APPENDIX 1

National Program 301
Plant Genetic Resources, Genomics, and Genetics Improvement

ACCOMPLISHMENT REPORT 2006 – 2011

Research Projects in National Program 301*
[By Action Plan Component and Problem Statement]

Component 1: Plant and Microbial Genetic Resource Management

Problem Statement 1A: *Efficiently and Effectively Manage Plant and Microbial Genetic Resources.*

1230-21000-133-00D
EDUCATION AND VISITOR SERVICES AT THE U.S. NATIONAL ARBORETUM – Nancy Luria (P); U.S. National Arboretum, Washington, D.C.

1230-21000-135-00D
ESTABLISH PUBLIC DISPLAY GARDENS FOR WOODY AND HERBACEOUS LANDSCAPE PLANTS – Scott Aker (P); U.S. National Arboretum, Washington, D.C.

1230-21000-137-00D
GENETIC RESOURCES, EVALUATION, AND INFORMATION MANAGEMENT OF WOODY LANDSCAPE PLANT GERMPLASM – Richard Olsen (P), Kevin Conrad, and Mark Roh; U.S. National Arboretum, Washington, D.C.

1275-21000-226-00D
NATIONAL RHIZOBIUM GERMPLASM RESOURCE COLLECTION, GENETIC RESOURCE MANAGEMENT, SYSTEMATICS, AND BIOINFORMATICS – Peter Van Berkum (P); Beltsville, Maryland

1275-21000-227-00D
PLANT EXPLORATIONS TO ACQUIRE CROP GENETIC RESOURCES – Karen Williams (P) and Edward Garvey; Beltsville, Maryland

1275-21000-228-00D
EXCHANGE OF CROP GENETIC RESOURCES AND ASSOCIATED DOCUMENTATION FOR THE U.S. NATIONAL PLANT GERMPLASM SYSTEM – Edward Garvey (p), John Wiersema, and Karen Williams; Beltsville, Maryland

1275-21220-226-00D
OPERATING AND DEVELOPING THE GERMPLASM RESOURCES INFORMATION NETWORK FOR THE U.S. GENETIC RESOURCES PROGRAM – Gary Kinard (P); Beltsville, Maryland

1275-22000-268-00D
THE U.S. NATIONAL FUNGUS COLLECTIONS AND DEVELOPMENT OF ON-LINE RESOURCES ABOUT FUNGI – Amy Rossman (P); Beltsville, Maryland

* Because of the nature of their research, many NP 301 projects contribute to multiple Problem Statements and are listed accordingly. 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.

Problem Statement 1A: *Efficiently and Effectively Manage Plant and Microbial Genetic Resources* [CONTINUED]

1910-21000-019-00D
CONSERVATION AND CHARACTERIZATION OF GERMPLASM OF SELECTED VEGETABLE CROPS – Larry Robertson (P), Joanne Labate, and Angelo Baldo; Geneva, New York

1910-21000-020-00D
CONSERVATION AND UTILIZATION OF THE GENETIC RESOURCES OF APPLES, GRAPES, AND TART CHERRIES – Gan-Yuan Zhong (P) and Angela Baldo; Geneva, New York

3611-21000-022-00D
CONSERVATION AND UTILIZATION OF MAIZE GENETIC STOCKS – Martin Sachs (P); Urbana, Illinois

3611-21000-023-00D
SOYBEAN GENETIC MANAGEMENT AND UTILIZATION – Steven Clough (P) and Randall Nelson; Urbana, Illinois

3620-22410-012-00D
MANAGEMENT AND GENETIC CHARACTERIZATION OF AGRICULTURAL AND BIOTECHNOLOGICAL MICROBIAL RESOURCES – David Labeda (P), Todd Ward, Stephen Peterson, Cletus Kurtzman, and Kerry Donnell; Peoria, Illinois

3625-21000-053-00D
PLANT GENETIC RESOURCE AND INFORMATION MANAGEMENT – Candice Gardner (P), Charles Block, and Mark Widrlechner; Ames, Iowa

3655-21000-051-00D
CONSERVATION AND UTILIZATION OF POTATO GENETIC RESOURCES – John Bamberg (P), David Spooner, and Shelley Jansky; Sturgeon Bay, Wisconsin

5302-21000-010-00D
ARID LAND PLANT GENETIC RESOURCES CONSERVATION, EVALUATION, AND INFORMATION MANAGEMENT – John Preece (P) and Gabriela Romano; Davis, California

5306-21000-018-00D
MANAGEMENT OF GENETIC RESOURCES FOR VITIS, PRUNUS, JUGLANS, FICUS, OLEA, PISTACIA, PUNICA, DIOSPYROS, ACTINIDIA, AND MORUS – John Preece (P) and Mallikarjuna Aradhya; Davis, California

5310-21000-009-00D
MANAGEMENT OF CITRUS AND DATE GENETIC RESOURCES AND INFORMATION – Richard Lee (P) and Robert Krueger; Riverside, California

5320-21000-012-00D
ASSURING LONG TERM PRESERVATION OF TROPICAL CROPS VIA GENETIC RESOURCE MANAGEMENT – Francis Zee (P), Lisa Keith, Tracie Matsumoto Brower, and Dennis Gonsalves; Hilo, Hawaii

5341-21000-004-00D
ARCTIC AND SUBARCTIC PLANT GENETIC RESOURCES CONSERVATION, RESEARCH, AND INFORMATION MANAGEMENT – Nancy Robertson (P), Danny Barney, and Kim Hummer; Palmer, Alaska

5348-21000-022-00D
ACQUISITION, EVALUATION AND CONSERVATION OF TEMPERATE FORAGE LEGUME GENETIC RESOURCES – Stephanie Greene (P) and Jinguo Hu; Prosser, Washington

Problem Statement 1A: *Efficiently and Effectively Manage Plant and Microbial Genetic Resources* [CONTINUED]

5348-21000-026-00D
RESEARCH, ACQUISITION, MANAGEMENT, AND DOCUMENTATION OF PLANT GENETIC RESOURCES – Jinguo Hu (P), Frank Dugan, Stephen Clement, Richard Johnson, Clarice Coyne, Barbara Hellier, Molly Welsh, Theodore Kisha, and Vicki Bradley; Pullman, Washington

5358-21000-038-00D
MANAGEMENT OF TEMPERATE FRUIT NUT AND SPECIALTY CROP GENETIC RESOURCES – Kim Hummer (P), Nahla Bassil, Barbara Reed, and Joseph Postman; Corvallis, Oregon

5366-21000-027-00D
MANAGEMENT OF NATIONAL SMALL GRAINS COLLECTION RESOURCES – Harold Bockelman (P), John Bonman, and Blair Goates; Aberdeen, Idaho

5402-21000-007-00D
PRESERVATION AND QUALITY ASSESSMENT OF PLANT GENETIC RESOURCES – David Ellis (P), David Dierig, and Maria Jenderek; Fort Collins, Colorado

5402-21000-012-00D
RESEARCH TO DEVELOP STRATEGIES AND TECHNOLOGIES FOR PRESERVING PLANT GENETIC DIVERSITY IN EX SITU GENEBANKS – Christina Walters (P), David Dierig, Gayle Volk, and Christopher Richards; Fort Collins, Colorado

6202-21000-031-00D
COTTON GENETIC RESOURCE MANAGEMENT – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6202-21000-032-00D
CHARACTERIZING AND CONSERVING THE GENETIC DIVERSITY OF CARYA POPULATIONS – Larry Grauke (P) and Tommy Thompson; College Station, Texas

6607-21000-010-00D
CONSERVATION, CHARACTERIZATION, AND EVALUATION OF CROP GENETIC RESOURCES AND ASSOCIATED INFORMATION – Gary Pederson (P), Ming Wang, John Morris, Roy Pittman, Melanie Harrison Dunn, and Robert Jarret; Griffin, Georgia

6631-21000-018-00D
CONSERVATION, CHARACTERIZATION, AND GENETIC IMPROVEMENT OF SUBTROPICAL AND TROPICAL ORNAMENTAL GERMPLASM – Alan Meerow (P) and Tomas Ayala Silva; Miami, Florida

6631-21000-019-00D
CONSERVATION AND UTILIZATION OF SUBTROPICAL/TROPICAL FRUIT CROPS, SUGARCANE, AND TRIPSACUM GENETIC RESOURCES – Raymond Schnell (P), David Kuhn, and Tomas Ayala Silva; Miami, Florida

6635-21000-046-00D
SEED INCREASE AND PHYTOSANITARY ASSESSMENT OF QUARANTINED AND TROPICALLY-ADAPTED GENETIC RESOURCES – Ricardo Goenaga; Mayagüez, Puerto Rico

6635-21000-047-00D
GENETIC RESOURCE MANAGEMENT OF TROPICAL/SUBTROPICAL GENETIC RESOURCES AND ASSOCIATED INFORMATION – Brain Irish (P) and Ricardo Goenaga; Mayagüez, Puerto Rico

Problem Statement 1B: *Assess the Systematic Relationships and Genetic Diversity of Crop Genetic Resources.*

1230-21000-050-00D
TAXONOMY AND GENETIC DIVERSITY ASSESSMENT OF LANDSCAPE TREES AND SHRUBS – Alan Whittemore (P) and Joseph Kirkbride; U.S. National Arboretum, Washington, D.C.

1275-21000-228-00D
EXCHANGE OF CROP GENETIC RESOURCES AND ASSOCIATED DOCUMENTATION FOR THE U.S. NATIONAL PLANT GERMPLASM SYSTEM – Edward Garvey (p), John Wiersema, and Karen Williams; Beltsville, Maryland

1275-21000-264-00D
MOLECULAR CHARACTERIZATION AND DIVERSITY ASSESSMENT OF COCOA GERMPLASM IN THE AMERICAS – Dapeng Zhang (P) and Lyndel Meinhardt; Beltsville, Maryland

1910-21000-019-00D
CONSERVATION AND CHARACTERIZATION OF GERMPLASM OF SELECTED VEGETABLE CROPS – Larry Robertson (P), Joanne Labate, and Angelo Baldo; Geneva, New York

1910-21000-020-00D
CONSERVATION AND UTILIZATION OF THE GENETIC RESOURCES OF APPLES, GRAPES, AND TART CHERRIES – Gan-Yuan Zhong (P) and Angela Baldo; Geneva, New York

3611-21000-022-00D
CONSERVATION AND UTILIZATION OF MAIZE GENETIC STOCKS – Martin Sachs (P); Urbana, Illinois

3620-22410-012-00D
MANAGEMENT AND GENETIC CHARACTERIZATION OF AGRICULTURAL AND BIOTECHNOLOGICAL MICROBIAL RESOURCES – David Labeda (P), Todd Ward, Stephen Peterson, Cletus Kurtzman, and Kerry Donnell; Peoria, Illinois

3625-21000-053-00D
PLANT GENETIC RESOURCE AND INFORMATION MANAGEMENT – Candice Gardner (P), Charles Block, and Mark Widrlechner; Ames, Iowa

3655-21000-050-00D
SYSTEMATICS, GENETIC DIVERSITY ASSESSMENT, AND ACQUISITION OF POTATOES, CARROTS, AND THEIR RELATED WILD RELATIVES – David Spooner (P) And Philipp Simon; Madison, Wisconsin

3655-21000-051-00D
CONSERVATION AND UTILIZATION OF POTATO GENETIC RESOURCES – John Bamberg (P), David Spooner, and Shelley Jansky; Sturgeon Bay, Wisconsin

5306-21000-018-00D
MANAGEMENT OF GENETIC RESOURCES FOR VITIS, PRUNUS, JUGLANS, FICUS, OLEA, PISTACIA, PUNICA, DIOSPYROS, ACTINIDIA, AND MORUS – John Preece (P) and Mallikarjuna Aradhya; Davis, California

5310-21000-009-00D
MANAGEMENT OF CITRUS AND DATE GENETIC RESOURCES AND INFORMATION – Richard Lee (P) and Robert Krueger; Riverside, California

5320-21000-012-00D
ASSURING LONG TERM PRESERVATION OF TROPICAL CROPS VIA GENETIC RESOURCE MANAGEMENT – Francis Zee (P), Lisa Keith, Tracie Matsumoto Brower, and Dennis Gonsalves; Hilo, Hawaii

Problem Statement 1B: *Assess the Systematic Relationships and Genetic Diversity of Crop Genetic Resources.* [CONTINUED]

5341-21000-004-00D
ARCTIC AND SUBARCTIC PLANT GENETIC RESOURCES CONSERVATION, RESEARCH, AND INFORMATION MANAGEMENT – Nancy Robertson (P), Danny Barney, and Kim Hummer; Palmer, Alaska

5348-21000-022-00D
ACQUISITION, EVALUATION AND CONSERVATION OF TEMPERATE FORAGE LEGUME GENETIC RESOURCES – Stephanie Greene (P) and Jinguo Hu; Prosser, Washington

5348-21000-026-00D
RESEARCH, ACQUISITION, MANAGEMENT, AND DOCUMENTATION OF PLANT GENETIC RESOURCES – Jinguo Hu (P), Frank Dugan, Stephen Clement, Richard Johnson, Clarice Coyne, Barbara Hellier, Molly Welsh, Theodore Kisha, and Vicki Bradley; Pullman, Washington

5358-21000-038-00D
MANAGEMENT OF TEMPERATE FRUIT NUT AND SPECIALTY CROP GENETIC RESOURCES – Kim Hummer (P), Nahla Bassil, Barbara Reed, and Joseph Postman; Corvallis, Oregon

5366-21000-027-00D
MANAGEMENT OF NATIONAL SMALL GRAINS COLLECTION RESOURCES – Harold Bockelman (P), John Bonman, and Blair Goates; Aberdeen, Idaho

5402-21000-012-00D
RESEARCH TO DEVELOP STRATEGIES AND TECHNOLOGIES FOR PRESERVING PLANT GENETIC DIVERSITY IN EX SITU GENEBANKS – Christina Walters (P), David Dierig, Gayle Volk, and Christopher Richards; Fort Collins, Colorado

6202-21000-031-00D
COTTON GENETIC RESOURCE MANAGEMENT – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6202-21000-032-00D
CHARACTERIZING AND CONSERVING THE GENETIC DIVERSITY OF CARYA POPULATIONS – Larry Grauke (P) and Tommy Thompson; College Station, Texas

6402-21310-003-00D
Genomics and Bioinformatics Research in Agriculturally Important Organisms – Brian Scheffler (P); Stoneville, Mississippi

6607-21000-010-00D
CONSERVATION, CHARACTERIZATION, AND EVALUATION OF CROP GENETIC RESOURCES AND ASSOCIATED INFORMATION – Gary Pederson (P), Ming Wang, John Morris, Roy Pittman, Melanie Harrison Dunn, and Robert Jarret; Griffin, Georgia

6631-21000-018-00D
CONSERVATION, CHARACTERIZATION, AND GENETIC IMPROVEMENT OF SUBTROPICAL AND TROPICAL ORNAMENTAL GERMPLASM – Alan Meerow (P) and Tomas Ayala Silva; Miami, Florida

6631-21000-019-00D
CONSERVATION AND UTILIZATION OF SUBTROPICAL/TROPICAL FRUIT CROPS, SUGARCANE, AND TRIPSACUM GENETIC RESOURCES – Raymond Schnell (P), David Kuhn, and Tomas Ayala Silva; Miami, Florida

Problem Statement 1B: *Assess the Systematic Relationships and Genetic Diversity of Crop Genetic Resources.* [CONTINUED]

6635-21000-047-00D
GENETIC RESOURCE MANAGEMENT OF TROPICAL/SUBTROPICAL GENETIC RESOURCES AND ASSOCIATED INFORMATION – Brain Irish (P) and Ricardo Goenaga; Mayagüez, Puerto Rico

6635-21000-049-00D
CONSERVATION, MANAGEMENT, AND GENETIC ENHANCEMENT OF SORGHUM GENETIC RESOURCES AND ASSOCIATED INFORMATION – Hugo Cuevas (P); Mayagüez, Puerto Rico

