplasm line ABC-WeiHING was bred specifically for enhanced resistance to a major seed borne disease of common bean, common bacterial blight.
- Cowpea:** US-1136, US-1137, and US-1138 Cowpea Germplasm Lines, released by ARS scientists in Charleston, South Carolina, FY 2009. These three lines have vigorous, indeterminate-type plant habits, relatively short photoperiods, are resistant to root knot nematode, do not produce seeds with impermeable seed coats, and are high biomass producers.
- Cranberry Drybean:** Crimson, Cranberry Drybean, released by ARS scientists in Prosser, Washington, FY 2008. Crimson possesses virus resistance to Bean common mosaic virus and Bct gene for resistance to Beet curly top virus. Crimson also possesses moderate resistance to bean rust which limits dry bean production east of the Rocky Mountains.
- Cranberry Drybean:** USCR-CBB-20 Cranberry Drybean Germplasm Line, released by ARS scientists in Prosser, Washington, FY 2008. USCR-CBB-20 cranberry germplasm line has a high level of resistance to common bacterial blight caused by *Xanthomonas axonopodis* pv. *phaseoli* (Xap).
- Green Pea:** Green Pea Breeding Lines 00-5001, 00-5003, 00-5004, 00-5005, 00-5006, and 00-5007, released by ARS scientists in Prosser, Washington, FY 2010. These lines provide excellent resistance to Fusarium root rot and Fusarium wilt races 1, 2 and 5 and should be used as parents for further development of Fusarium-resistant breeding lines or cultivars.
- Spring Pea:** RIL 846-34, RIL 846-40, and RIL 847-36 Spring Pea Germplasm Lines, released by ARS scientists in Pullman, Washington, FY 2007. These lines are unique in combining high levels of resistance to Fusarium root rot of pea with acceptable agronomic traits and will be useful as a resource for developing resistant cultivars.
- White Bean:** Verano, released by ARS scientists in Mayagüez, Puerto Rico, FY 2008. Verano has tolerance to high temperature and resistance to bean golden yellow mosaic virus, a whitefly-transmitted begomovirus, *Bean common mosaic virus*, and common bacterial blight.

OIL CROPS

- Peanut:** C724-19-15 Peanut, released by ARS scientists in Tifton, Georgia, FY 2007. C724-19-15 peanut cultivar has good resistance to the peanut root-knot nematode and *Tomato spotted wilt virus*.
- Peanut:** Georganic Peanut, released by ARS scientists in Tifton, Georgia, FY 2007. Georganic has a high level of resistance to *Tomato spotted wilt virus*, as well as to early and late leaf spot.
- Peanut:** TifGP-1 Peanut, released by ARS scientists in Tifton, Georgia, FY 2007. TifGP-1 is a runner-type peanut germplasm line that was released based on resistance to both *Tomato spotted wilt virus* and the peanut root-knot nematode.
- Soybean:** DS-880 Soybean Germplasm Line, released by ARS scientists in Stoneville, Mississippi, FY 2010. DS-880 is a germplasm line with broad resistance to soybean cyst nematode populations and other diseases.
- Soybean:** N7003CN Soybean, released by ARS scientists in Raleigh, North Carolina, FY 2010. The unusual combination of high yield and Race 2 SCN resistance in group VII maturity makes N7003CN potentially desirable for conventional and organic production and as breeding stock for commercial breeding programs.
- Soybean:** Greencastle, Forage Soybean, released by ARS scientists in Beltsville, Maryland, FY 2008. Greencastle has good resistance to both sudden death syndrome and southern stem canker diseases. Greencastle is intended to provide forage producers in areas where southern stem canker and sudden death syndrome diseases are prevalent with a productive forage soybean that has resistance to these two diseases.
- Sunflower:** RHA 472, RHA 473, RHA 474, and RHA 475 Oilseed Sunflower Germplasm, released by ARS scientists in Fargo, North Dakota, FY 2011. These germplasms have been developed to provide diversity for resistance to *Sclerotinia* head rot, one of the most devastating diseases in sunflower production, and are available for use by industry and public researchers to create parental lines or germplasms.

SMALL FRUIT CROPS

- Gooseberry:** Jeanne, Gooseberry, released by ARS scientists in Corvallis, Oregon, FY 2007. The leaves and fruits of 'Jeanne' are highly resistant to powdery mildew, caused by *Sphaerotheca mors-uva*.
- Grape:** Kingfisher, Grape Rootstock, released by ARS scientists in Geneva, New York, FY 2010. Kingfisher is a root-knot nematode resistant grapevine rootstock.
- Grape:** Matador, Grape Rootstock, released by ARS scientists in Geneva, New York, FY 2010. Matador is a root-knot nematode resistant grapevine rootstock.
- Grape:** Minotaur, Grape Rootstock, released by ARS scientists in Geneva, New York, FY 2010. Minotaur is a root-knot nematode resistant grapevine rootstock.
- Grape:** Eudora, Muscadine Grape, released by ARS scientists in Poplarville, Mississippi, FY 2007. Eudora is recommended as a fresh market grape for both dooryard and commercial use; it has not shown symptoms of Pierce's disease, and has shown good resistance to various fruit rot organisms.