Component 2: Crop Informatics, Genomics, and Genetic Analyses

Problem Statement 2A: *Genome Database Stewardship and Informatics Tool Development.*

1907-21000-029-00D
DISSECTING COMPLEX TRAITS IN MAIZE AND BIOFUEL GRASSES BY APPLYING GENOMICS, BIOINFORMATICS, AND GENETIC RESOURCES – Edward Buckler IV (P) and Peter Bradbury; Ithaca, New York

1907-21000-031-00D
BIOINFORMATIC METHODS AND TOOLS TO PREDICT SMALL GRAIN FIELD PERFORMANCE – Jean Luc Jannink (P) and Peter Bradbury, Ithaca, New York

1907-21000-030-00D
IDENTIFICATION OF FUNCTIONAL SEQUENCE IN PLANT GENOMES THROUGH BIOINFORMATIC, GENOMIC, AND GENETIC APPROACHES – Doreen Ware (P); Ithaca, New York

3622-21000-032-00D
MODIFICATION OF SOYBEAN SEED COMPOSITION FOR FOOD, FEED, AND OTHER INDUSTRIAL USES – Jan Miernyk (P), Perry Gustafson, Jason Gillman, Melvin Oliver, Kristin Bilyeu, and Hari Krishnan; Columbia, Missouri

3625-21000-051-00D
THE MAIZE GENETICS AND GENOMICS DATABASE – Carolyn Lawrence (P), Craig Abel, and Taner Sen; Ames, Iowa

3625-21000-052-00D
CURATION AND DEVELOPMENT OF THE SOYBEAN BREEDER'S TOOLBOX AND ITS INTEGRATION WITH OTHER PLANT GENOME DATABASES – Randy Shoemaker (P), Rex Nelson, Craig Abel, David Grant, and Steven Cannon; Ames, Iowa

3625-21000-057-00D
FUNCTIONAL GENOMICS OF CEREAL DISEASE DEFENSE – Roger Wise (P), Craig Abel, and Nicholas Lauter; Ames, Iowa

3625-21220-004-00D
FUNCTIONAL AND STRUCTURAL GENETIC ANALYSIS OF SOYBEAN AND OTHER LEGUMES – Randy Shoemaker (P), Craig Abel, and Michelle Graham; Ames, Iowa

5325-21000-014-00D
AN INTEGRATED DATABASE AND BIOINFORMATICS RESOURCE FOR SMALL GRAINS – Olin Anderson (P), Yong Gu, Gerard Lazo, and David Matthews; Albany, California

Problem Statement 2A: *Genome Database Stewardship and Informatics Tool Development.* [CONTINUED]

6202-21000-030-00D
COTTON GENOMICS AND GENETIC ANALYSIS – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6225-21220-004-00D
RESPONSE OF DIVERSE RICE GERMPLASM TO BIOTIC AND ABIOTIC STRESSES – David Gealy (P), Georgia Eizenga, Helen Miller, Anna McClung, and Yulin Jia; Stuttgart, Arkansas

6402-21310-003-00D
Genomics and Bioinformatics Research in Agriculturally Important Organisms – Brian Scheffler (P); Stoneville, Mississippi

Problem Statement 2B: *Structural Comparison and Analysis of Crop Genomes.*

1275-21000-263-00D
DEFINING THE GENETIC DIVERSITY AND STRUCTURE OF THE SOYBEAN GENOME AND APPLICATIONS TO GENE DISCOVERY IN SOYBEAN AND WHEAT GERMPLASM – Perry Cregan (P) and David Hyten; Beltsville, Maryland

1275-21220-229-00D
GENOMICS AND PROTEOMICS APPROACHES TO BROADENING RESISTANCE OF SOYBEAN TO PESTS AND PATHOGENS – Benjamin Matthews (P), Bret Cooper, and Mark Tucker; Beltsville, Maryland

1907-21000-029-00D
DISSECTING COMPLEX TRAITS IN MAIZE AND BIOFUEL GRASSES BY APPLYING GENOMICS, BIOINFORMATICS, AND GENETIC RESOURCES – Edward Buckler IV (P) and Peter Bradbury; Ithaca, New York

1907-21000-031-00D
BIOINFORMATIC METHODS AND TOOLS TO PREDICT SMALL GRAIN FIELD PERFORMANCE – Jean Luc Jannink (P) and Peter Bradbury, Ithaca, New York

1907-21000-030-00D
IDENTIFICATION OF FUNCTIONAL SEQUENCE IN PLANT GENOMES THROUGH BIOINFORMATIC, GENOMIC, AND GENETIC APPROACHES – Doreen Ware (P); Ithaca, New York

3622-21000-034-00D
GENETIC MECHANISMS AND MOLECULAR GENETIC RESOURCES FOR MAIZE – Michael McMullen (P), Mary Schaeffer, Melvin Oliver, and Sherry Flint Garcia; Columbia, Missouri

3625-21000-052-00D
CURATION AND DEVELOPMENT OF THE SOYBEAN BREEDER'S TOOLBOX AND ITS INTEGRATION WITH OTHER PLANT GENOME DATABASES – Randy Shoemaker (P), Rex Nelson, Craig Abel, David Grant, and Steven Cannon; Ames, Iowa

3625-21220-004-00D
FUNCTIONAL AND STRUCTURAL GENETIC ANALYSIS OF SOYBEAN AND OTHER LEGUMES – Randy Shoemaker (P), Craig Abel, and Michelle Graham; Ames, Iowa

3655-21000-052-00D
PHYSIOLOGICAL, BIOCHEMICAL AND GENETIC REGULATION OF CARBOHYDRATE METABOLISM IN CEREAL TISSUES – Cynthia Henson (P); Madison, Wisconsin

Problem Statement 2B: *Structural Comparison and Analysis of Crop Genomes.* [CONTINUED]

3655-21000-053-00D
METABOLISM AND ANALYSIS OF CEREAL PHYTOCHEMICALS – Mitchell Wise (P) and Cynthia Henson; Madison, Wisconsin

3655-21430-009-00D
IMPROVEMENT OF BARLEY SEED QUALITY THROUGH MOLECULAR AND FUNCTIONAL GENOMIC ANALYSIS OF GENE EXPRESSION – Ronald Skadsen (P) and Cynthia Henson; Madison, Wisconsin

5325-21000-014-00D
AN INTEGRATED DATABASE AND BIOINFORMATICS RESOURCE FOR SMALL GRAINS – Olin Anderson (P), Yong Gu, Gerard Lazo, and David Matthews; Albany, California

5325-21000-015-00D
GENOMICS AND MOLECULAR APPROACHES TO WHEAT TRAITS – Olin Anderson (P), Yong Gu, and Debbie Chingcuanco; Albany, California

5442-21000-033-00D
IMPROVEMENT OF HARD RED SPRING AND DURUM WHEAT FOR DISEASE RESISTANCE AND QUALITY USING GENETICS AND GENOMICS – Justin Faris (P), Steven Xu, Shunwen Lu, and Shiaoman Chao; Fargo, North Dakota

6202-21000-029-00D
PECAN GENETICS AND IMPROVEMENT – Tommy Thompson (P) and Larry Grauke; College Station, Texas

6202-21000-027-00D
GENETIC ANALYSES AND TRAIT MAPPING TO EXPLOIT UNTAPPED GENETIC DIVERSITY IN SORGHUM – Robert Klein (P); College Station, Texas

6208-21000-017-00D
MOLECULAR AND GENETIC ENHANCEMENT OF ABIOTIC STRESS TOLERANCE IN SORGHUM – Zhanguo Xin, Gloria Burow, and John Burke; Lubbock, Texas

6225-21220-004-00D
RESPONSE OF DIVERSE RICE GERMPLASM TO BIOTIC AND ABIOTIC STRESSES – David Gealy (P), Georgia Eizenga, Helen Miller, Anna McClung, and Yulin Jia; Stuttgart, Arkansas

6406-21000-011-00D
ENHANCING CORN WITH RESISTANCE TO AFLATOXIN CONTAMINATION AND INSECT DAMAGE – William Williams (P), Marilyn Warburton, William Henry, and Gary Windham; Mississippi State, Mississippi

6602-21000-021-00D
GENETIC AND GENOMIC APPROACHES TO IMPROVE PEANUT AND CORN RESISTANCE TO DISEASE AND AFLATOXIN CONTAMINATION – Baozhu Guo (P) and Brian Scully; Tifton, Georgia

6606-21000-002-00D
STONE FRUIT BREEDING AND DEVELOPMENT – Thomas Beckman (P); Byron, Georgia

6645-21220-013-00D
USING GENETIC DIVERSITY OF IMPROVE QUANTITATIVE DISEASE RESISTANCE AND AGRONOMIC TRAITS OF CORN – James Holland (P) and Peter Balint Kurti; Raleigh, North Carolina

Problem Statement 2C: *Genetic Analyses and Mapping of Important Traits.*

1275-21000-263-00D
DEFINING THE GENETIC DIVERSITY AND STRUCTURE OF THE SOYBEAN GENOME AND APPLICATIONS TO GENE DISCOVERY IN SOYBEAN AND WHEAT GERMPLASM – Perry Cregan (P) and David Hyten; Beltsville, Maryland

1907-21000-029-00D
DISSECTING COMPLEX TRAITS IN MAIZE AND BIOFUEL GRASSES BY APPLYING GENOMICS, BIOINFORMATICS, AND GENETIC RESOURCES – Edward Buckler IV (P) and Peter Bradbury; Ithaca, New York

1907-21000-031-00D
BIOINFORMATIC METHODS AND TOOLS TO PREDICT SMALL GRAIN FIELD PERFORMANCE – Jean Luc Jannink (P) and Peter Bradbury, Ithaca, New York

1910-21220-004-00D
IMPROVING GRAPE ROOTSTOCK AND SCION PEST AND DISEASE RESISTANCE – Peter Cousins (P), Lance Cadle Davidson, Angelo Baldo, and Gan-Yuan Zhong; Geneva, New York

1910-21220-005-00D
GENETICS AND GENOMICS OF GRAPE GROWTH, DEVELOPMENT, AND QUALITY – Christopher Owens (P), Gan-Yuan Zhong, and Angelo Baldo; Geneva, New York

3622-21000-034-00D
GENETIC MECHANISMS AND MOLECULAR GENETIC RESOURCES FOR MAIZE – Michael McMullen (P), Mary Schaeffer, Melvin Oliver, and Sherry Flint Garcia; Columbia, Missouri

3625-21000-051-00D
THE MAIZE GENETICS AND GENOMICS DATABASE – Carolyn Lawrence (P), Craig Abel, and Taner Sen; Ames, Iowa

3625-21000-052-00D
CURATION AND DEVELOPMENT OF THE SOYBEAN BREEDER'S TOOLBOX AND ITS INTEGRATION WITH OTHER PLANT GENOME DATABASES – Randy Shoemaker (P), Rex Nelson, Craig Abel, David Grant, and Steven Cannon; Ames, Iowa

3625-21220-004-00D
FUNCTIONAL AND STRUCTURAL GENETIC ANALYSIS OF SOYBEAN AND OTHER LEGUMES – Randy Shoemaker (P), Craig Abel, and Michelle Graham; Ames, Iowa

5306-21000-017-00D
GENETIC DISSECTION OF SEEDLING COLD TOLERANCE IN RICE (ORYZA SATIVA L.) – Thomas Tai (P); Davis, California

5325-21000-014-00D
AN INTEGRATED DATABASE AND BIOINFORMATICS RESOURCE FOR SMALL GRAINS – Olin Anderson (P), Yong Gu, Gerard Lazo, and David Matthews; Albany, California

5325-21000-015-00D
GENOMICS AND MOLECULAR APPROACHES TO WHEAT TRAITS – Olin Anderson (P), Yong Gu, and Debbie Chingcuanco; Albany, California

5325-21430-012-00D
PRODUCTION OF WHEAT GERMPLASM WITH ENHANCED BAKING QUALITY – Ann Blechl (P); Albany, California

Problem Statement 2C: *Genetic Analyses and Mapping of Important Traits.* [CONTINUED]

5325-43000-027-00D
MOLECULAR ANALYSIS OF EFFECTS OF ENVIRONMENT ON WHEAT FLOUR QUALITY AND ALLERGENIC POTENTIAL – William Hurkman (P), William Vensel, and Susan Altenbach; Albany, California

5335-21000-034-00D
POSITIONAL CLONING IN MAIZE OF GENES THAT REGULATE PLANT ARCHITECTURE– Sarah Hake (P); Albany, California

5366-21000-025-00D
PLANT AND SEED CHEMISTRY GENETICS – Victor Raboy (P) and John Bonman; Aberdeen, Idaho

5442-21000-032-00D
GENOMIC RELATIONSHIPS AND CYTOGENETIC MANIPULATION OF DURUM WHEAT BY CLASSICAL AND MOLECULAR TECHNIQUES – Prem Jauhar (P); Fargo, North Dakota

5442-21000-033-00D
IMPROVEMENT OF HARD RED SPRING AND DURUM WHEAT FOR DISEASE RESISTANCE AND QUALITY USING GENETICS AND GENOMICS – Justin Faris (P), Steven Xu, Shunwen Lu, and Shiaoman Chao; Fargo, North Dakota

5442-21220-035-00D
GENETIC IMPROVEMENT OF BARLEY – Lynn Dahleen (P); Fargo, North Dakota

6202-21000-027-00D
GENETIC ANALYSES AND TRAIT MAPPING TO EXPLOIT UNTAPPED GENETIC DIVERSITY IN SORGHUM – Robert Klein (P); College Station, Texas

6202-21000-030-00D
COTTON GENOMICS AND GENETIC ANALYSIS – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6217-21220-006-00D
ENHANCING DISEASE RESISTANCE AND OIL QUALITY ATTRIBUTES OF PEANUT – Hassan Melouk (P) and Kelly Chamberlin; Stillwater, Oklahoma

6203-21000-001-00D
DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Shannon Pinson, and Ming Hsuan Chen; Beaumont, Texas

6208-21000-017-00D
MOLECULAR AND GENETIC ENHANCEMENT OF ABIOTIC STRESS TOLERANCE IN SORGHUM – Zhanguo Xin, Gloria Burow, and John Burke; Lubbock, Texas

6217-21000-007-00D
GENETIC AND GENOMIC APPROACHES TO IMPROVE INSECT RESISTANCE AND OTHER VALUE-ADDED TRAITS IN WHEAT, BARLEY, AND SORGHUM – Yinghua Huang (P), Gary Puterka, and Dolores Mornhinweg; Stillwater, Oklahoma

6225-21000-009-00D
DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Rolfe Bryant, Robert Fjellstrom, Helen Miller, and Wengui Yan; Stuttgart, Arkansas

Problem Statement 2C: *Genetic Analyses and Mapping of Important Traits.* [CONTINUED]

6225-21220-004-00D
RESPONSE OF DIVERSE RICE GERMPLASM TO BIOTIC AND ABIOTIC STRESSES – David Gealy (P), Georgia Eizenga, Helen Miller, Anna McClung, and Yulin Jia; Stuttgart, Arkansas

6402-21310-003-00D
Genomics and Bioinformatics Research in Agriculturally Important Organisms – Brian Scheffler (P); Stoneville, Mississippi

6402-21000-031-00D
COMBINING CONVENTIONAL AND MOLECULAR TECHNIQUES TO IMPROVE SEED COTTON VALUE – Jodi Scheffler (P), Lawrence Young, and Rickie Turley; Stoneville, Mississippi

6402-21000-033-00D
GENETIC-PHYSIOLOGICAL TEAM RESEARCH TO IMPROVE PRODUCTION, FIBER QUALITY AND COMPETITIVE ABILITY OF COTTON – Lawrence Young (P), Efrem Bechere, and Linghe Zeng; Stoneville, Mississippi