SUGAR CROPS

- Sugarbeet:** F1024 Sugarbeet Germplasm, released by ARS scientists in Fargo, North Dakota, FY 2010. F1024 has good root maggot resistance and has moderate resistance to *Cercospora* leaf spot.
- Sugarbeet:** CN12-446, CN12-770, and CN72-652 Sugarbeet Germplasm Lines, released by ARS scientists in Salinas, California, FY 2009. This sugarbeet germplasm represents ongoing efforts to combine multiple disease resistance with high productivity and to enhance source populations. Each is sugarbeet cyst nematode resistant, powdery mildew resistant, and contains the Rz1 gene for resistance to *Beet necrotic yellow vein virus*. CN12-446 and CN12-770 are bolting resistant. CN12-770 was selected for higher percent sucrose from a set of selfed progeny lines. CN72-652 is sugarbeet cyst nematode resistant. CN72-652 is moderately bolting resistant.
- Sugarbeet:** FC1018, FC1019, FC1020, and FC1022 Sugarbeet Germplasm Lines, released by ARS scientists in Fort Collins, Colorado, FY 2009. These sugarbeet germplasm lines are populations from which to select disease-resistant, multigerm pollinator parents.
- Sugarbeet:** SR98 Sugarbeet Germplasm, released by ARS scientists in East Lansing, Michigan, FY 2009. SR98 was released as a germplasm source for breeders to use in developing parental lines with resistance to *Rhizoctonia* damping-off, as well as combining smooth-rootedness with higher levels of *Rhizoctonia* crown and root rot resistance than is currently available in smooth-root material. SR98 appears to be useful as an additional source of Fusarium resistance.
- Sugarbeet:** EL54 Sugarbeet Germplasm, released by ARS scientists in East Lansing, Michigan, FY 2008. EL54 has shown excellent *Aphanomyces* resistance in field trials in Michigan, Minnesota, and North Dakota. EL54 is expected to be a source for development of parental lines for hybrid cultivars resistant to *Aphanomyces* seedling damping-off and to mature root rot caused by *Aphanomyces cochlidioides* Drechs.
- Sugarcane:** CP 04-1566 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2011. CP 04-1566 has shown excellent resistance in Florida to brown rust, orange rust, leaf scald, mosaic, ratoon stunt, and eye spot.
- Sugarcane:** CP 04-1844 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2011. CP 04-1844 has shown excellent resistance in Florida to brown rust, orange rust, mosaic, smut, and eye spot.
- Sugarcane:** CP 04-1935 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2011. CP 04-1935 has shown excellent resistance in Florida to brown rust, orange rust, mosaic, and eye spot.
- Sugarcane:** CPCL 02-0926 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2011. CPCL 02-0926 has shown excellent resistance in Florida to brown rust, orange rust, smut, and eye spot.
- Sugarcane:** CPCL 02-1295 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2011. CPCL 02-1295 has shown excellent resistance in Florida to brown rust, mosaic, ratoon stunt, and eye spot.
- Sugarcane:** CPCL 95-2287 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2011. CPCL 95-2287 has shown excellent resistance in Florida to brown rust, leaf scald, mosaic, smut, and ratoon stunt.
- Sugarcane:** CP 03-1912 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2010. Major attributes of CP 03-1912 on sand soils include its high yields of cane or biomass and its resistance to most major sugarcane diseases prevalent in Florida.

- Sugarcane:** CPCL 00-4111 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2010. Major attributes of CPCL 00-4111 on muck soils include its high sucrose content and cane yields and its resistance to most major sugarcane diseases in Florida.
- Sugarcane:** CPCL 99-4455 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2009. CPCL 99-4455 is recommended for all sugarcane growers in Florida. Major attributes of CPCL 99-4455 on muck and sand soils include its resistance to most major diseases in Florida and its high sucrose content, particularly in the early portion of the harvest season.
- Sugarcane:** CP 01-1372 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2008. CP 01-1372 has shown adequate resistance for commercial production in Florida to leaf scald, sugarcane mosaic, brown rust, orange rust, smut, ratoon stunt, and eye spot.
- Sugarcane:** CPCL 97-2730 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2008. CPCL 97-2730 has shown adequate resistance for commercial production in Florida to leaf scald, sugarcane mosaic, brown rust, orange rust, smut, ratoon stunt, and eye spot.
- Sugarcane:** CP 00-1101 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2007. CP 00-1101 has shown adequate resistance for commercial production in Florida to leaf scald, sugarcane mosaic, brown rust, smut, ratoon stunt, and eye spot.
- Sugarcane:** CP 00-1446 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2007. CP 00-1446 has shown adequate resistance for commercial production in Florida to leaf scald, brown rust, smut, ratoon stunt, and eye spot.
- Sugarcane:** CP 00-2180 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2007. CP 00-2180 has shown adequate resistance for commercial production in Florida to leaf scald, sugarcane mosaic, brown rust, smut, ratoon stunt, and eye spot.
- Sugarcane:** CP 88-1165 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2007. CP 88-1165 has shown adequate field resistance in Guatemala to smut, leaf scald, and brown rust. CP 88-1165 has shown field resistance in Florida to eye spot, smut, and leaf scald.
- Sugarcane:** HO 00-961 High Fiber Sugarcane, released by ARS scientists in Houma, Louisiana, FY 2007. HO 00-961 is resistant to *Sugarcane mosaic virus* (strains A, B, and D) and *Sorghum mosaic virus* (strains H, I, and M).

TREE FRUITS

- Apple:** G.210 Apple Rootstock, released by ARS scientists in Geneva, New York, FY 2010. This rootstock survived the series of inoculations with apple rootstock pathogens (*Erwinia amylovora*, *Phytophthora cactorum*, woolly apple aphid) and has shown tolerance to the replant disease complex.
- Apple:** G.214 Apple Rootstock, released by ARS scientists in Geneva, New York, FY 2010. G.214 is a dwarfing, precocious, productive rootstock resistant to fire blight.
- Apple:** G.222 Apple Rootstock, released by ARS scientists in Geneva, New York, FY 2010. G.222 is a semi-dwarfing productive plant resistant to fire blight.
- Apple:** G.707 Apple Rootstock, released by ARS scientists in Geneva, New York, FY 2010. G.707 is a semi dwarfing productive plant resistant to fire blight.
- Apple:** G.778 Apple Rootstock, released by ARS scientists in Geneva, New York, FY 2010. G.778 is a semi-vigorous productive plant resistant to fire blight.
- Apple:** G.890 Apple Rootstock, released by ARS scientists in Geneva, New York, FY 2010. G.890 is a semi-dwarfing productive plant resistant to fire blight.

- Apple:** G.969 Apple Rootstock, released by ARS scientists in Geneva, New York, FY 2010. G.969 is a semi dwarfing productive plant resistant to fire blight.
- Citrus:** US-942 Citrus Rootstock, released by ARS scientists in Fort Pierce, Florida, FY 2010. The major positive attributes of this rootstock are ease of seed propagation, resistance or tolerance to citrus tristeza virus, citrus blight, and *Phytophthora* root diseases, as well as a semi-dwarfing effect on scion tree size, induction of good fruit quality, and induction of good fruit productivity per tree and per canopy volume.
- Plum:** Sharpe, Plum Hybrid Rootstock, released by ARS scientists in Byron, Georgia, FY 2007. Sharpe, a clonal plum rootstock for peach, displays high resistance to *Armillaria* root rot and to root knot nematodes.

TREE NUTS

- Pecan:** Lipan, released by ARS scientists in College Station, Texas, FY 2011. Lipan Pecan is being released because of its high nut quality, high yield potential, midseason nut maturity, and excellent scab disease resistance.
- Pecan:** Apalachee, released by ARS scientists in College Station, Texas, FY 2009. Apalachee was released because of its high nut quality, high yield potential, and excellent scab disease resistance.

VEGETABLES:

- Lettuce:** SM09A and SM09B Romaine Lettuce Germplasm, released by ARS scientists in Salinas, California, FY 2010. SM09A and SM09B were developed by selecting for resistance to dieback disease and horticultural characteristics in experiments conducted in *Tomato bushy stunt virus* and *Lettuce necrotic stunt virus* infested field sites.
- Lettuce:** 06-810-1 Red Leaf Lettuce Breeding Line, released by ARS scientists in Salinas, California, FY 2009. 06-810-1 may be suitable for commercial production and is suitable for use as a source of resistance to corky root in the development of cultivars and germplasm.
- Lettuce:** 06-831-1 and 06-833-1 Green Leaf Lettuce Breeding Lines, released by ARS scientists in Salinas, California, FY 2009. 06-831-1 and 06-833-1 Lettuce Breeding Lines were bred for resistance to Corky root.
- Lettuce:** MU06-859 Crisphead Lettuce Germplasm Line, released by ARS scientists in Salinas, California, FY 2008. MU06-859 was bred for resistance to leafminers.
- Lettuce:** RH07-0370M, RH07-0373M, RH07-0379M, RH07-0380M, RH07-0386M, RH07-0387M, and RH04-0157-3, six F6:8 and one F4:5 iceberg breeding lines of lettuce, released by ARS scientists in Salinas, California, FY 2008. Iceberg lettuce breeding lines were bred for resistance to bacterial leaf spot caused by *Xanthomonas campestris* pv. *vitians*.
- Lettuce:** RH05-0336, RH05-0339, and RH05-0340 Iceberg Lettuce Germplasm Lines, released by ARS scientists in Salinas, California, FY 2007. These breeding lines are the first iceberg type lettuce with resistance to *Verticillium* wilt, but are not suitable for commercial production. They should be used as parents for further development of *Verticillium* wilt cultivars.
- Maize:** CRW3(S1)C6 Maize Germplasm Line, released by ARS scientists in Columbia, Missouri, FY 2007. Maize germplasm CRW3(S1)C6 has resistance to western corn rootworm and can be used to greatly improve the introgression of desired resistance genes into high yielding commercial varieties.