6404-21000-008-00D
SMALL FRUIT AND ORNAMENTAL GENETIC RESEARCH FOR THE MID-SOUTH – Timothy Rinehart (P), Cecil Pounders, James Spiers, Stephen Stringer, and Hamidou Sakhanokho; Poplarville, Mississippi

6435-21000-016-00D
MOLECULAR ANALYSIS OF DEVELOPMENT TO IMPROVE COTTON FIBER – David Fang (P) and Hee Kim; New Orleans, Louisiana

6602-21000-022-00D
DEVELOPMENT OF IMPROVED PEANUT GERMPLASM AND RESISTANCE TO DISEASE AND NEMATODE PESTS – C. Holbrook Jr (P); Tifton, Georgia

Component 3: Genetic Improvement of Crops

Problem Statement 3A: *Genetic Theory and Methods of Crop Improvement.*

1275-21000-195-00D
GENETIC ENHANCEMENT OF QUALITY CONSTITUENTS IN SOLANACEOUS VEGETABLES – John Stommel (P); Beltsville, Maryland

1910-21000-023-00D
DEVELOPMENT OF PEST, DISEASE RESISTANCE, AND STRESS TOLERANCE IN APPLE ROOTSTOCKS – Gennaro Fazio (P) and Angelo Baldo; Geneva, New York

1907-21000-029-00D
DISSECTING COMPLEX TRAITS IN MAIZE AND BIOFUEL GRASSES BY APPLYING GENOMICS, BIOINFORMATICS, AND GENETIC RESOURCES – Edward Buckler IV (P) and Peter Bradbury; Ithaca, New York

1907-21000-031-00D
BIOINFORMATIC METHODS AND TOOLS TO PREDICT SMALL GRAIN FIELD PERFORMANCE – Jean Luc Jannink (P) and Peter Bradbury, Ithaca, New York

3611-21000-023-00D
SOYBEAN GENETIC MANAGEMENT AND UTILIZATION – Steven Clough (P) and Randall Nelson; Urbana, Illinois

Problem Statement 3A: *Genetic Theory and Methods of Crop Improvement.* [CONTINUED]

3622-21000-034-00D
GENETIC MECHANISMS AND MOLECULAR GENETIC RESOURCES FOR MAIZE – Michael McMullen (P), Mary Schaeffer, Melvin Oliver, and Sherry Flint Garcia; Columbia, Missouri

3622-21000-035-00D
FUNCTIONAL GENOMICS FOR IDENTIFICATION OF SOYBEAN QUALITY TRAIT GENES – Yong Qiang An (P) and Melvin Oliver; Columbia, Missouri

3625-21000-054-00D
IDENTIFICATION OF PLANT GENETIC MECHANISMS THAT INFLUENCE INSECT-POLLINATOR PREFERENCE – Reid Palmer (P) and Craig Abel; Ames, Iowa

3625-21000-057-00D
FUNCTIONAL GENOMICS OF CEREAL DISEASE DEFENSE – Roger Wise (P), Craig Abel, and Nicholas Lauter; Ames, Iowa

3635-21220-014-00D
BREEDING SELECTION AND MOLECULAR CHARACTERIZATION FOR IMPROVED SUGAR BEET GERMPLASM – Jon McGrath (P), Renfu Lu, and Linda Hanson; East Lansing, Michigan

5325-21000-015-00D
GENOMICS AND MOLECULAR APPROACHES TO WHEAT TRAITS – Olin Anderson (P), Yong Gu, and Debbie Chingcuanco; Albany, California

5325-21420-004-00D
MOLECULAR GENETIC TOOLS FOR POTATO AND FRUIT TREE IMPROVEMENT – William Belknap (P) and Kent McCue; Albany, California

5347-21410-005-00D
COMMERCIALIZATION OF NEW INDUSTRIAL CROP GERMPLASM AND CROPPING SYSTEMS – Terry Coffelt (P), Michael Salvucci, and John Dyer; Maricopa, Arizona

5347-21000-011-00D
PHYSIOLOGICAL AND GENETIC BASIS OF COTTON ACCLIMATION TO ABIOTIC STRESS – Michael Gore (P), Michael Salvucci, and John Dyer; Maricopa, Arizona

5442-21000-034-00D
SUNFLOWER GERMPLASM DIVERSIFICATION AND CHARACTERIZATION UTILIZING WILD SUNFLOWER SPECIES, CYTOGENETICS, AND APPLIED GENOMICS – Brady Vick (P), Lili Qi, Chao-Chien Jan, and Gerald Seiler; Fargo, North Dakota

5442-21220-024-00D
SUNFLOWER GERMPLASM DEVELOPMENT FOR IMPROVED INSECT AND DISEASE RESISTANCE – Thomas Gulya Jr (P) and Brent Hulke; Fargo, North Dakota

6202-21000-030-00D
COTTON GENOMICS AND GENETIC ANALYSIS – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6203-21000-001-00D
DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Shannon Pinson, and Ming Hsuan Chen; Beaumont, Texas

Problem Statement 3A: *Genetic Theory and Methods of Crop Improvement.* [CONTINUED]

6208-21000-018-00D
CHARACTERIZATION AND ENHANCEMENT OF PLANT RESISTANCE TO WATER-DEFICIT AND THERMAL STRESSES – John Burke (P), James Mahan, Jeffrey Velten, Zhanguo, Paxton Payton, and Junping Chen; Lubbock, Texas

6217-21220-006-00D
ENHANCING DISEASE RESISTANCE AND OIL QUALITY ATTRIBUTES OF PEANUT – Hassan Melouk (P) and Kelly Chamberlin; Stillwater, Oklahoma

6402-21000-031-00D
COMBINING CONVENTIONAL AND MOLECULAR TECHNIQUES TO IMPROVE SEED COTTON VALUE – Jodi Scheffler (P), Lawrence Young, and Rickie Turley; Stoneville, Mississippi

6402-21000-033-00D
GENETIC-PHYSIOLOGICAL TEAM RESEARCH TO IMPROVE PRODUCTION, FIBER QUALITY AND COMPETITIVE ABILITY OF COTTON – Lawrence Young (P), Efrem Bechere, and Linghe Zeng; Stoneville, Mississippi

6402-21220-010-00D
REDUCING SOYBEAN YIELD LOSSES THROUGH GENETIC IMPROVEMENT – Jeffery Ray (P), Lawrence Young, Shuxian Li, and James Smith; Stoneville, Mississippi

6406-21000-012-00D
GERMPLASM ENHANCEMENT AND GENETIC IMPROVEMENT OF COTTON – Johnie Jenkins (P), Sukumar Saha, Jack McCarthy Jr., and Martin Wubben; Mississippi State, Mississippi

6402-21310-003-00D
Genomics and Bioinformatics Research in Agriculturally Important Organisms – Brian Scheffler (P); Stoneville, Mississippi

6602-21000-022-00D
DEVELOPMENT OF IMPROVED PEANUT GERMPLASM AND RESISTANCE TO DISEASE AND NEMATODE PESTS – C. Holbrook Jr (P); Tifton, Georgia

6604-21000-003-00D
PHYSIOLOGICAL MECHANISMS THAT DETERMINE CROP RESPONSE TO IRRIGATION, DISEASE, AND PRODUCTION PRACTICES – Charles Chen (P), Marshall Lamb, and Phat Dang; Dawson, Georgia

6645-21000-028-00D
PHYSIOLOGICAL/BIOCHEMICAL MECHANISMS ASSOCIATED WITH GENETIC ALTERATION OF SOYBEAN QUALITY AND PRODUCTIVITY – Robert Upchurch (P), Earl Taliercio, Thomas Carter Jr., and Joseph Burton; Raleigh, North Carolina

6645-21220-012-00D
INCREASING THE COMPETITIVE POSITION OF U.S. SOYBEANS IN GLOBAL MARKETS THROUGH GENETIC DIVERSITY AND PLANT BREEDING – Thomas Carter (P), Joseph Burton, and Robert Upchurch; Raleigh, North Carolina

6657-21000-006-00D
GENETIC AND CULTURAL PRACTICE IMPROVEMENT FOR SUSTAINABLE COTTON PRODUCTION – Philip Bauer (P) and Benjamin Campbell; Florence, South Carolina

Problem Statement 3B: *Capitalizing on Untapped Genetic Diversity.*

1910-21000-019-00D
CONSERVATION AND CHARACTERIZATION OF GERMPLASM OF SELECTED VEGETABLE CROPS – Larry Robertson (P), Joanne Labate, and Angelo Baldo; Geneva, New York

1910-21000-020-00D
CONSERVATION AND UTILIZATION OF THE GENETIC RESOURCES OF APPLES, GRAPES, AND TART CHERRIES – Gan-Yuan Zhong (P) and Angela Baldo; Geneva, New York

1910-21000-023-00D
DEVELOPMENT OF PEST, DISEASE RESISTANCE, AND STRESS TOLERANCE IN APPLE ROOTSTOCKS – Gennaro Fazio (P) and Angelo Baldo; Geneva, New York

1910-21220-005-00D
GENETICS AND GENOMICS OF GRAPE GROWTH, DEVELOPMENT, AND QUALITY – Christopher Owens (P), Gan-Yuan Zhong, and Angelo Baldo; Geneva, New York

1931-21000-017-00D
GENETIC IMPROVEMENT OF FRUIT CROPS THROUGH FUNCTIONAL GENOMICS AND BREEDING – Ralph Scorza (P), Richard Bell, Ann Callahan, Zongrang Liu, Christopher Dardick, and Chinnathambi Srinivasan; Kearneysville, West Virginia

3602-22000-016-00D
MOLECULAR AND GENETIC MECHANISMS OF HESSIAN FLY RESISTANCE IN SOFT WINTER WHEAT – Richard Shukle (P), Brandon Schemerhorn, and Christopher Williams; West Lafayette, Indiana

3607-21000-012-00D
IMPROVEMENT OF PEST RESISTANCE AND QUALITY TRAITS OF SOYBEAN – Rouf Mian (P) and Margaret Redinbaugh; Wooster, Ohio

3611-21000-022-00D
CONSERVATION AND UTILIZATION OF MAIZE GENETIC STOCKS – Martin Sachs (P); Urbana, Illinois

3611-21000-023-00D
SOYBEAN GENETIC MANAGEMENT AND UTILIZATION – Steven Clough (P) and Randall Nelson; Urbana, Illinois

3620-42000-041-00D
ENHANCED INSECT RESISTANCE AND CROP MANAGEMENT FOR REDUCTION OF MYCOTOXINS IN MIDWEST CORN – Patrick Dowd (P), Eric Johnson, And Alejandro Rooney; Peoria, Illinois

3622-21000-030-00D
GENOMIC CHARACTERIZATION AND MANIPULATION OF VALUE-ADDED TRAITS FROM RYE FOR UTILIZATION IN WHEAT IMPROVEMENT – Perry Gustafson (P); Columbia, Missouri

3625-21000-053-00D
PLANT GENETIC RESOURCE AND INFORMATION MANAGEMENT – Candice Gardner (P), Charles Block, and Mark Widrlechner; Ames, Iowa

3625-21000-057-00D
FUNCTIONAL GENOMICS OF CEREAL DISEASE DEFENSE – Roger Wise (P), Craig Abel, and Nicholas Lauter; Ames, Iowa

3635-21430-009-00D
IMPROVED FOOD QUALITY IN DRY BEANS USING GENETIC AND MOLECULAR APPROACHES – Karen Cichy (P); East Lansing, Michigan

Problem Statement 3B: *Capitalizing on Untapped Genetic Diversity.* [CONTINUED]

3625-21000-055-00D
GENETIC ANALYSIS OF SELECTION RESPONSE IN MAIZE POPULATIONS – Marvin Scott (P), Craig Abel, and Jode Edwards; Ames, Iowa

3640-21000-025-00D
GENOMICS, GERMPLASM EVALUATION, AND GENETIC IMPROVEMENT OF OATS – St. Paul, Minnesota

3640-21000-027-00D
IMPROVING RUST AND FHB RESISTANCE IN HARD RED SPRING WHEAT THROUGH GENETICS AND GENOMICS – David Garvin (P) and Carroll Vance; St. Paul, Minnesota

3655-21000-048-00D
ALLIUM, CUCUMIS, AND DAUCUS GERMPLASM ENHANCEMENT, GENETICS, AND BIOCHEMISTRY – Philipp Simon (P), Yiqun Weng, and Michael Havey; Madison, Wisconsin

3655-21000-049-00D
POTATO GENETICS, CYTOGENETICS, DISEASE RESISTANCE, AND PRE-BREEDING UTILIZING WILD AND CULTIVATED SPECIES – Shelley Jansky (P), Philipp Simon, Michael Havey, Paul Bethke, and Dennis Halterman; Madison, Wisconsin

3655-21000-051-00D
CONSERVATION AND UTILIZATION OF POTATO GENETIC RESOURCES – John Bamberg (P), David Spooner, and Shelley Jansky; Sturgeon Bay, Wisconsin

5305-21000-013-00D
SUGARBEET GERMPLASM ENHANCEMENT, BREEDING, AND GENETICS – Kelley Richardson (P) and Frank Martin; Salinas, California

5306-21000-017-00D
GENETIC DISSECTION OF SEEDLING COLD TOLERANCE IN RICE (ORYZA SATIVA L.) – Thomas Tai (P); Davis, California

5306-21000-018-00D
MANAGEMENT OF GENETIC RESOURCES FOR VITIS, PRUNUS, JUGLANS, FICUS, OLEA, PISTACIA, PUNICA, DIOSPYROS, ACTINIDIA, AND MORUS – John Preece (P) and Mallikarjuna Aradhya; Davis, California

5310-21000-009-00D
MANAGEMENT OF CITRUS AND DATE GENETIC RESOURCES AND INFORMATION – Richard Lee (P) and Robert Krueger; Riverside, California

5320-21000-012-00D
ASSURING LONG TERM PRESERVATION OF TROPICAL CROPS VIA GENETIC RESOURCE MANAGEMENT – Francis Zee (P), Lisa Keith, Tracie Matsumoto Brower, and Dennis Gonsalves; Hilo, Hawaii

5335-21000-034-00D
POSITIONAL CLONING IN MAIZE OF GENES THAT REGULATE PLANT ARCHITECTURE– Sarah Hake (P); Albany, California

5341-21000-004-00D
ARCTIC AND SUBARCTIC PLANT GENETIC RESOURCES CONSERVATION, RESEARCH, AND INFORMATION MANAGEMENT – Nancy Robertson (P), Danny Barney, and Kim Hummer; Palmer, Alaska

Problem Statement 3B: *Capitalizing on Untapped Genetic Diversity.* [CONTINUED]

5347-21410-005-00D
COMMERCIALIZATION OF NEW INDUSTRIAL CROP GERMPLASM AND CROPPING SYSTEMS – Terry Coffelt (P), Michael Salvucci, and John Dyer; Maricopa, Arizona

5348-21000-022-00D
ACQUISITION, EVALUATION AND CONSERVATION OF TEMPERATE FORAGE LEGUME GENETIC RESOURCES – Stephanie Greene (P) and Jinguo Hu; Prosser, Washington

5348-21000-023-00D
CHARACTERIZATION OF STRESS RESISTANCE GENES AND MECHANISMS, AND IMPROVEMENT AND GENOTYPING OF WHEAT AND BARLEY GERMPLASM FOR THE WESTERN U.S. – Camille Steber (P), Deven See, Daniel Skinner, and Kimberly Garland Campbell; Pullman, Washington

5348-21000-026-00D
RESEARCH, ACQUISITION, MANAGEMENT, AND DOCUMENTATION OF PLANT GENETIC RESOURCES – Jinguo Hu (P), Frank Dugan, Stephen Clement, Richard Johnson, Clarice Coyne, Barbara Hellier, Molly Welsh, Theodore Kisha, and Vicki Bradley; Pullman, Washington

5348-21430-004-00D
GENETIC IMPROVEMENT OF FREEZING TOLERANCE IN WINTER WHEAT – Daniel Skinner (P); Pullman, Washington