- Pepper:** PA-566 Pimento-type Pepper, released by ARS scientists in Charleston, South Carolina, FY 2010. PA-566 is the product of a backcross breeding program to incorporate the N root-knot nematode resistance gene into a 'Pimiento L' type genetic background.
- Pepper:** PA-560 Habanero-type Pepper Breeding Line, released by ARS scientists in Charleston, South Carolina, FY 2009. PA-560 is a yellow-fruited, Habanero-type advanced breeding line that is homozygous for a dominant gene conditioning a high level of resistance to the southern root-knot nematode, the peanut root-knot nematode, and the tropical root-knot nematode.
- Pepper:** Truhart-NR Pimento-type Pepper, released by ARS scientists in Charleston, South Carolina, FY 2009. Truhart-NR is a pimento-type cultivar that is homozygous for a dominant gene conditioning a high level of resistance to the southern root-knot nematode, the peanut root-knot nematode, and the tropical root-knot nematode.
- Pepper:** PA-559 Habanero-type Pepper Breeding Line, released by ARS scientists in Charleston, South Carolina, FY 2008. PA-559 has a high level of resistance to the southern root-knot nematode, the peanut root-knot nematode, and the tropical root-knot nematode.
- Spinach:** 03-04-63 Spinach Germplasm Line, released by ARS scientists in Salinas, California, FY 2007. Spinach germplasm line 03-04-63 has moderate resistance to bolting as compared to other germplasm accessions. The line may be suitable for commercial production and is suitable for use as a source of resistance to leafminers in the development of inbred lines, hybrids, or cultivars.
- Sweetpotato:** W-315 AND W-388 Sweetpotato Breeding Lines, released by ARS scientists in Charleston, South Carolina, FY 2007. W-315 and W-388 have high resistance to a variety of diseases and insect pests.

[THIS PAGE INTENTIONALLY LEFT BLANK.]

APPENDIX 4

National Program 303 – Plant Diseases

ACCOMPLISHMENT REPORT 2007 – 2011

First Reports of New or Emerging Fungi, Nematodes, Oomycetes, Phytoplasmas, Viroids, and Viruses from NP 303 Research

FUNGI

- Aime, M.C., Rossman, A.Y. 2007. First report of the rust *Phragmidium violaceum* on Pennsylvania blackberry in California. *Plant Disease*. 91:1517.
- Alderman, S.C., Rao, S., Martin, R.C. 2010. First report of *Dicyma pulvinata* on *Epichloë typhina* and its potential for *E. typhina* control. *Plant Health Progress*. DOI:10.1094/PHP-2010-0216-01-RS.
- Bradley, C., Hines, R., Haudenschild, J.S., Hartman, G.L. 2010. First report of soybean rust, caused by *Phakopsora pachyrhizi*, on Kudzu (*Pueraria montana* var. *lobata*) in Illinois. *Plant Disease*. 94:477.
- Bandyopadhyay, R., Ojiambo, P.S., Twizeyimana, M., Asafo-Adjei, B., Frederick, R.D., Pedley, K.F., Stone, C.L., Hartman, G.L. 2007. First report of soybean rust caused by *Phakopsora pachyrhizi* in Ghana. *Plant Disease*. 91(8):1057.
- Bobev, S.G., Castlebury, L.A., Rossman, A.Y. 2008. First report of *Colletotrichum dracaenophilum* on *Dracaena sanderiana* in Bulgaria. *Plant Disease*. 92:173.
- Carris, L.M., Castlebury, L.A. 2008. The first report of the rye smut, *Tilletia secalis*, from North America. *North American Fungi*. 3(7):147-159.
- Carris, L.M., Castlebury, L.A., Zale, J. 2008. First report of *Tilletia pulcherrima* on switchgrass (*Panicum virgatum* L.) in Texas. *Plant Disease*. 92:1707.
- Chavarria, E., Subiros, F., Vega, J., Ralda, G., Glynn, N.C., Comstock, J.C., Castlebury, L.A. 2009. First report of orange rust of sugarcane caused by *Puccinia kuehnii* in Costa Rica and Nicaragua. *Plant Disease*. 93:425.
- Chaverri, P., Gazis, R., Samuels, G.J. 2011. *Trichoderma amazonicum*, a new endophytic species on *Hevea brasiliensis* and *H. guianensis* from the Amazon basin. *Mycologia*. 103(1):139-151.
- Comstock, J.C., Sood, S.G., Glynn, N.C., Shine, Jr., J.M., Mckemy, J.M., Castlebury, L.A. 2008. First report of *Puccinia kuehnii*, causal agent of orange rust of sugarcane, in the United States and Western Hemisphere. *Plant Disease*. 92:175.

FUNGI [CONTINUED]

- Flores, C., Loyo, R., Ojeda, A., Rangel, C.A., Ceron, F., Marquez, W., Guerra-Moreno, A.S., Hernandez, H.M., Gonzalez, R.E., Castlebury, L.A., Dixon, L.J., Glynn, N.C., Comstock, J.C., Flynn, J., Amador, J. 2009. First report of orange rust of sugarcane caused by *Puccinia kuehnii* in Mexico, El Salvador and Panama. *Plant Disease*. 93:1347.
- Freshour, L., Agarwal, S., Sorochan, J., Zale, J., Ownley, B., Gwinn, K., Castlebury, L.A., Carris, L.M. 2008. First report of *Puccinia emaculata* on switchgrass (*Panicum virgatum* L.) in Tennessee. *Plant Disease*. 92:1710.
- Gregory, N., Bischoff, J., Dixon, L.J., Ciurlino, R. 2010. First report of the telial stage of Japanese apple rust on *Juniperus chinensis* in North America and confirmation of the aecial stage on *Malus domestica*. *Plant Disease*. 94:1169.
- Jin, Y., Szabo, L.J., Carson, M.L. 2010. Century-old mystery of *Puccinia striiformis* life history solved with the identification of *Berberis* as an alternate host. *Phytopathology*. 100(5):432-435.
- Jones, R.W., Stommel, J.R., Wanner, L.A. 2009. First report of *Oidiopsis taurica* causing powdery mildew outbreak on pepper in Maryland. *Plant Disease*. 93:1222.
- Kolmer, J.A., Anderson, J.A. 2011. First detection in North America of virulence in *Puccinia triticina* to wheat seedlings with Lr21. *Plant Disease*. 95:1032.
- Lechat, C., Farr, D.F., Hirooka, Y., Minnis, D., Rossman, A.Y. 2010. A new species of *Hydropisphaera*, *H. bambusicola*, is the sexual state of *Gliomastix fusigera*. *Mycotaxon*. 111:102.
- Ling, K., Kousik, C.S., Keinath, A.P. 2008. First report of southern blight on bottle gourd (*Lagenaria siceraria*) caused by *Sclerotium rolfsii* in South Carolina. *Plant Disease*. 92:656.
- Mejia, L., Rossman, A.Y., Castlebury, L.A., White, J. 2011. New species, phylogeny, host-associations, and geographic distribution of the genus *Cryptosporella* (*Gnomoniaceae*, *Diaporthales*). *Mycologia*. 103:379-399.
- Minnis, D., Rossman, A.Y., Clement, D., Malinowski, M.K., Rane, K.K. 2010. First report of powdery mildew caused by *Podosphaera leucotricha* on Callery pear in North America. *Plant Disease*. 94:279.
- Ojiambo, P.S., Bandyopadhyay, R., Twizeyimana, M., Lema, A., Frederick, R.D., Pedley, K.F., Stone, C.L., Hartman, G.L. 2007. First report of rust caused by *Phakopsora pachyrhizi* on soybean in Democratic Republic of Congo. *Plant Disease*. 91(9):1204.
- Ovalle, W., Comstock, J.C., Glynn, N.C., Castlebury, L.A. 2008. First report of *Puccinia kuehnii*, causal agent of orange rust of sugarcane, in Guatemala. *Plant Disease*. 92:973.

FUNGI [CONTINUED]

- Petit, E., Barriault, E., Baumgartner, K., Wilcox, W., Roshausen, P.E. 2011. Identification of *Cylindrocarpon* species associated with black foot of grapevine in northeastern United States and southeastern Canada. *American Journal of Enology and Viticulture*. 62:177-183.
- Ramirez-Mendoza, M.R., Rebollar-Alviter, A., Minnis, A.M., Dixon, L.J., Castlebury, L.A., Valdovinos-Ponce, G., Silva-Rojas, H.V. 2011. First report of leaf rust of blueberry caused by *Thekopsora minima* in Mexico. *Plant Disease*. 95:772.
- Roberts, R.G. 2008. *Alternaria undulata*, a new species from *Citrus sinensis*. *Mycotaxon*. 104:29-34.
- Roberts, R.G. 2008. *Alternaria roseogrisea*, a new species from achenes of *Helianthus annuus* (sunflower). *Mycotaxon*. 103:21-26.
- Rossmann, A.Y., Goenaga, R.J., Keith, L.M. 2007. First report of *Dolabra nepheliae* on rambutan and litchi in Hawaii and Puerto Rico. *Plant Disease*. 91:1685.
- Schilder, M., Lizotte, E., Yun, H., Dixon, L., Castlebury, L.A. 2011. First report of Juneberry rust caused by *Gymnosporangium nelsonii* on Juneberry in Michigan. *Plant Disease*. 95(6):770.
- Vasilyeva, L.N., Rossmann, A.Y., Farr, D.F. 2008. New species of the Diaporthales from eastern Asia and eastern North America. *Mycologia*. 99:916-923.
- Yun, H., Hong, S., Rossmann, A.Y., Lee, S., Lee, K., Bae, K. 2009. The rust fungus *Gymnosporangium* in Korea including two new species, *G. monticola* and *G. unicornae*. *Mycologia*. 101(6):790-809.
- Yun, H., Minnis, A., Dixon, L.J., Castlebury, L.A. 2010. First report of *Uromyces acuminatus* on *Honckenya peploides*, the endangered seabeach sandwort. *Plant Disease*. 94:279.
- Yun, H., Rossmann, A.Y. 2011. *Tubakia seoraksanensis* sp. nov., a new species from Korea. *Mycotaxon*. 115:369-373.
- Yun, H., Rossmann, A.Y., Byrne, J. 2009. First report of *Gymnosporangium sabinae*, European pear rust, on Bradford pear in Michigan. *Plant Disease*. 93(8):841.

PHYTOPLASMAS

- Davis, R.E., Y. Zhao, E.L. Dally, R. Jomantiene, I.-M. Lee, W. Wei, and E.W. Kitajima. 2011. 'Candidatus *Phytoplasma sudamericanum*', a novel taxon, and strain PasssWB-Br4, a new subgroup 16SrIII-V phytoplasma, from diseased passion fruit (*Passiflora edulis* f. *flavicarpa* Deg.). *Int. J. Systematic and Evolutionary Microbiology* 61: ijs.0.033423-0; published ahead of print June 13, 2011.