5358-21000-037-00D
PHYSIOLOGY AND GENETIC IMPROVEMENT OF SMALL FRUIT CROPS – David Bryla (P) and Chad Finn; Corvallis, Oregon

5358-21000-038-00D
MANAGEMENT OF TEMPERATE FRUIT NUT AND SPECIALTY CROP GENETIC RESOURCES – Kim Hummer (P), Nahla Bassil, Barbara Reed, and Joseph Postman; Corvallis, Oregon

5366-21000-027-00D
MANAGEMENT OF NATIONAL SMALL GRAINS COLLECTION RESOURCES – Harold Bockelman (P), John Bonman, and Blair Goates; Aberdeen, Idaho

5366-21000-028-00D
SMALL GRAINS GENETICS AND GERMPLASM ENHANCEMENT – John Bonman (P), Donald Obert, Paul Bregitzer, and Eric Jackson; Aberdeen, Idaho

5430-21000-006-00D
GENETIC ENHANCEMENT FOR RESISTANCE TO BIOTIC AND ABIOTIC STRESSES IN HARD WINTER WHEAT – Robert Bowden (P), Ming Shum, Guihua Bai, and John Fellers; Manhattan, Kansas

5440-21000-029-00D
GENETIC IMPROVEMENT AND EVALUATION OF HARD WINTER AND SPRING WHEATS – Robert Graybosch (P); Lincoln, Nebraska

5440-21220-027-00D
ENHANCEMENT OF SORGHUM FOR BIOENERGY, FEED, AND FOOD VALUE – Jeffrey Pedersen (P), Scott Sadler, and Deanna Funnel-Harris; Lincoln, Nebraska

5442-21000-034-00D
SUNFLOWER GERMPLASM DIVERSIFICATION AND CHARACTERIZATION UTILIZING WILD SUNFLOWER SPECIES, CYTOGENETICS, AND APPLIED GENOMICS – Brady Vick (P), Lili Qi, Chao-Chien Jan, and Gerald Seiler; Fargo, North Dakota

Problem Statement 3B: *Capitalizing on Untapped Genetic Diversity.* [CONTINUED]

5442-21220-024-00D
SUNFLOWER GERMPLASM DEVELOPMENT FOR IMPROVED INSECT AND DISEASE RESISTANCE – Thomas Gulya Jr (P) and Brent Hulke; Fargo, North Dakota

6202-21000-029-00D
PECAN GENETICS AND IMPROVEMENT – Tommy Thompson (P) and Larry Grauke; College Station, Texas

6202-21000-030-00D
COTTON GENOMICS AND GENETIC ANALYSIS – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6202-21000-031-00D
COTTON GENETIC RESOURCE MANAGEMENT – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6202-21000-032-00D
CHARACTERIZING AND CONSERVING THE GENETIC DIVERSITY OF CARYA POPULATIONS – Larry Grauke (P) and Tommy Thompson; College Station, Texas

6203-21000-001-00D
DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Shannon Pinson, and Ming Hsuan Chen; Beaumont, Texas

6225-21000-009-00D
DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Rolfe Bryant, Robert Fjellstrom, Helen Miller, and Wengui Yan; Stuttgart, Arkansas

6225-21220-004-00D
RESPONSE OF DIVERSE RICE GERMPLASM TO BIOTIC AND ABIOTIC STRESSES – David Gealy (P), Georgia Eizenga, Helen Miller, Anna McClung, and Yulin Jia; Stuttgart, Arkansas

6402-21000-031-00D
COMBINING CONVENTIONAL AND MOLECULAR TECHNIQUES TO IMPROVE SEED COTTON VALUE – Jodi Scheffler (P), Lawrence Young, and Rickie Turley; Stoneville, Mississippi

6402-21000-033-00D
GENETIC-PHYSIOLOGICAL TEAM RESEARCH TO IMPROVE PRODUCTION, FIBER QUALITY AND COMPETITIVE ABILITY OF COTTON – Lawrence Young (P), Efrem Bechere, and Linghe Zeng; Stoneville, Mississippi

6406-21000-012-00D
GERMPLASM ENHANCEMENT AND GENETIC IMPROVEMENT OF COTTON – Johnie Jenkins (P), Sukumar Saha, Jack McCarthy Jr., and Martin Wubben; Mississippi State, Mississippi

6404-21000-008-00D
SMALL FRUIT AND ORNAMENTAL GENETIC RESEARCH FOR THE MID-SOUTH – Timothy Rinehart (P), Cecil Pounders, James Spiers, Stephen Stringer, and Hamidou Sakhanokho; Poplarville, Mississippi

6406-21000-011-00D
ENHANCING CORN WITH RESISTANCE TO AFLATOXIN CONTAMINATION AND INSECT DAMAGE – William Williams (P), Marilyn Warburton, William Henry, and Gary Windham; Mississippi State, Mississippi

Problem Statement 3B: *Capitalizing on Untapped Genetic Diversity.* [CONTINUED]

6602-21000-022-00D
DEVELOPMENT OF IMPROVED PEANUT GERMPLASM AND RESISTANCE TO DISEASE AND NEMATODE PESTS – C. Holbrook Jr (P); Tifton, Georgia

6602-21220-014-00D
GENETIC IMPROVEMENT OF MAIZE AND PEARL MILLET FOR RESISTANCE TO INSECTS AND AFLATOXIN – Jeffrey Wilson (P), C Holbrooke Jr., and Xinzhi Ni; Tifton, Georgia

6604-21000-003-00D
PHYSIOLOGICAL MECHANISMS THAT DETERMINE CROP RESPONSE TO IRRIGATION, DISEASE, AND PRODUCTION PRACTICES – Charles Chen (P), Marshall Lamb, and Phat Dang; Dawson, Georgia

6607-21000-010-00D
CONSERVATION, CHARACTERIZATION, AND EVALUATION OF CROP GENETIC RESOURCES AND ASSOCIATED INFORMATION – Gary Pederson (P), Ming Wang, John Morris, Roy Pittman, Melanie Harrison Dunn, and Robert Jarret; Griffin, Georgia

6615-21000-010-00D
FUNCTIONAL GENOMICS OF AGRONOMIC TRAITS IN DEVELOPING SEED AND POLLEN IN MAIZE AND SORGHUM – Prem Chourey (P), Alisa Huffaker, and Peter Teal; Gainesville, Florida

6631-21000-017-00D
DEVELOPMENT OF AN INTERNATIONAL MARKER-ASSISTED SELECTION PROGRAM FOR CACAO – Raymond Schnell (P) and David Kuhn; Miami, Florida

6631-21000-018-00D
CONSERVATION, CHARACTERIZATION, AND GENETIC IMPROVEMENT OF SUBTROPICAL AND TROPICAL ORNAMENTAL GERMPLASM – Alan Meerow (P) and Tomas Ayala Silva; Miami, Florida

6631-21000-019-00D
CONSERVATION AND UTILIZATION OF SUBTROPICAL/TROPICAL FRUIT CROPS, SUGARCANE, AND TRIPSACUM GENETIC RESOURCES – Raymond Schnell (P), David Kuhn, and Tomas Ayala Silva; Miami, Florida

6635-21000-047-00D
GENETIC RESOURCE MANAGEMENT OF TROPICAL/SUBTROPICAL GENETIC RESOURCES AND ASSOCIATED INFORMATION – Brain Irish (P) and Ricardo Goenaga; Mayagüez, Puerto Rico

6635-21000-049-00D
CONSERVATION, MANAGEMENT, AND GENETIC ENHANCEMENT OF SORGHUM GENETIC RESOURCES AND ASSOCIATED INFORMATION – Hugo Cuevas (P); Mayagüez, Puerto Rico

6645-21220-012-00D
INCREASING THE COMPETITIVE POSITION OF U.S. SOYBEANS IN GLOBAL MARKETS THROUGH GENETIC DIVERSITY AND PLANT BREEDING – Thomas Carter (P), Joseph Burton, and Robert Upchurch; Raleigh, North Carolina

6645-22000-016-00D
EVALUATION AND IMPROVEMENT OF CEREAL GERMPLASM FOR DISEASE RESISTANCE AND WINTER-HARDINESS – Gina Brown Guedira (P), Christina Cowger, David Marshall, and David Livingstone; Raleigh, North Carolina

6657-21000-006-00D
GENETIC AND CULTURAL PRACTICE IMPROVEMENT FOR SUSTAINABLE COTTON PRODUCTION – Philip Bauer (P) and Benjamin Campbell; Florence, South Carolina

Problem Statement 3C: *Germplasm Enhancement/Release of Improved Genetic Resources and Varieties.*

1230-21000-051-00D
GENETICS, GENETIC RESOURCE EVALUATION, AND GENETIC IMPROVEMENT OF LANDSCAPE TREES AND SHRUBS – Margaret Pooler (P); U.S. National Arboretum, Washington, D.C.

1230-21000-052-00D
GENETICS, GENETIC IMPROVEMENT, AND IMPROVED PRODUCTION EFFICIENCY OF NURSERY CROPS – Sandra Reed (P) and Donna Fare; McMinnville, Tennessee

1230-21000-053-00D
GENETIC IMPROVEMENT OF LANDSCAPE TREES FOR DISEASE AND PEST TOLERANCE, NON-INVASIVENESS, AND ORNAMENTAL TRAITS – Richard Olsen (P); U.S. National Arboretum, Washington, D.C.

1275-21000-190-00D
GENETIC ENHANCEMENT OF POTATOES FOR NUTRITIONAL AND PROCESSING QUALITY AND FOR RESISTANCE TO DISEASES – Kathleen Haynes (P); Beltsville, Maryland

1275-21220-189-00D
ENHANCEMENT OF SMALL FRUIT GERMPLASM THROUGH GENOMIC CHARACTERIZATION AND GENETIC IMPROVEMENT WITH EMPHASIS ON DISEASE RESISTANCE – Mark Ehlenfeldt (P), Kimberly Lewers, James Polashock, And Shiow Wang; Beltsville, Maryland

1275-22000-261-00D
DISCOVERING AND USING DISEASE RESISTANCE GENES IN PHASEOLUS VULGARIS FOR THE CONTROL OF RUSTS – Marcial Pastor Corrales (P); Beltsville, Maryland

1910-21000-023-00D
DEVELOPMENT OF PEST, DISEASE RESISTANCE, AND STRESS TOLERANCE IN APPLE ROOTSTOCKS – Gennaro Fazio (P) and Angelo Baldo; Geneva, New York

1910-21220-004-00D
IMPROVING GRAPE ROOTSTOCK AND SCION PEST AND DISEASE RESISTANCE – Peter Cousins (P), Lance Cadle Davidson, Angelo Baldo, and Gan-Yuan Zhong; Geneva, New York

1931-21000-017-00D
GENETIC IMPROVEMENT OF FRUIT CROPS THROUGH FUNCTIONAL GENOMICS AND BREEDING – Ralph Scorza (P), Richard Bell, Ann Callahan, Zongrang Liu, Christopher Dardick, and Chinnathambi Srinivasan; Kearneysville, West Virginia

3607-21000-012-00D
IMPROVEMENT OF PEST RESISTANCE AND QUALITY TRAITS OF SOYBEAN – Rouf Mian (P) and Margaret Redinbaugh; Wooster, Ohio

3611-21000-023-00D
SOYBEAN GENETIC MANAGEMENT AND UTILIZATION – Steven Clough (P) and Randall Nelson; Urbana, Illinois

3625-21000-050-00D
GERMPLASM ENHANCEMENT OF MAIZE PROJECT (GEM) – Michael Blanco (P) and Candice Gardner; Ames, Iowa

3625-21000-056-00D
BREEDING HIGH-QUALITY CORN FOR LOW-INPUT AND ORGANIC FARMING SYSTEMS –Craig Abel; Ames, Iowa

Problem Statement 3C: *Germplasm Enhancement/Release of Improved Genetic Resources and Varieties.* [CONTINUED]

3655-21220-001-00D
CRANBERRY GENETIC IMPROVEMENT AND INSECT PEST MANAGEMENT— Philipp Simon (P), Juan Zalapa, and Shawn Steffan; Madison, Wisconsin

5302-21220-005-00D
IMPROVEMENT OF PRUNUS AND VITIS SCIONS FOR FRUIT QUALITY AND PEST RESISTANCE – Craig Ledbetter (P) and David Ramming; Parlier, California

5305-21000-013-00D
SUGARBEET GERMPLASM ENHANCEMENT, BREEDING, AND GENETICS – Kelley Richardson (P) and Frank Martin; Salinas, California

5305-21220-004-00D
EVALUATION, ENHANCEMENT, GENETICS AND BREEDING OF LETTUCE, SPINACH, AND MELON – James McCreight (P), Beiquan Mou, Ivan Simko, and Ryan Hayes; Salinas, California

5347-21410-005-00D
COMMERCIALIZATION OF NEW INDUSTRIAL CROP GERMPLASM AND CROPPING SYSTEMS – Terry Coffelt (P), Michael Salvucci, and John Dyer; Maricopa, Arizona

5348-21000-024-00D
COOL SEASON GRAIN LEGUME GENETIC ENHANCEMENT AND PATHOLOGY – George Vandemark (P), Kevin McPhee, and Weidong Chen; Pullman, Washington

5354-21000-013-00D
TESTING OF ADVANCED POTATO GERMPLASM FOR BIOTIC AND ABIOTIC RESISTANCES, AND PROFITABILITY COMPONENTS – Charles Brown (P); Prosser, Washington

5354-21220-010-00D
POTATO GERMPLASM ENHANCEMENT THROUGH TRAIT DISCOVERY, GENETIC EVALUATION AND INCORPORATION – Duroy Navarre (P), James Crosslin, and Charles Brown; Prosser, Washington

5354-21220-016-00D
DEVELOP STRESS-RESISTANT DRY BEAN GERMPLASM AND SUSTAINABLE PEST MANAGEMENT STRATEGIES FOR EDIBLE LEGUMES – Phillip Miklas (P), Lydon Porter, and Richard Porter; Prosser, Washington

5358-21000-037-00D
PHYSIOLOGY AND GENETIC IMPROVEMENT OF SMALL FRUIT CROPS – David Bryla (P) and Chad Finn; Corvallis, Oregon

5358-21000-040-00D
GENOMICS, GERMPLASM DEVELOPMENT AND IPM OF HOP – John Henning (P), David Gent, and Gary Banowetz; Corvallis, Oregon

5366-21000-026-00D
DEVELOPMENT OF POTATO VARIETIES AND GERMPLASM WITH IMPROVED RESISTANCES, PRODUCTION EFFICIENCIES, AND TUBER QUALITIES FOR THE WESTERN U.S. – Richard Novy (P), Jonathan Whitworth, and John Bonman; Aberdeen, Idaho

5368-21220-003-00D
SUGARBEET GERMPLASM DEVELOPMENT AND INNOVATIVE GENETIC AND MANAGEMENT APPROACHES TO REDUCING LOSSES CAUSED BY PATHOGENS – Carl Strausbaugh (P) and Imad Eujayl; Kimberly, Idaho

Problem Statement 3C: *Germplasm Enhancement/Release of Improved Genetic Resources and Varieties.* [CONTINUED]

5366-21000-028-00D
SMALL GRAINS GENETICS AND GERMPLASM ENHANCEMENT – John Bonman (P), Donald Obert, Paul Bregitzer, and Eric Jackson; Aberdeen, Idaho

5402-21220-007-00D
NONCHEMICAL PEST CONTROL AND ENHANCED SUGAR BEET GERMPLASM VIA TRADITIONAL AND MOLECULAR TECHNOLOGIES – Leonard Panella (P) and Kimberly Webb; Fort Collins, Colorado

5430-21000-006-00D
GENETIC ENHANCEMENT FOR RESISTANCE TO BIOTIC AND ABIOTIC STRESSES IN HARD WINTER WHEAT – Robert Bowden (P), Ming Shum, Guihua Bai, and John Fellers; Manhattan, Kansas

5440-21000-029-00D
GENETIC IMPROVEMENT AND EVALUATION OF HARD WINTER AND SPRING WHEATS – Robert Graybosch (P); Lincoln, Nebraska

5440-21220-027-00D
ENHANCEMENT OF SORGHUM FOR BIOENERGY, FEED, AND FOOD VALUE – Jeffrey Pedersen (P), Scott Sadler, and Deanna Funnel-Harris; Lincoln, Nebraska

5442-21000-034-00D
SUNFLOWER GERMPLASM DIVERSIFICATION AND CHARACTERIZATION UTILIZING WILD SUNFLOWER SPECIES, CYTOGENETICS, AND APPLIED GENOMICS – Brady Vick (P), Lili Qi, Chao-Chien Jan, and Gerald Seiler; Fargo, North Dakota

5442-21220-024-00D
SUNFLOWER GERMPLASM DEVELOPMENT FOR IMPROVED INSECT AND DISEASE RESISTANCE – Thomas Gulya Jr (P) and Brent Hulke; Fargo, North Dakota

6202-21000-029-00D
PECAN GENETICS AND IMPROVEMENT – Tommy Thompson (P) and Larry Grauke; College Station, Texas

6202-21000-030-00D
COTTON GENOMICS AND GENETIC ANALYSIS – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

6203-21000-001-00D
DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Shannon Pinson, and Ming Hsuan Chen; Beaumont, Texas

6203-21220-001-00D
RESPONSE OF DIVERSE RICE GERMPLASM TO BIOTIC AND ABIOTIC STRESSES – David Gealy (P), Georgia Eizenga, Helen Miller, Anna McClung, and Yulin Jia; Beaumont, Texas

6208-21000-018-00D
CHARACTERIZATION AND ENHANCEMENT OF PLANT RESISTANCE TO WATER-DEFICIT AND THERMAL STRESSES – John Burke (P), James Mahan, Jeffrey Velten, Zhanguo, Paxton Payton, and Junping Chen; Lubbock, Texas

6217-21220-006-00D
ENHANCING DISEASE RESISTANCE AND OIL QUALITY ATTRIBUTES OF PEANUT – Hassan Melouk (P) and Kelly Chamberlin; Stillwater, Oklahoma

Problem Statement 3C: *Germplasm Enhancement/Release of Improved Genetic Resources and Varieties.* [CONTINUED]

6225-21000-009-00D
DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Rolfe Bryant, Robert Fjellstrom, Helen Miller, and Wengui Yan; Stuttgart, Arkansas

6402-21000-031-00D
COMBINING CONVENTIONAL AND MOLECULAR TECHNIQUES TO IMPROVE SEED COTTON VALUE – Jodi Scheffler (P), Lawrence Young, and Rickie Turley; Stoneville, Mississippi

6402-21000-032-00D
NATIONAL COTTON VARIETY TEST PROGRAM – Lawrence Young (P); Stoneville, Mississippi

6402-21000-033-00D
GENETIC-PHYSIOLOGICAL TEAM RESEARCH TO IMPROVE PRODUCTION, FIBER QUALITY AND COMPETITIVE ABILITY OF COTTON – Lawrence Young (P), Efrem Bechere, and Linghe Zeng; Stoneville, Mississippi

6402-21000-034-00D
DEVELOPMENT OF SOYBEAN GENEOTYPES AND MANAGEMENT SYSTEMS FOR EARLY SEASON AND STRESS ENVIRONMENTS – Lawrence Young (P), Anne Gillen, and Nacer Bellaloui; Stoneville, Mississippi

6402-21220-010-00D
REDUCING SOYBEAN YIELD LOSSES THROUGH GENETIC IMPROVEMENT – Jeffery Ray (P), Lawrence Young, Shuxian Li, and James Smith; Stoneville, Mississippi

6404-21000-008-00D
SMALL FRUIT AND ORNAMENTAL GENETIC RESEARCH FOR THE MID-SOUTH – Timothy Rinehart (P), Cecil Pounders, James Spiers, Stephen Stringer, and Hamidou Sakhanokho; Poplarville, Mississippi

6406-21000-011-00D
ENHANCING CORN WITH RESISTANCE TO AFLATOXIN CONTAMINATION AND INSECT DAMAGE – William Williams (P), Marilyn Warburton, William Henry, and Gary Windham; Mississippi State, Mississippi

6406-21000-012-00D
GERMPLASM ENHANCEMENT AND GENETIC IMPROVEMENT OF COTTON – Johnie Jenkins (P), Sukumar Saha, Jack McCarthy Jr., and Martin Wubben; Mississippi State, Mississippi

6410-21000-014-00D
GENETIC IMPROVEMENT OF SUGARCANE BY CONVENTIONAL AND MOLECULAR APPROACHES – Thomas Tew (P), Anna Hale, Edward Richard Jr, Yong Bao Pan, and William White; Houma, Louisiana

6602-21000-022-00D
DEVELOPMENT OF IMPROVED PEANUT GERMPLASM AND RESISTANCE TO DISEASE AND NEMATODE PESTS – C. Holbrook Jr (P); Tifton, Georgia

6602-21220-014-00D
GENETIC IMPROVEMENT OF MAIZE AND PEARL MILLET FOR RESISTANCE TO INSECTS AND AFLATOXIN – Jeffrey Wilson (P), C Holbrooke Jr., and Xinzhi Ni; Tifton, Georgia

6604-21000-003-00D
PHYSIOLOGICAL MECHANISMS THAT DETERMINE CROP RESPONSE TO IRRIGATION, DISEASE, AND PRODUCTION PRACTICES – Charles Chen (P), Marshall Lamb, and Phat Dang; Dawson, Georgia

Problem Statement 3C: *Germplasm Enhancement/Release of Improved Genetic Resources and Varieties.* [CONTINUED]

6606-21000-002-00D
STONE FRUIT BREEDING AND DEVELOPMENT – Thomas Beckman (P); Byron, Georgia

6618-21000-013-00D
GENETIC IMPROVEMENT OF CITRUS – Kim Bowman (P), Randall Niedz, Eddie Stover, and Thomas McCollum; Fort Pierce, Florida

6625-21000-003-00D
ENHANCEMENT OF SUGARCANE GERMPLASM FOR DEVELOPMENT OF CULTIVARS AND SUSTAINABLE PRODUCTION – Barry Glaz (P), Jack Comstock, Serge Edme, Neil Glynn, and Duli Zhao; Canal Point, Florida

6631-21000-017-00D
DEVELOPMENT OF AN INTERNATIONAL MARKER-ASSISTED SELECTION PROGRAM FOR CACAO – Raymond Schnell (P) and David Kuhn; Miami, Florida

6635-21000-048-00D
CHARACTERIZATION, CONVERSION, AND IMPROVEMENT OF COMMON BEAN GERMPLASM – Timothy Porch Clay (P); Mayagüez, Puerto Rico

6645-21000-027-00D
GERMPLASM ENHANCEMENT OF MAIZE (GEM) – Matthew Krakowsky (P), Raleigh, North Carolina

6645-21220-012-00D
INCREASING THE COMPETITIVE POSITION OF U.S. SOYBEANS IN GLOBAL MARKETS THROUGH GENETIC DIVERSITY AND PLANT BREEDING – Thomas Carter (P), Joseph Burton, and Robert Upchurch; Raleigh, North Carolina

6645-21220-013-00D
USING GENETIC DIVERSITY OF IMPROVE QUANTITATIVE DISEASE RESISTANCE AND AGRONOMIC TRAITS OF CORN – James Holland (P) and Peter Balint Kurti; Raleigh, North Carolina

6657-21000-006-00D
GENETIC AND CULTURAL PRACTICE IMPROVEMENT FOR SUSTAINABLE COTTON PRODUCTION – Philip Bauer (P) and Benjamin Campbell; Florence, South Carolina

6659-21000-016-00D
GENETIC IMPROVEMENT OF SOUTHERNPEAS AND PEPPERS – Richard Fery (P); Charleston, South Carolina

6659-21000-017-00D
GENETICS AND GENETIC IMPROVEMENT OF DISEASE RESISTANCE AND QUALITY TRAITS IN WATERMELON, BROCCOLI, AND LEAFY GREEN BRASSICAS – Mark Farnham (P) and Amnon Levi; Chaleston, South Carolina

Component 4: Plant Biological and Molecular Processes

Problem Statement 4A: *Functional Utilization of Plant Genomes – Translating Plant Genomics into Crop Improvement.*

1265-21000-141-00D
MOLECULAR APPROACHES TO ENHANCE PLANT NUTRIENT CONTENT, SHELF-LIFE, AND STRESS TOLERANCE – Autar Mattoo (P); Beltsville, Maryland

Problem Statement 4A: *Functional Utilization of Plant Genomes – Translating Plant Genomics into Crop Improvement.* [CONTINUED]

1275-21000-185-00D
ENHANCEMENT OF BLUEBERRY, STRAWBERRY, AND BRAMBLES THROUGH MOLECULAR APPROACHES – Lisa Rowland (P), Kimberly Lewers, Janet Slovin, Mark Ehlenfeldt, and James Polashock; Beltsville, Maryland

1275-21220-229-00D
GENOMICS AND PROTEOMICS APPROACHES TO BROADENING RESISTANCE OF SOYBEAN TO PESTS AND PATHOGENS – Benjamin Matthews (P), Bret Cooper, and Mark Tucker; Beltsville, Maryland

1907-21000-032-00D
DETERMINATION AND CHARACTERIZATION OF UNINTENDED EFFECTS IN GENETICALLY MODIFIED FOOD CROPS – Owen Hoekenga (P), James Giovannoni, and Leon Kochian; Ithaca, New York

1907-21000-033-00D
GENOMICS APPROACHES FOR IMPROVING NUTRITIONAL QUALITY OF FOOD CROP SPECIES – James Giovannoni (P), Leon Kochian, Yong Yang, Li Li, and Theodore Thannhauser; Ithaca, New York

1907-21000-034-00D
GENOMIC APPROACHES TO IMPROVING TRANSPORT AND DETOXIFICATION OF SELECTED MINERAL ELEMENTS IN CROP PLANTS – Leon Kochian (P), Yong Yang, and Theodore Thannhauser; Ithaca, New York

1931-21000-020-00D
USING FUNCTIONAL AND APPLIED GENOMICS TO IMPROVE STRESS AND DISEASE RESISTANCE IN FRUIT TREES – Michael Wisniewski (P), John Norelli, Timothy Artlip, and Carole Bassett; Kearneysville, West Virginia

3607-21000-012-00D
IMPROVEMENT OF PEST RESISTANCE AND QUALITY TRAITS OF SOYBEAN – Rouf Mian (P) and Margaret Redinbaugh; Wooster, Ohio

3622-21000-032-00D
MODIFICATION OF SOYBEAN SEED COMPOSITION FOR FOOD, FEED, AND OTHER INDUSTRIAL USES – Jan Miernyk (P), Perry Gustafson, Jason Gillman, Melvin Oliver, Kristin Bilyeu, and Hari Krishnan; Columbia, Missouri

3622-21000-033-00D
GENETIC ENHANCEMENT OF SOYBEAN SEED VALUE BY BIOTECHNOLOGY – Ivan Baxter (P), Douglas Allen, and Melvin Oliver; Columbia, Missouri

3622-21000-035-00D
FUNCTIONAL GENOMICS FOR IDENTIFICATION OF SOYBEAN QUALITY TRAIT GENES – Yong Qiang An (P) and Melvin Oliver; Columbia, Missouri

3625-21000-057-00D
FUNCTIONAL GENOMICS OF CEREAL DISEASE DEFENSE – Roger Wise (P), Craig Abel, and Nicholas Lauter; Ames, Iowa

3625-21220-004-00D
FUNCTIONAL AND STRUCTURAL GENETIC ANALYSIS OF SOYBEAN AND OTHER LEGUMES – Randy Shoemaker (P), Craig Abel, and Michelle Graham; Ames, Iowa

3640-21000-028-00D
FUNCTIONAL GENOMICS FOR IMPROVING NUTRIENTS AND QUALITY IN ALFALFA AND SOYBEAN – Carroll Vance (P); St. Paul, Minnesota

Problem Statement 4A: *Functional Utilization of Plant Genomes – Translating Plant Genomics into Crop Improvement.* [CONTINUED]

3655-21430-009-00D
IMPROVEMENT OF BARLEY SEED QUALITY THROUGH MOLECULAR AND FUNCTIONAL GENOMIC ANALYSIS OF GENE EXPRESSION – Ronald Skadsen (P) and Cynthia Henson; Madison, Wisconsin

5320-21000-013-00D
MOLECULAR RESOURCES FOR THE IMPROVEMENT OF TROPICAL ORNAMENTAL AND FRUIT CROPS – Dennis Gonsalves (P), Roxana Cabos, and Jon Suzuki; Hilo, Hawaii

5325-21430-012-00D
PRODUCTION OF WHEAT GERMPLASM WITH ENHANCED BAKING QUALITY – Ann Blechl (P); Albany, California

5335-21000-026-00D
GENOMIC AND GENETIC ANALYSIS OF THE CEREAL CIRCADIAN SYSTEM AND CROP PRODUCTION – Frank Harmon (P); Albany, California

5335-21000-032-00D
MOLECULAR MECHANISMS OF PHYTOCHROME SIGNALING AND GENE REGULATION – Sarah Hake (P); Albany, California

5335-21000-034-00D
POSITIONAL CLONING IN MAIZE OF GENES THAT REGULATE PLANT ARCHITECTURE– Sarah Hake (P); Albany, California

5335-21000-036-00D
MOLECULAR DEVELOPMENTAL GENETICS OF POLLEN AND POLLEN-PISTIL INTERACTIONS IN CROP PLANTS – Shelia Mccormick (P); Albany, California

5335-21000-038-00D
FUNCTIONAL GENOMICS OF PLANT ARCHITECTURE – Jennifer Fletcher (P); Albany, California

5335-21430-008-00D
MOLECULAR GENETICS OF ETHYLENE BIOSYNTHESIS – Sarah Hake (P); Albany, California

5348-21000-023-00D
CHARACTERIZATION OF STRESS RESISTANCE GENES AND MECHANISMS, AND IMPROVEMENT AND GENOTYPING OF WHEAT AND BARLEY GERMPLASM FOR THE WESTERN U.S. – Camille Steber (P), Deven See, Daniel Skinner, and Kimberly Garland Campbell; Pullman, Washington

5366-21000-025-00D
PLANT AND SEED CHEMISTRY GENETICS – Victor Raboy (P) and John Bonman; Aberdeen, Idaho

5442-21000-032-00D
GENOMIC RELATIONSHIPS AND CYTOGENETIC MANIPULATION OF DURUM WHEAT BY CLASSICAL AND MOLECULAR TECHNIQUES – Prem Jauhar (P); Fargo, North Dakota

6435-21000-016-00D
MOLECULAR ANALYSIS OF DEVELOPMENT TO IMPROVE COTTON FIBER – David Fang (P) and Hee Kim; New Orleans, Louisiana

6602-21000-021-00D
GENETIC AND GENOMIC APPROACHES TO IMPROVE PEANUT AND CORN RESISTANCE TO DISEASE AND AFLATOXIN CONTAMINATION – Baozhu Guo (P) and Brian Scully; Tifton, Georgia

Problem Statement 4A: *Functional Utilization of Plant Genomes – Translating Plant Genomics into Crop Improvement.* [CONTINUED]

6615-21000-010-00D
FUNCTIONAL GENOMICS OF AGRONOMIC TRAITS IN DEVELOPING SEED AND POLLEN IN MAIZE AND SORGHUM – Prem Chourey (P), Alisa Huffaker, and Peter Teal; Gainesville, Florida

Problem Statement 4B: *Biological Processes that Improve Crop Productivity and Quality.*

1230-21000-048-00D
GENETIC ENGINEERING OF FLORAL BULB CROPS FOR VIRUS AND NEMATODE RESISTANCE – Kathryn Kamo (P); U.S. National Arboretum, Washington, D.C.