PHYTOPLASMAS [CONTINUED]

- Davis, R.E., Dally, E.L., Zhao, Y., Lee, I., Jomantiene, R., Detweiler, A.J., Putnam, M.L. 2010. First report of a new subgroup 16SrIX-E, '*Candidatus Phytoplasma phoenicium*'-related, phytoplasma associated with juniper witches' broom disease in Oregon. *Plant Pathology*. 20:35.
- Lee, I., Bottner, K.D., Sun, M. 2009. An emerging potato purple top disease caused by a new 16SrIII group phytoplasma in Montana. *Plant Disease*. 93:574-583.
- Lee, I., Bottner-Parker, K.D., Zhao, Y., Villalobos, W., Loreira, L. 2011. *Candidatus phytoplasma costaricanum*: a new phytoplasma associated with a newly emerging disease in soybean in Costa Rica. *International Journal of Systematic and Evolutionary Microbiology*. 60:2887-2897.
- Quaglino, F., Zhao, Y., Bianco, P.A., Wei, W., Casati, P., Durante, G., Davis, R.E. 2009. New 16Sr subgroups and distinct SNP lineages among grapevine Bois noir phytoplasma populations. *Annals of Applied Biology*. 154:279-289.
- Valiunas, D., Jomantiene, R., Ivanauskas, A., Abraitis, R., Staniene, G., Zhao, Y., Davis, R.E. 2009. First report of a new phytoplasma subgroup, 16SrIII-S, associated with decline disease affecting sweet and sour cherry trees. *Plant Disease*. 93:550.
- Villalobos, W., Moreira, L., Rivera, C., Lee, I. 2009. First report of new phytoplasma diseases associated with soybean, sweet pepper, and passion fruit in Costa Rica. *Plant Disease*. 93:201.
- Wei, W., Cai, H., Jiang, Y., Lee, I., Davis, R.E., Ding, Y., Yuan, E., Chen, H., Zhao, Y. 2011. A new phytoplasma associated with little leaf disease in azalea: multilocus sequence characterization reveals a distinct lineage within the aster yellows phytoplasma group. *Annals of Applied Biology*. 158:318-330.
- Wei, W., Hua, J., Yang, Y., Youfu, W., Davis, R.E., Zhao, Y. 2007. Molecular identification of a new phytoplasma strain associated with the first observation of jujube witches'-broom disease in northeastern China. *Plant Disease*. 91:1364.

NEMATODES

- Bernard, E.C., Handoo, Z.A., Powers, T.O., Donald, P.A., Heinz, R.D., 2010. *Vittatidera zeaphila* (Nematoda: Heteroderidae), a new genus and species of cyst nematode parasitic on corn (*Zea mays*). *Journal of Nematology*. 42:139-150.
- Handoo, Z.A., Iqbal E.Y., Kazi, N., Shahina, F. 2010. Two new species of *Paurodontella* Husain and Khan, 1968 (Nematoda: Sphaerulariidae) associated with wheat and a diagnostic compendium to the genus. *Nematology*. 12(2):181-192.
- Handoo, Z.A., Skantar, A.M., Mulrooney, R. 2010. First report of the sting nematode *Belonolaimus longicaudatus* on soybean in Delaware. *Plant Disease*. 94(1):133.

NEMATODES [CONTINUED]

- Karanastasi, E., Handoo, Z.A., Tzotzakakis, E. 2008. First record of *Mesocriconema xenoplax* (Nematoda: Criconeematidae) in Greece and first record of *Viburnum* sp. as a possible host for this ring nematode. *Helminthologia*. 45(2):103-105.
- Ramzan, M., Handoo, Z.A., Fayyaz, S. 2008. Description of *Tylenchorhynchus qasimii* sp. n with a new report of *T. kegasawai* Minagawa, 1995 from Pakistan. *Journal of Nematology*. 40(1):20-25.
- Skantar, A.M., Handoo, Z.A., Carta, L.K., Zasada, I. A., Ingham, R.E., Chitwood, D.J. 2011. Morphological and molecular characterization of *Globodera* populations from Oregon and Idaho. *Phytopathology*. 101(4):480-491.
- Smiley, R.W. Yan, G.P. Handoo, Z.A. 2008. First record of the cyst nematode *Heterodera filipjevi* on wheat in Oregon. *Plant Disease*. 92(7): 1136.
- Troccoli, A., De Luca, F., Handoo, Z.A., Di Vito, M. 2008. Morphological and molecular characterization of *Pratylenchus lentis* n. sp. (Nematoda: Pratylenchidae) from Sicily. *Journal of Nematology*. 40(3):190-196.
- Van Den Berg, E., Subbotin, S.A., Handoo, Z.A., Tiedt, L.R. 2009. *Hirschmanniella kwazuna* sp. n. from South Africa with notes on a new record of *H. spinicaudata* Schuurmans Stekhoven, 1944, Luc & Goodey, 1964 (Nematoda: Pratylenchidae) and on the molecular phylogeny of *Hirschmanniella* Luc & Goodey, 1964. *Nematology*. 11(4):523-540.

OOMYCETES

- Grunwald, N.J., Goss, E.M., Larsen, M.M., Press, C.M., McDonald, V.T., Blomquist, C.L., Thomas, S.L. 2008. First report of the European lineage of *Phytophthora ramorum* in a California nursery. *Plant Disease*. 92:314.
- Kousik, C.S., Keinath, A.P. 2008. First report of insensitivity to cyazofamid among isolates of *Phytophthora capsici* from the southeastern United States. *Plant Disease*. 92:979.