1265-21000-141-00D
MOLECULAR APPROACHES TO ENHANCE PLANT NUTRIENT CONTENT, SHELF-LIFE, AND STRESS TOLERANCE – Autar Mattoo (P); Beltsville, Maryland

1275-21000-185-00D
ENHANCEMENT OF BLUEBERRY, STRAWBERRY, AND BRAMBLES THROUGH MOLECULAR APPROACHES – Lisa Rowland (P), Kimberly Lewers, Janet Slovin, Mark Ehlenfeldt, and James Polashock; Beltsville, Maryland

1275-21220-230-00D
MOLECULAR GENETIC APPROACHES TO PEST AND PATHOGEN RESISTANCE IN SUGAR BEET, BETA VULGARIS L. – Anna Smigocki (P) and L. David Kuykendall; Beltsville, Maryland

1907-21000-033-00D
GENOMICS APPROACHES FOR IMPROVING NUTRITIONAL QUALITY OF FOOD CROP SPECIES – James Giovannoni (P), Leon Kochian, Yong Yang, Li Li, and Theodore Thannhauser; Ithaca, New York

1907-21000-034-00D
GENOMIC APPROACHES TO IMPROVING TRANSPORT AND DETOXIFICATION OF SELECTED MINERAL ELEMENTS IN CROP PLANTS – Leon Kochian (P), Yong Yang, and Theodore Thannhauser; Ithaca, New York

1931-21000-020-00D
USING FUNCTIONAL AND APPLIED GENOMICS TO IMPROVE STRESS AND DISEASE RESISTANCE IN FRUIT TREES – Michael Wisniewski (P), John Norelli, Timothy Artlip, and Carole Bassett; Kearneysville, West Virginia

3602-21000-006-00D
IDENTIFICATION AND CHARACTERIZATION OF GENES IMPORTANT DURING SEED DEVELOPMENT IN LEGUMES – Karen Hudson (P); West Lafayette, Indiana

3611-21000-024-00D
IDENTIFYING AND MANIPULATING DETERMINANTS OF PHOTOSYNTHATE PRODUCTION AND PARTITIONING – Donald Ort (P), Elizabeth Ainsworth, Carl Bernacchi, and Steven Huber; Urbana, Illinois

3622-21000-033-00D
GENETIC ENHANCEMENT OF SOYBEAN SEED VALUE BY BIOTECHNOLOGY – Ivan Baxter (P), Douglas Allen, and Melvin Oliver; Columbia, Missouri

3625-21000-057-00D
FUNCTIONAL GENOMICS OF CEREAL DISEASE DEFENSE – Roger Wise (P), Craig Abel, and Nicholas Lauter; Ames, Iowa

3640-21000-028-00D
FUNCTIONAL GENOMICS FOR IMPROVING NUTRIENTS AND QUALITY IN ALFALFA AND SOYBEAN – Carroll Vance (P); St. Paul, Minnesota

Problem Statement 4B: *Biological Processes that Improve Crop Productivity and Quality.* [CONTINUED]

3655-21000-052-00D
PHYSIOLOGICAL, BIOCHEMICAL AND GENETIC REGULATION OF CARBOHYDRATE METABOLISM IN CEREAL TISSUES – Cynthia Henson (P); Madison, Wisconsin

3655-21000-053-00D
METABOLISM AND ANALYSIS OF CEREAL PHYTOCHEMICALS – Mitchell Wise (P) and Cynthia Henson; Madison, Wisconsin

3655-21430-009-00D
IMPROVEMENT OF BARLEY SEED QUALITY THROUGH MOLECULAR AND FUNCTIONAL GENOMIC ANALYSIS OF GENE EXPRESSION – Ronald Skadsen (P) and Cynthia Henson; Madison, Wisconsin

5320-21000-013-00D
MOLECULAR RESOURCES FOR THE IMPROVEMENT OF TROPICAL ORNAMENTAL AND FRUIT CROPS – Dennis Gonsalves (P), Roxana Cabos, and Jon Suzuki; Hilo, Hawaii

5335-21000-034-00D
POSITIONAL CLONING IN MAIZE OF GENES THAT REGULATE PLANT ARCHITECTURE– Sarah Hake (P); Albany, California

5325-21430-012-00D
PRODUCTION OF WHEAT GERMPLASM WITH ENHANCED BAKING QUALITY – Ann Blechl (P); Albany, California

5335-21430-008-00D
MOLECULAR GENETICS OF ETHYLENE BIOSYNTHESIS – Sarah Hake (P); Albany, California

5348-21000-023-00D
CHARACTERIZATION OF STRESS RESISTANCE GENES AND MECHANISMS, AND IMPROVEMENT AND GENOTYPING OF WHEAT AND BARLEY GERMPLASM FOR THE WESTERN U.S. – Camille Steber (P), Deven See, Daniel Skinner, and Kimberly Garland Campbell; Pullman, Washington

5366-21000-025-00D
PLANT AND SEED CHEMISTRY GENETICS – Victor Raboy (P) and John Bonman; Aberdeen, Idaho

5442-21430-007-00D
SUCROSE ACCUMULATION AND RETENTION IN SUGARBEETS – Karen Fugate (P) and Larry Campbell; Fargo, North Dakota

6408-21410-008-00D
DISCOVERY AND DEVELOPMENT OF NATURAL PRODUCT FOR PHARMACEUTICAL AND AGRICHEMICAL APPLICATIONS – Stephen Duke (P); University, Mississippi

6435-21000-016-00D
MOLECULAR ANALYSIS OF DEVELOPMENT TO IMPROVE COTTON FIBER – David Fang (P) and Hee Kim; New Orleans, Louisiana

6615-21000-010-00D
FUNCTIONAL GENOMICS OF AGRONOMIC TRAITS IN DEVELOPING SEED AND POLLEN IN MAIZE AND SORGHUM – Prem Chourey (P), Alisa Huffaker, and Peter Teal; Gainesville, Florida

6645-21000-028-00D
PHYSIOLOGICAL/BIOCHEMICAL MECHANISMS ASSOCIATED WITH GENETIC ALTERATION OF SOYBEAN QUALITY AND PRODUCTIVITY – Robert Upchurch (P), Earl Taliercio, Thomas Carter Jr., and Joseph Burton; Raleigh, North Carolina

Problem Statement 4C: *Plant Biotechnology Risk Assessment.*

1275-21000-224-00D
EVALUATION OF THE QUALITY AND SAFETY OF TRANSGENIC SOYBEANS – Savithiry Natarajan (P); Beltsville, Maryland

1907-21000-032-00D
DETERMINATION AND CHARACTERIZATION OF UNINTENDED EFFECTS IN GENETICALLY MODIFIED FOOD CROPS – Owen Hoekenga (P), James Giovannoni, and Leon Kochian; Ithaca, New York

1931-21000-017-00D
GENETIC IMPROVEMENT OF FRUIT CROPS THROUGH FUNCTIONAL GENOMICS AND BREEDING – Ralph Scorza (P), Richard Bell, Ann Callahan, Zongrang Liu, Christopher Dardick, and Chinnathambi Srinivasan; Kearneysville, West Virginia

3655-21000-054-00D
GENETIC EXCHANGE AND GENE FLOW RISKS FROM PLANTS IN AGRICULTURE – Johanne Brunet (P) and Philipp Simon; Madison, Wisconsin

5320-21000-013-00D
MOLECULAR RESOURCES FOR THE IMPROVEMENT OF TROPICAL ORNAMENTAL AND FRUIT CROPS – Dennis Gonsalves (P), Roxana Cabos, and Jon Suzuki; Hilo, Hawaii

5325-21000-018-00D
MOLECULAR TOOLS TO MINIMIZE RISK IN GENETICALLY ENGINEERED CROPS – Ann Blechl (P), Roger Thilmony, and James Thomson; Albany, California

5335-21000-040-00D
TRANSGENE MANAGEMENT THROUGH SITE-SPECIFIC RECOMBINATION – Sarah Hake (P); Albany, California

APPENDIX 2

National Program 301
Plant Genetic Resources, Genomics, and Genetics Improvement

ACCOMPLISHMENT REPORT 2006 – 2011

Publications by Research Project*

1230-21000-048-00D
GENETIC ENGINEERING OF FLORAL BULB CROPS FOR VIRUS AND NEMATODE RESISTANCE – Kathryn Kamo (P); U.S. National Arboretum, Washington, D.C.

Kamo, K., Jordan, R., Guaragna, M.A., Hsu, H.T., Ueng, P. 2010. Resistance to cucumber mosaic virus in Gladiolus plants transformed with either a defective replicase or coat protein subgroup II gene from cucumber mosaic virus. Plant Cell Reports. 29:695-704.

Kamo, K., Joung, Y.H., Green, K. 2009. GUS expression in Gladiolus plants controlled by two Gladiolus ubiquitin promoters. Floriculture and Ornamental Biotechnology. 3:10-14.

1230-21000-050-00D
TAXONOMY AND GENETIC DIVERSITY ASSESSMENT OF LANDSCAPE TREES AND SHRUBS – Alan Whittemore (P) and Joseph Kirkbride; U.S. National Arboretum, Washington, D.C.

A. T. Whittemore and R. Olsen. 2011. Ulmus americana is a polyploid complex. American Journal of Botany 98: 754-760.

R. Arias, R. S., N. Techen, T. A. Rinehart, R. T. Olsen, J. H. Kirkbride, Jr., andf B. E. Scheffler. 2011. Development of simple sequence repeat markers for Chionanthus retusus (Oleaceae) and effective discrimination of closely related taxa. HortScience 46(1):23-29.

Whittemore, A.T. 2009. What is Ranunculus gelidus? Journal of Botanical Research Institute of Texas. 3:245-250.

Delprete, P., Kirkbride, J.H. 2008. Clarification of Borreria gymnocephala, Diodia gymnocephala, Diodia schumannii, Borreria flavoriens, and Spermacoce schumannii (Rubiaceae). Journal of Botanical Research Institute of Texas. 3:245-250.

Whittemore, A.T. 2008. Exotic species of Celtis (Cannabaceae) in the flora of North America. Journal of the Botanical Research Institute of Texas. 2:627-632.

Whittemore, A.T. 2008. Proposal to reject the name Ulmus campestris (Ulmaceae). Taxon. 57:656-657.

Whittemore, A.T. Ranunculaceae: Aquilegia, Ceratocephala, Myosurus, and Ranunculus. Flora of the San Juan Basin.

Ramirez, P., Whittemore, A.T., Churchill, S.P. 2007. The bryophytes of the Departments of Norina and Putumayo, Columbia: II. Hepatics and hornworts. The Bryologist. 111:363-549.

Kirkbride, J.H.Jr., Wiersema, J.H. 2007. Proposal to reject the name Arundo vallatoria (Poaceae). Taxon. 56(1):258.

Wiersema, J.H., Dahlberg, J. 2007. The nomenclature of Sorghum bicolor (L.) Moench (Gramineae). Taxon. 56(3):941-946.

Kirkbride, J.H., Wiersema, J.H. 2007. Proposal to conserve the name Zinnia elegans against Z. violacea (Compositae). Taxon. 56(3):958-959.

Kirkbride, J.H. Jr., Wiersema, J.H., Turland, N.J. 2006. Proposal to conserve the name Ziziphus Jujuba against z. zizyphus (Rhamnaceae). Taxon. 55(4):1049-1050.

* 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.

1230-21000-051-00D

GENETICS, GENETIC RESOURCE EVALUATION, AND GENETIC IMPROVEMENT OF LANDSCAPE TREES AND SHRUBS – Margaret Pooler (P); U.S. National Arboretum, Washington, D.C.

Pooler, M.R. 2011. 'Anacostia' Camellia. HortScience. 46:139-140.

Pooler, M.R. 2011. 'Cree' and 'Nantucket' Viburnum. HortScience. 45:1384-1385.

Ma, H., Olsen, R., Pooler, M, Kramer, Matthew. 2009. Evaluation of Flowering Cherry Species, Hybrids, and Cultivars Using Simple Sequence Repeat Markers. Journal of the American Society for Horticultural Science. 134:435-444.

Ma, H., Pooler, M.R., Griesbach, R.J. 2009. Anthocyanin regulatory/structural gene expression in Phalaenopsis. Journal of the American Society for Horticultural Science. 134:88-96.

Pooler, M.R. 2008. 'Betsy Ross', 'Old Glory', and 'Declaration' lilacs. HortScience. 43(2):544-545.

Pooler, M.R., Nicholson, R., Vandergrift, A. 2008. Clonal fidelity in large colonies of box huckleberry (Gaylussacia brachycea Gray) assessed by DNA fingerprinting. Northeastern Naturalist. 15(1):67-74.

Pooler, M.R. 2007. 'Dream Cater' and 'First Lady' Flowering Cherry. HortScience. 42(1):174-175.

1230-21000-052-00D

GENETICS, GENETIC IMPROVEMENT, AND IMPROVED PRODUCTION EFFICIENCY OF NURSERY CROPS – Sandra Reed (P) and Donna Fare; McMinnville, Tennessee

Oliver, J.B., Fare, D.C., Youssef, N., Scholl, S., Reding, M.E., Ranger, C.M., Moyseenko, J.J., Halcomb, M.A. 2010. Evaluation of a single application of Neonicotnoid and multi-application contact insecticides for flatheaded borer management in field grown Acer rubrum L. cultivars. Journal of Environmental Horticulture. 28(3):135-149.

Reed, S.M., Rinehart, T.A. 2009. SSR marker analysis of genetic relationships within Hydrangea paniculata. HortScience. 44(1):21-31.

Wadl, P.A., Skinner, J.A., Dunlap, J.R., Reed, S.M., Rinehart, T.A., Trigiano, R.N. 2009. Honeybee-mediated controlled pollinations in Cornus florida and C. kousa intra- and inter-specific crosses. HortScience. 44:1527-1533.

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Reed, S.M., Bachman, G.R. and Davis, W.E. 2008. 'Duet' beautyberry. HortScience 43:933-934.

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1230-21000-053-00D

GENETIC IMPROVEMENT OF LANDSCAPE TREES FOR DISEASE AND PEST TOLERANCE, NON-INVASIVENESS, AND ORNAMENTAL TRAITS – Richard Olsen (P); U.S. National Arboretum, Washington, D.C.

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GENETIC RESOURCES, EVALUATION, AND INFORMATION MANAGEMENT OF WOODY LANDSCAPE PLANT GERMPLASM – Richard Olsen (P), Kevin Conrad, and Mark Roh; U.S. National Arboretum, Washington, D.C.

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MOLECULAR APPROACHES TO ENHANCE PLANT NUTRIENT CONTENT, SHELF-LIFE, AND STRESS TOLERANCE – Autar Mattoo (P); Beltsville, Maryland

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1275-21000-185-00D

ENHANCEMENT OF BLUEBERRY, STRAWBERRY, AND BRAMBLES THROUGH MOLECULAR APPROACHES – Lisa Rowland (P), Kimberly Lewers, Janet Slovin, Mark Ehlenfeldt, and James Polashock; Beltsville, Maryland

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GENETIC ENHANCEMENT OF POTATOES FOR NUTRITIONAL AND PROCESSING QUALITY AND FOR RESISTANCE TO DISEASES – Kathleen Haynes (P); Beltsville, Maryland

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GENETIC ENHANCEMENT OF QUALITY CONSTITUENTS IN SOLANACEOUS VEGETABLES – John Stommel (P); Beltsville, Maryland

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EVALUATION OF THE QUALITY AND SAFETY OF TRANSGENIC SOYBEANS – Savithiry Natarajan (P); Beltsville, Maryland

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NATIONAL RHIZOBIUM GERMPLASM RESOURCE COLLECTION, GENETIC RESOURCE MANAGEMENT, SYSTEMATICS, AND BIOINFORMATICS – Peter Van Berkum (P); Beltsville, Maryland

Bromfield, E.S., Tambong, J.T., Cloutier, S., Prevost, D., Lagurerre, G., Van Berkum, P.B., Tran Thi, T.V., Assabgui, R., Barran, L.R. 2010. Ensifer, Phyllobacterium and Rhizobium species occupy nodules of Medicago sativa (alfalfa) and Melilotus alba (sweet clover) grown at a Canadian site without a history of cultivation. Microbiology. 156:505-520.
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EXCHANGE OF CROP GENETIC RESOURCES AND ASSOCIATED DOCUMENTATION FOR THE U.S. NATIONAL PLANT GERMPLASM SYSTEM – Edward Garvey (p), John Wiersema, and Karen Williams; Beltsville, Maryland

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1275-21000-263-00D

DEFINING THE GENETIC DIVERSITY AND STRUCTURE OF THE SOYBEAN GENOME AND APPLICATIONS TO GENE DISCOVERY IN SOYBEAN AND WHEAT GERMPLASM – Perry Cregan (P) and David Hyten; Beltsville, Maryland

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1275-21000-264-00D

MOLECULAR CHARACTERIZATION AND DIVERSITY ASSESSMENT OF COCOA GERMPLASM IN THE AMERICAS – Dapeng Zhang (P) and Lyndel Meinhardt; Beltsville, Maryland

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ENHANCEMENT OF SMALL FRUIT GERMPLASM THROUGH GENOMIC CHARACTERIZATION AND GENETIC IMPROVEMENT WITH EMPHASIS ON DISEASE RESISTANCE – Mark Ehlenfeldt (P), Kimberly Lewers, James Polashock, And Shiow Wang; Beltsville, Maryland

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OPERATING AND DEVELOPING THE GERMPLASM RESOURCES INFORMATION NETWORK FOR THE U.S. GENETIC RESOURSES PROGRAM – Gary Kinard (P); Beltsville, Maryland

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GENOMICS AND PROTEOMICS APPROACHES TO BROADENING RESISTANCE OF SOYBEAN TO PESTS AND PATHOGENS – Benjamin Matthews (P), Bret Cooper, and Mark Tucker; Beltsville, Maryland

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MOLECULAR GENETIC APPROACHES TO PEST AND PATHOGEN RESISTANCE IN SUGAR BEET, BETA VULGARIS L. – Anna Smigocki (P) and L. David Kuykendall; Beltsville, Maryland

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DISCOVERING AND USING DISEASE RESISTANCE GENES IN PHASEOLUS VULGARIS FOR THE CONTROL OF RUSTS – Marcial Pastor Corrales (P); Beltsville, Maryland

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THE U.S. NATIONAL FUNGUS COLLECTIONS AND DEVELOPMENT OF ON-LINE RESOURCES ABOUT FUNGI – Amy Rossman (P); Beltsville, Maryland

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DISSECTING COMPLEX TRAITS IN MAIZE AND BIOFUEL GRASSES BY APPLYING GENOMICS, BIOINFORMATICS, AND GENETIC RESOURCES – Edward Buckler IV (P) and Peter Bradbury; Ithaca, New York

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IDENTIFICATION OF FUNCTIONAL SEQUENCE IN PLANT GENOMES THROUGH BIOINFORMATIC, GENOMIC, AND GENETIC APPROACHES – Doreen Ware (P); Ithaca, New York

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BIOINFORMATIC METHODS AND TOOLS TO PREDICT SMALL GRAIN FIELD PERFORMANCE – Jean Luc Jannink (P) and Peter Bradbury, Ithaca, New York

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DETERMINATION AND CHARACTERIZATION OF UNINTENDED EFFECTS IN GENETICALLY MODIFIED FOOD CROPS – Owen Hoekenga (P), James Giovannoni, and Leon Kochian; Ithaca, New York

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GENOMICS APPROACHES FOR IMPROVING NUTRITIONAL QUALITY OF FOOD CROP SPECIES – James Giovannoni (P), Leon Kochian, Yong Yang, Li Li, and Theodore Thannhauser; Ithaca, New York

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GENOMIC APPROACHES TO IMPROVING TRANSPORT AND DETOXIFICATION OF SELECTED MINERAL ELEMENTS IN CROP PLANTS – Leon Kochian (P), Yong Yang, and Theodore Thannhauser; Ithaca, New York

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CONSERVATION AND CHARACTERIZATION OF GERMPLASM OF SELECTED VEGETABLE CROPS – Larry Robertson (P), Joanne Labate, and Angelo Baldo; Geneva, New York

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CONSERVATION AND UTILIZATION OF THE GENETIC RESOURCES OF APPLES, GRAPES, AND TART CHERRIES – Gan-Yuan Zhong (P) and Angela Baldo; Geneva, New York

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DEVELOPMENT OF PEST, DISEASE RESISTANCE, AND STRESS TOLERANCE IN APPLE ROOTSTOCKS – Gennaro Fazio (P) and Angelo Baldo; Geneva, New York

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IMPROVING GRAPE ROOTSTOCK AND SCION PEST AND DISEASE RESISTANCE – Peter Cousins (P), Lance Cadle Davidson, Angelo Baldo, and Gan-Yuan Zhong; Geneva, New York

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GENETICS AND GENOMICS OF GRAPE GROWTH, DEVELOPMENT, AND QUALITY – Christopher Owens (P), Gan-Yuan Zhong, and Angelo Baldo; Geneva, New York

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GENETIC IMPROVEMENT OF FRUIT CROPS THROUGH FUNCTIONAL GENOMICS AND BREEDING – Ralph Scorza (P), Richard Bell, Ann Callahan, Zongrang Liu, Christopher Dardick, and Chinnathambi Srinivasan; Kearneysville, West Virginia

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USING FUNCTIONAL AND APPLIED GENOMICS TO IMPROVE STRESS AND DISEASE RESISTANCE IN FRUIT TREES – Michael Wisniewski (P), John Norelli, Timothy Artlip, and Carole Bassett; Kearneysville, West Virginia

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MOLECULAR AND GENETIC MECHANISMS OF HESSIAN FLY RESISTANCE IN SOFT WINTER WHEAT – Richard Shukle (P), Brandon Schemerhorn, and Christopher Williams; West Lafayette, Indiana

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IMPROVEMENT OF PEST RESISTANCE AND QUALITY TRAITS OF SOYBEAN – Rouf Mian (P) and Margaret Redinbaugh; Wooster, Ohio

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CONSERVATION AND UTILIZATION OF MAIZE GENETIC STOCKS – Martin Sachs (P); Urbana, Illinois

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SOYBEAN GENETIC MANAGEMENT AND UTILIZATION – Steven Clough (P) and Randall Nelson; Urbana, Illinois

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IDENTIFYING AND MANIPULATING DETERMINANTS OF PHOTOSYNTHATE PRODUCTION AND PARTITIONING –
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MANAGEMENT AND GENETIC CHARACTERIZATION OF AGRICULTURAL AND BIOTECHNOLOGICAL MICROBIAL RESOURCES – David Labeda (P), Todd Ward, Stephen Peterson, Cletus Kurtzman, and Kerry Donnell; Peoria, Illinois

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ENHANCED INSECT RESISTANCE AND CROP MANAGEMENT FOR REDUCTION OF MYCOTOXINS IN MIDWEST CORN – Patrick Dowd (P), Eric Johnson, And Alejandro Rooney; Peoria, Illinois

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GENOMIC CHARACTERIZATION AND MANIPULATION OF VALUE-ADDED TRAITS FROM RYE FOR UTILIZATION IN WHEAT IMPROVEMENT – Perry Gustafson (P); Columbia, Missouri

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MODIFICATION OF SOYBEAN SEED COMPOSITION FOR FOOD, FEED, AND OTHER INDUSTRIAL USES – Jan Miernyk (P), Perry Gustafson, Jason Gillman, Melvin Oliver, Kristin Bilyeu, and Hari Krishnan; Columbia, Missouri

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GENETIC ENHANCEMENT OF SOYBEAN SEED VALUE BY BIOTECHNOLOGY – Ivan Baxter (P), Douglas Allen, and Melvin Oliver; Columbia, Missouri

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GENETIC MECHANISMS AND MOLECULAR GENETIC RESOURCES FOR MAIZE – Michael McMullen (P), Mary Schaeffer, Melvin Oliver, and Sherry Flint Garcia; Columbia, Missouri

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IDENTIFICATION OF PLANT GENETIC MECHANISMS THAT INFLUENCE INSECT-POLLINATOR PREFERENCE – Reid Palmer (P) and Craig Abel; Ames, Iowa

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BREEDING SELECTION AND MOLECULAR CHARACTERIZATION FOR IMPROVED SUGAR BEET GERMPLASM – Jon McGrath (P), Renfu Lu, and Linda Hanson; East Lansing, Michigan

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GENOMICS, GERMPLASM EVALUATION, AND GENETIC IMPROVEMENT OF OATS – St. Paul, Minnesota

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IMPROVING RUST AND FHB RESISTANCE IN HARD RED SPRING WHEAT THROUGH GENETICS AND GENOMICS – David Garvin (P) and Carroll Vance; St. Paul, Minnesota

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FUNCTIONAL GENOMICS FOR IMPROVING NUTRIENTS AND QUALITY IN ALFALFA AND SOYBEAN – Carroll Vance (P); St. Paul, Minnesota

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ALLIUM, CUCUMIS, AND DAUCUS GERMPLASM ENHANCEMENT, GENETICS, AND BIOCHEMISTRY – Philipp Simon (P), Yiqun Weng, and Michael Havey; Madison, Wisconsin

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POTATO GENETICS, CYTOGENETICS, DISEASE RESISTANCE, AND PRE-BREEDING UTILIZING WILD AND CULTIVATED SPECIES – Shelley Jansky (P), Philipp Simon, Michael Havey, Paul Bethke, and Dennis Halterman; Madison, Wisconsin

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SYSTEMATICS, GENETIC DIVERSITY ASSESSMENT, AND ACQUISITION OF POTATOES, CARROTS, AND THEIR RELATED WILD RELATIVES – David Spooner (P) And Philipp Simon; Madison, Wisconsin

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CONSERVATION AND UTILIZATION OF POTATO GENETIC RESOURCES – John Bamberg (P), David Spooner, and Shelley Jansky; Sturgeon Bay, Wisconsin

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EVALUATION, ENHANCEMENT, GENETICS AND BREEDING OF LETTUCE, SPINACH, AND MELON – James McCreight (P), Beiquan Mou, Ivan Simko, and Ryan Hayes; Salinas, California

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GENETIC DISSECTION OF SEEDLING COLD TOLERANCE IN RICE (ORYZA SATIVA L.) – Thomas Tai (P); Davis, California

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MANAGEMENT OF GENETIC RESOURCES FOR VITIS, PRUNUS, JUGLANS, FICUS, OLEA, PISTACIA, PUNICA, DIOSPYROS, ACTINIDIA, AND MORUS – John Preece (P) and Mallikarjuna Aradhya; Davis, California

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MANAGEMENT OF CITRUS AND DATE GENETIC RESOURCES AND INFORMATION – Richard Lee (P) and Robert Krueger; Riverside, California

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ASSURING LONG TERM PRESERVATION OF TROPICAL CROPS VIA GENETIC RESOURCE MANAGEMENT – Francis Zee (P), Lisa Keith, Tracie Matsumoto Brower, and Dennis Gonsalves; Hilo, Hawaii

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MOLECULAR RESOURCES FOR THE IMPROVEMENT OF TROPICAL ORNAMENTAL AND FRUIT CROPS – Dennis Gonsalves (P), Roxana Cabos, and Jon Suzuki; Hilo, Hawaii

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AN INTEGRATED DATABASE AND BIOINFORMATICS RESOURCE FOR SMALL GRAINS – Olin Anderson (P), Yong Gu, Gerard Lazo, and David Matthews; Albany, California

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GENOMICS AND MOLECULAR APPROACHES TO WHEAT TRAITS – Olin Anderson (P), Yong Gu, and Debbie Chingcuanco; Albany, California

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MOLECULAR TOOLS TO MINIMIZE RISK IN GENETICALLY ENGINEERED CROPS – Ann Blechl (P), Roger Thilmony, and James Thomson; Albany, California

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MOLECULAR GENETIC TOOLS FOR POTATO AND FRUIT TREE IMPROVEMENT – William Belknap (P) and Kent Mccue; Albany, California

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PRODUCTION OF WHEAT GERMPLASM WITH ENHANCED BAKING QUALITY – Ann Blechl (P); Albany, California

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MOLECULAR ANALYSIS OF EFFECTS OF ENVIRONMENT ON WHEAT FLOUR QUALITY AND ALLERGENIC POTENTIAL – William Hurkman (P), William Vensel, and Susan Altenbach; Albany, California

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GENOMIC AND GENETIC ANALYSIS OF THE CEREAL CIRCADIAN SYSTEM AND CROP PRODUCTION – Frank Harmon (P); Albany, California

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ACQUISITION, EVALUATION AND CONSERVATION OF TEMPERATE FORAGE LEGUME GENETIC RESOURCES – Stephanie Greene (P) and Jinguo Hu; Prosser, Washington

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CHARACTERIZATION OF STRESS RESISTANCE GENES AND MECHANISMS, AND IMPROVEMENT AND GENOTYPING OF WHEAT AND BARLEY GERMPLASM FOR THE WESTERN U.S. – Camille Steber (P), Deven See, Daniel Skinner, and Kimberly Garland Campbell; Pullman, Washington

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RESEARCH, ACQUISITION, MANAGEMENT, AND DOCUMENTATION OF PLANT GENETIC RESOURCES – Jinguo Hu (P), Frank Dugan, Stephen Clement, Richard Johnson, Clarice Coyne, Barbara Hellier, Molly Welsh, Theodore Kisha, and Vicki Bradley; Pullman, Washington

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GENETIC IMPROVEMENT OF FREEZING TOLERANCE IN WINTER WHEAT – Daniel Skinner (P); Pullman, Washington

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POTATO GERMPLASM ENHANCEMENT THROUGH TRAIT DISCOVERY, GENETIC EVALUATION AND INCORPORATION – Duroy Navarre (P), James Crosslin, and Charles Brown; Prosser, Washington

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DEVELOP STRESS-RESISTANT DRY BEAN GERMPLASM AND SUSTAINABLE PEST MANAGEMENT STRATEGIES FOR EDIBLE LEGUMES – Phillip Miklas (P), Lydon Porter, and Richard Porter; Prosser, Washington

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PHYSIOLOGY AND GENETIC IMPROVEMENT OF SMALL FRUIT CROPS – David Bryla (P) and Chad Finn; Corvallis, Oregon

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MANAGEMENT OF TEMPERATE FRUIT NUT AND SPECIALTY CROP GENETIC RESOURCES – Kim Hummer (P), Nahla Bassil, Barbara Reed, and Joseph Postman; Corvallis, Oregon

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GENOMICS, GERMPLASM DEVELOPMENT AND IPM OF HOP – John Henning (P), David Gent, and Gary Banowetz; Corvallis, Oregon

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DEVELOPMENT OF POTATO VARIETIES AND GERMPLASM WITH IMPROVED RESISTANCES, PRODUCTION EFFICIENCIES, AND TUBER QUALITIES FOR THE WESTERN U.S. – Richard Novy (P), Jonathan Whitworth, and John Bonman; Aberdeen, Idaho

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SUGARBEET GERMPLASM DEVELOPMENT AND INNOVATIVE GENETIC AND MANAGEMENT APPROACHES TO REDUCING LOSSES CAUSED BY PATHOGENS – Carl Strausbaugh (P) and Imad Eujayl; Kimberly, Idaho

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PRESERVATION AND QUALITY ASSESSMENT OF PLANT GENETIC RESOURCES – David Ellis (P), David Dierig, and Maria Jenderek; Fort Collins, Colorado

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RESEARCH TO DEVELOP STRATEGIES AND TECHNOLOGIES FOR PRESERVING PLANT GENETIC DIVERSITY IN EX SITU GENEBANKS – Christina Walters (P), David Dierig, Gayle Volk, and Christopher Richards; Fort Collins, Colorado