VIRUSES

- Adkins, S.T., Mcavoy, G., Roskopf, E.N. 2007. Tropical soda apple mosaic virus Identified in *Solanum capsicoides* in Florida. *Plant Disease*. 91:1204.
- Castro, R.M., Hernandez, E., Mora, F., Ramirez, P., Hammond, R. 2009. First report of Tomato chlorosis virus in tomato in Costa Rica. *Plant Disease*. 93:970.
- Gulati Sakhujia, A.N., Liu, H. 2010. Complete nucleotide sequence and genome organization of Calibrachoa mottle virus (CbMV) - a new species in the genus Carmovirus, family Tombusviridae. *Virus Research*. 147:216-223.

VIRUSES [CONTINUED]

- Jordan, R.L., Guaragna, M.A., Putnam, M. 2011. Detection and molecular characterizations of new and emerging potyviruses of ornamental plants. *Acta Horticulturae*. 901:159-166.
- Koike, S.T., Tian, T., Liu, H. 2010. First report of Tobacco rattle virus in spinach in California. *Plant Disease*. 94:125.
- Kraus, J., Cleveland, S., Tzanetakis, I.E., Keller, K.E., Putnam, M., Martin, R.R. 2010. A new Potyvirus sp. infects *Verbena* exhibiting leaf mottling symptoms. *Plant Disease*. 94:1132-1136.
- Ling, K., Zhang, W. 2011. First report of Pepino mosaic virus infecting tomato in Mexico. *Plant Disease*. 95:1035.
- Martin, R.R., Tzanetakis, I.E. 2008. First report of *Rosa multiflora* cryptic virus in *Rosa multiflora* in the eastern United States. *Plant Disease*. 92(12):1706.
- Mekuria, T., Martin, R.R., Naidu, R.A. 2008. First report of the occurrence of Grapevine fanleaf virus in the Pacific Northwest region vineyards. *Plant Disease*. 92:1250.
- Mekuria, T.A., Karasev, A.V., Martin, R.R., Naidu, R.A. 2009. First report of Grapevine leafroll-associated virus-3 in wine grape cultivars in Idaho. *Plant Disease*. 93:1218.
- Nelson, B. and Domier, L.L. 2009. First report of Soybean mosaic virus on soybean in North Dakota. *Plant Disease*. 93(7):760.
- Polston, J.E., Hladky, L.L., Akad, F., Wintermantel, W.M. 2008. First report of Cucurbit yellow stunting disorder virus in cucurbits in Florida. *Plant Disease*. 92:1251
- Stenger, D.C., Sisterson, M.S., Krugner, R., Backus, E.A., Hunter, W.B. 2009. A new phyto-reovirus infecting the glassy-winged sharpshooter (*Homalodisca vitripennis*). *Virology*. 386:469-477.
- Sundaraj, S., Srinivasan, R., Webster, C.G., Adkins, S.T., Perry, K.L., Riley, D. 2011. First report of Tomato chlorosis virus in tomato in Georgia. *Plant Disease*. 95(7):881.
- Thekkeveetil, T., Hobbs, H.A., Wang, Y., Kridelbaugh, D., Donnelly, J., Hartman, G.L., Domier, L.L. 2007. First report of Soybean dwarf virus in soybean in northern Illinois. *Plant Disease*. 91(12):1686.
- Tian, T., Liu, H., Koike, S. 2008. First report of Apium virus Y on cilantro, celery, and parsley in California. *Plant Disease* 92:1254.
- Vaira, A.M., Hansen, M.A., Murphy, C., Reinsel, M.D., and Hammond, J. 2009. First report of Freesia sneek virus in Freesia sp. in Virginia, USA. *Plant Disease*. 93(9):965. Available <http://dx.doi.org/10.1094/PDIS-93-9-0965B>.

VIRUSES [CONTINUED]

Webster, C.G., Perry, K., Lu, X., Horsman, L., Frantz, G., Mellinger, C., Adkins, S.T. 2010. First report of Groundnut ringspot virus infecting tomato in south Florida. *Plant Health Progress*. DOI:10.1094/PHP-2010-0707-01-BR.

VIROIDS

Ling, K., Bledsoe, M. 2009. First report of Mexican papita viroid infecting greenhouse tomato in Canada. *Plant Disease*. 93:839.

Ling, K., Sfetcu, D. 2010. First report of natural infection on greenhouse tomatoes by Potato spindle tuber viroid in the United States. *Plant Disease*. 94(11):1376.

Ling, K., Verhoeven, J.J., Singh, R.P., Brown, J.K. 2009. First report of Tomato chlorotic dwarf viroid in greenhouse tomatoes in Arizona. *Plant Disease*. 93:1075.

Ling, K., Zhang, W. 2009. First report of a natural infection of Mexican papita viroid and Tomato chlorotic dwarf viroid on greenhouse tomatoes in Mexico. *Plant Disease*. 93:1216.

[THIS PAGE INTENTIONALLY LEFT BLANK.]

APPENDIX 5

National Program 303 – Plant Diseases

ACCOMPLISHMENT REPORT 2007 – 2011

Selected Supporting Information and Documentation for Accomplishments and Impact of NP 303 Research

RELATIONSHIP OF NATIONAL PROGRAM 303 TO THE ARS STRATEGIC PLAN:

The Agricultural Research Service is the principal in-house research agency of the U.S. Department of Agriculture. Outputs of NP 303 research support the actionable strategies associated with the three performance measures shown below from the *ARS Strategic Plan for 2006–2011*, Strategic Goal 4, Enhance Protection and Safety of the Nation's Agriculture and Food Supply; Objective 4.2: *Reduce the Number, Severity and Distribution of Agricultural Pest and Disease*.

Performance Measure 4.2.3: Develop control strategies based on fundamental and applied research to reduce losses caused by plant diseases, nematodes, arthropods, and weeds that are effective and affordable while maintaining environmental quality. Develop technically and economically feasible alternatives to preplant and postharvest use of methyl bromide.

Target: Specific information and technology using methods cited above will be made available to producers and the research community to exclude, control, and/or better manage disease and pest outbreaks as they occur. Strategies and approaches will be made available to producers to identify and control and/or effectively manage over 10 new and emerging crop diseases and pests.

Performance Measure 4.2.4: Provide needed scientific information and technology that is environmentally acceptable to producers of agriculturally important plants in support of exclusion, early detection and eradication, control, and monitoring of invasive arthropods, weeds, nematodes, and pathogens; enhanced sustainability; and restoration of affected areas. Conduct biologically-based integrated and areawide management of key invasive species.

Target: Improve knowledge and understanding of the ecology, physiology, epidemiology, and molecular biology and genomics of endemic and emerging diseases and pests. Incorporate this knowledge into at least 10 management strategies to minimize chemical inputs and increase production. Expand systematics of arthropods, fungi, and other biological collections' infrastructure.

Performance Measure 4.2.4: Provide environmentally sound fundamental and applied scientific information and technologies to action agencies, producers, exporters, and importers of commercially important plant and animal products in support of exclusion, early detection, and eradication of quarantine pests and pathogens that can impede foreign trade.

Target: Improved knowledge and understanding of quarantine pest and pathogen biology and epidemiology, leading to 30 new technologies implemented by industry, APHIS, or other action agencies to mitigate risk of pests and pathogens resulting in expanded export markets while protecting the safety and security of American agriculture.

EXTERNAL AWARDS:

Peer-reviewed research grants and stakeholder awards are a useful indicator of the quality and value of the NP 303 program. From 2007 to 2011, NP 303 National Program scientists were awarded 299 grants and awards that complemented and enhanced the objectives of the NP 303 Action Plan. As shown in Table 1 below, the largest number of external funding sources was from industry; evidence that NP 303 research is highly valued and supported by its stakeholders. Government grants (87 in all) were the second largest number, with grants from universities a strong third. The grants from universities usually involved cooperative research projects jointly conducted with university partners, and in many cases original funding came from third parties, such as the National Science Foundation, NIFA, APHIS, or other sources.

**External Grant Sources of Funding for National Program 303 Projects
2007-2011**

UNIVERSITY	GOVERNMENT					INTERNATIONAL	INDUSTRY	MISC
	APHIS	FAS	NIFA	OTHER FEDERAL	STATE/ LOCAL			
76	24	5	33	7	18	9	102	25

Table 1. Peer-reviewed research grants and awards given to NP 303 project scientists from 2007-2011.

PLANNING AND COORDINATION – SELECTED NP 303 WORKSHOPS AND STAKEHOLDER GATHERINGS:

- NP 303 Customer and Stakeholder Workshop; Raleigh, North Carolina; February 2006.
- Floriculture and Nursery Research Initiative Researchers’ Workshop; Portland, Oregon, June 2006 and Cleveland, Ohio, October 2009.
- ARS Wine/Grape Research Workshops; Kennewick, Washington, July 2007 and Charlottesville, Virginia, October 2010.
- ARS National Sugarcane Workshop; Houma, Louisiana; August 2007.
- Potato Expo Research Brainstorming Session; Orlando, Florida; January 2010.
- ARS – Industry Sugarbeet Meeting; Orlando, Florida; February 2009.
- National HLB/ACP Research Coordination Launching Workshop; Washington, D.C.; December 2009.
- Citrus Strategic Research Planning Meeting; Beltsville, Maryland; March 2010.
- Citrus Health Research Forum; Denver, Colorado; June 2010.
- National Clean Plant Network Stakeholder Workshops; Riverdale, Maryland; May 2007; and Davis, California, May 2010.

- National Vegetable Crop Initiative (NVCi) strategic planning workshop; Denver, Colorado; May 2008.
- USDA National Institute of Food and Agriculture (NIFA) Customer Workshop; Washington, D.C.; April 2010.
- World Cocoa Foundation-ARS Research Roundtables; quarterly, various locations; 2007-2011.
- Mars-ARS Cocoa Research Review, 2008.
- American Seed Research Summit (ARS co-organized), 2008.
- ARS Pacific Basin Agricultural Research Center Customer/Stakeholder Workshop; Hilo, Hawaii; 2008.
- National Fusarium Head Blight Forums (U.S. Wheat and Barley Scab Initiative), 2007-2010, with satellite meetings on wheat, barley, and oat genomics and genotyping priorities.
- ARS Sclerotinia Strategic Planning & Research Forums, 2007-2008.
- National Soybean Rust Research Workshop, 2007-2009.
- National Wheat Improvement Committee Meetings, and separate meetings for the National Barley and Oat Improvement Committees, 2007-2011.
- International Sorghum for Bioenergy Workshop, Houston, Texas, 2008.
- North American Rust Workers Workshop and Borlaug Global Rust Initiative meetings, 2011.

[THIS PAGE INTENTIONALLY LEFT BLANK.]