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NONCHEMICAL PEST CONTROL AND ENHANCED SUGAR BEET GERMPLASM VIA TRADITIONAL AND MOLECULAR TECHNOLOGIES – Leonard Panella (P) and Kimberly Webb; Fort Collins, Colorado

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GENETIC ENHANCEMENT FOR RESISTANCE TO BIOTIC AND ABIOTIC STRESSES IN HARD WINTER WHEAT – Robert Bowden (P), Ming Shum, Guihua Bai, and John Fellers; Manhattan, Kansas

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GENETIC IMPROVEMENT AND EVALUATION OF HARD WINTER AND SPRING WHEATS – Robert Graybosch (P); Lincoln, Nebraska

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ENHANCEMENT OF SORGHUM FOR BIOENERGY, FEED, AND FOOD VALUE – Jeffrey Pedersen (P), Scott Sadler, and Deanna Funnel-Harris; Lincoln, Nebraska

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GENOMIC RELATIONSHIPS AND CYTOGENETIC MANIPULATION OF DURUM WHEAT BY CLASSICAL AND MOLECULAR TECHNIQUES – Prem Jauhar (P); Fargo, North Dakota

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IMPROVEMENT OF HARD RED SPRING AND DURUM WHEAT FOR DISEASE RESISTANCE AND QUALITY USING GENETICS AND GENOMICS – Justin Faris (P), Steven Xu, Shunwen Lu, and Shiaoman Chao; Fargo, North Dakota

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SUNFLOWER GERMPLASM DIVERSIFICATION AND CHARACTERIZATION UTILIZING WILD SUNFLOWER SPECIES, CYTOGENETICS, AND APPLIED GENOMICS – Brady Vick (P), Lili Qi, Chao-Chien Jan, and Gerald Seiler; Fargo, North Dakota

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GENETIC ANALYSES AND TRAIT MAPPING TO EXPLOIT UNTAPPED GENETIC DIVERSITY IN SORGHUM – Robert Klein (P); College Station, Texas

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COTTON GENOMICS AND GENETIC ANALYSIS – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

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COTTON GENETIC RESOURCE MANAGEMENT – Richard Percy (P), James Frelichowski, Lori Hinze, and John Yu; College Station, Texas

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DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Shannon Pinson, and Ming Hsuan Chen; Stuttgart, Arkansas

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MOLECULAR AND GENETIC ENHANCEMENT OF ABIOTIC STRESS TOLERANCE IN SORGHUM – Zhanguo Xin, Gloria Burow, and John Burke; Lubbock, Texas

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CHARACTERIZATION AND ENHANCEMENT OF PLANT RESISTANCE TO WATER-DEFICIT AND THERMAL STRESSES – John Burke (P), James Mahan, Jeffrey Velten, Zhanguo, Paxton Payton, and Junping Chen; Lubbock, Texas

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GENETIC AND GENOMIC APPROACHES TO IMPROVE INSECT RESISTANCE AND OTHER VALUE-ADDED TRAITS IN WHEAT, BARLEY, AND SORGHUM – Yinghua Huang (P), Gary Puterka, and Dolores Mornhinweg; Stillwater, Oklahoma

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ENHANCING DISEASE RESISTANCE AND OIL QUALITY ATTRIBUTES OF PEANUT – Hassan Melouk (P) and Kelly Chamberlin; Stillwater, Oklahoma

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DEVELOPMENT AND CHARACTERIZATION OF GENETIC RESOURCES FOR AGRONOMIC AND QUALITY TRAITS USING GENOMIC TOOLS – Anna McClung (P), Rolfe Bryant, Robert Fjellstrom, Helen Miller, and Wengui Yan; Stuttgart, Arkansas

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RESPONSE OF DIVERSE RICE GERMPLASM TO BIOTIC AND ABIOTIC STRESSES – David Gealy (P), Georgia Eizenga, Helen Miller, Anna McClung, and Yulin Jia; Stuttgart, Arkansas

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COMBINING CONVENTIONAL AND MOLECULAR TECHNIQUES TO IMPROVE SEED COTTON VALUE – Jodi Scheffler (P), Lawrence Young, and Rickie Turley; Stoneville, Mississippi

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GENETIC-PHYSIOLOGICAL TEAM RESEARCH TO IMPROVE PRODUCTION, FIBER QUALITY AND COMPETITIVE ABILITY OF COTTON – Lawrence Young (P), Efrem Bechere, and Linghe Zeng; Stoneville, Mississippi

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SMALL FRUIT AND ORNAMENTAL GENETIC RESEARCH FOR THE MID-SOUTH – Timothy Rinehart (P), Cecil Pounders, James Spiers, Stephen Stringer, and Hamidou Sakhanokho; Poplarville, Mississippi

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ENHANCING CORN WITH RESISTANCE TO AFLATOXIN CONTAMINATION AND INSECT DAMAGE – William Williams (P), Marilyn Warburton, William Henry, and Gary Windham; Mississippi State, Mississippi

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GERMPLASM ENHANCEMENT AND GENETIC IMPROVEMENT OF COTTON – Johnie Jenkins (P), Sukumar Saha, Jack McCarthy Jr., and Martin Wubben; Mississippi State, Mississippi

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DISCOVERY AND DEVELOPMENT OF NATURAL PRODUCT FOR PHARMACEUTICAL AND AGRICHEMICAL APPLICATIONS – Stephen Duke (P); University, Mississippi

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GENETIC IMPROVEMENT OF SUGARCANE BY CONVENTIONAL AND MOLECULAR APPROACHES – Thomas Tew (P), Anna Hale, Edward Richard Jr, Yong Bao Pan, and William White; Houma, Louisiana

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MOLECULAR ANALYSIS OF DEVELOPMENT TO IMPROVE COTTON FIBER – David Fang (P) and Hee Kim; New Orleans, Louisiana

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GENETIC AND GENOMIC APPROACHES TO IMPROVE PEANUT AND CORN RESISTANCE TO DISEASE AND AFLATOXIN CONTAMINATION – Baozhu Guo (P) and Brian Scully; Tifton, Georgia

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DEVELOPMENT OF IMPROVED PEANUT GERMPLASM AND RESISTANCE TO DISEASE AND NEMATODE PESTS – C. Holbrook Jr (P); Tifton, Georgia

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GENETIC IMPROVEMENT OF MAIZE AND PEARL MILLET FOR RESISTANCE TO INSECTS AND AFLATOXIN – Jeffrey Wilson (P), C Holbrooke Jr., and Xinzhi Ni; Tifton, Georgia

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PHYSIOLOGICAL MECHANISMS THAT DETERMINE CROP RESPONSE TO IRRIGATION, DISEASE, AND PRODUCTION PRACTICES – Charles Chen (P), Marshall Lamb, and Phat Dang; Dawson, Georgia

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CONSERVATION, CHARACTERIZATION, AND EVALUATION OF CROP GENETIC RESOURCES AND ASSOCIATED INFORMATION – Gary Pederson (P), Ming Wang, John Morris, Roy Pittman, Melanie Harrison Dunn, and Robert Jarret; Griffin, Georgia

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FUNCTIONAL GENOMICS OF AGRONOMIC TRAITS IN DEVELOPING SEED AND POLLEN IN MAIZE AND SORGHUM – Prem Chourey (P), Alisa Huffaker, and Peter Teal; Gainesville, Florida

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ENHANCEMENT OF SUGARCANE GERMPLASM FOR DEVELOPMENT OF CULTIVARS AND SUSTAINABLE PRODUCTION – Barry Glaz (P), Neil Glynn, Duli Zhao, and Serge Edme; Canal Point, Florida

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DEVELOPMENT OF AN INTERNATIONAL MARKER ASSISTED SELECTION PROGRAM FOR CACAO – Raymond Schnell (P) and David Kuhn; Miami, Florida

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CONSERVATION, CHARACTERIZATION, AND GENETIC IMPROVEMENT OF SUBTROPICAL AND TROPICAL ORNAMENTAL GERMPLASM – Alan Meerow (P) and Tomas Ayala Silva; Miami, Florida

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CONSERVATION AND UTILIZATION OF SUBTROPICAL/TROPICAL FRUIT CROPS, SUGARCANE, AND TRIPSACUM GENETIC RESOURCES – Raymond Schnell (P), David Kuhn, and Tomas Ayala Silva; Miami, Florida

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GENETIC RESOURCE MANAGEMENT OF TROPICAL/SUBTROPICAL GENETIC RESOURCES AND ASSOCIATED INFORMATION – Brain Irish (P) and Ricardo Goenaga; Mayagüez, Puerto Rico

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PHYSIOLOGICAL/BIOCHEMICAL MECHANISMS ASSOCIATED WITH GENETIC ALTERATION OF SOYBEAN QUALITY AND PRODUCTIVITY – Robert Upchurch (P), Earl Taliercio, Thomas Carter Jr., and Joseph Burton; Raleigh, North Carolina

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USING GENETIC DIVERSITY OF IMPROVE QUANTITATIVE DISEASE RESISTANCE AND AGRONOMIC TRAITS OF CORN – James Holland (P) and Peter Balint Kurti; Raleigh, North Carolina

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EVALUATION AND IMPROVEMENT OF CEREAL GERMPLASM FOR DISEASE RESISTANCE AND WINTER-HARDINESS – Gina Brown Guedira (P), Christina Cowger, David Marshall, and David Livingstone; Raleigh, North Carolina

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GENETIC AND CULTURAL PRACTICE IMPROVEMENT FOR SUSTAINABLE COTTON PRODUCTION – Philip Bauer (P) and Benjamin Campbell; Florence, South Carolina

Campbell, B.T., Saha, S., Jenkins, J.N., Park, W., Percy, R.G., Frelichowski, J.E., Mayee, C., Gotmare, V., Dessauw, D., Giband, M., Du, X., Jia, Y., Constable, G., Dillon, S., Abdurakhmonov, I.Y., Abdukarimov, A., Rizaeva, S.M., Adullaev, A.A., Barroso, P.V., Padua, J.G., Hoffman, L.V., Podolnaya, L. 2010. Status of the global cotton germplasm resources. Crop Science. 50:1161-1179.
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GENETIC IMPROVEMENT OF SOUTHERNPEAS AND PEPPERS – Richard Fery (P); Charleston, South Carolina

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GENETICS AND GENETIC IMPROVEMENT OF DISEASE RESISTANCE AND QUALITY TRAITS IN WATERMELON, BROCCOLI, AND LEAFY GREEN BRASSICAS – Mark Farnham (P) and Amnon Levi; Chaleston, South Carolina

Farnham, M.W. 2010. Glossy and Nonglossy Near-isogenic Lines USVL115-GL, USVL115-NG, USVL188-GL and USVL188-NG of Broccoli Derived from Doubled Haploids. HortScience. 45:660-662.
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APPENDIX 3

National Program 301
Plant Genetic Resources, Genomics, and Genetics Improvement

ACCOMPLISHMENT REPORT 2006 – 2011

ARS Variety and Germplasm Public Releases*

545 Total Releases

Cucurbits (11 Releases)
Fiber Crops (41 Releases)
Floriculture and Nursery Crops (25 Releases)
Forage Crops (46 Releases)
Grain Crops (128 Releases)
Legumes (47 Releases)
Oil Crops (65 Releases)
Small Fruit Crops (29 Releases)
Sugar Crops (52 Releases)
Tree Fruits (28 Releases)
Tree Nuts (4 Releases)
Vegetables (69 Releases)

CUCURBITS (11 Releases)

Cucumber: EOM 402-10 High B-Carotene Cucumber, released by ARS scientists in Logan, Utah, FY 2011

Cucumber: European Long Greenhouse Cucumber Inbred Backcross Line Population, released by ARS scientists in Logan, Utah, FY 2011

Cucumber: USDA, ARS Beit Alpha Cucumber Inbred Backcross Line Population, released by ARS scientists in Logan, Utah, FY 2011

Cucumber: USDA, ARS Cucumis Hystrix-Derived U.S. Processing Cucumber Inbred Backcross Line Population, released by ARS scientists in Logan, Utah, FY 2011

Melon: USDA 846-1 Fractal Melon, released by ARS scientists in Logan, Utah, FY 2010

Watermelon: PI 525088-PMR: A Watermelon Line Useful for Introducing Race 1 Powdery Mildew Resistance into Watermelon Lines, released by ARS scientists in Lane, Oklahoma, FY 2006

Watermelon: USVL-220, Watermelon, released by ARS scientists in Charleston, South Carolina, FY 2006

Watermelon: LSW-177, Watermelon, released by ARS scientists in Lane, Oklahoma, FY 2007

Watermelon: LSW-194, Watermelon, released by ARS scientists in Lane, Oklahoma, FY 2007

Watermelon: MSW-28, Watermelon, released by ARS scientists in Lane, Oklahoma, FY 2007

Watermelon: USVL-230 Watermelon, released by ARS scientists in Charleston, South Carolina, FY 2009

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

FIBER CROPS (41 Releases)

Cotton: SJ-U86, one upland cotton germplasm line, released by ARS scientists in Shafter, California, FY 2006

Cotton: NMRIL recombinant inbred line population of upland cotton, released by ARS scientists in Maricopa, Arizona, FY 2006

Cotton: MS-01RKN, MS-24RKN, MS-30RKN, MS-33RKN, MS-35RKN, and MS-37RKN, root-knot nematode resistant upland cotton germplasm lines, released by ARS scientists in Mississippi State, Mississippi, FY 2006

Cotton: Lonren-1, Cotton, released by ARS scientists in College Station, Texas, FY 2007

Cotton: Lonren-2, Cotton, released by ARS scientists in College Station, Texas, FY 2007

Cotton: RMUP-C5, Random Mated Population of Upland Cotton Germplasm, released by ARS scientists in Mississippi State, Mississippi, FY 2007

Cotton: PD 98066 and PD 99035, Cotton, released by ARS scientists in Florence, South Carolina, FY 2007

Cotton: SJ-07P-FR01, SJ-07P-FR02,SJ-07P-FR03, and SJ-07P-FR04, released by ARS scientists in Shafter, California, FY 2007

Cotton: SP156, SP177, SP179, SP205, SP225, released by ARS scientists in Stoneville, Mississippi, FY 2008

Cotton: PSI 425 and PSI 113 Pima Cotton, released by ARS scientists in College Station, Texas, FY 2008

Cotton: JC Cotton, released by ARS scientists in Stoneville, Mississippi, FY 2009

Cotton: SCM3-4-3, SCM3-7-3, RM3-8-1, EM4-3-1,Cotton, released by ARS scientists in Stoneville, Mississippi, FY 2009

Cotton: CRB 252 Upland Cotton, released by ARS scientists in College Station, Texas, FY 2009

Cotton: GVS1, GVS2, GVS3, GVS4, GVS5, Upland Cotton, released by ARS scientists in Stoneville, Mississippi, FY 2009

Cotton: MT2468 REN1, MT2468 REN2, and MT2468 REN3, released by ARS scientists in Mississippi State, Mississippi, FY 2009

Cotton: MD9NE, MD25, Cotton, released by ARS scientists in Stoneville, Mississippi, FY 2010

Cotton: GA 120R1B3 Germplasm Line of Cotton, released by ARS scientists in Tifton, Georgia, FY 2010

FLORICULTURE AND NURSERY CROPS (25 Releases)

Beautyberry: Duet, Beautyberry, released by ARS scientists in Washington, DC, FY 2006

Black Chokeberry: McKenzie, released by ARS scientists in Bismarck, North Dakota, FY 2008

Camellia: Anacostia, Camellia, released by ARS scientists in Washington, DC, FY 2010

Chinese Hibiscus: USS Arizona, Chinese Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2010

Chinese Hibiscus: USS California, Chinese Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2010

Damiana: Luisa, Damiana, released by ARS scientists in Miami, Florida, FY 2011

Fringe Flower: Snow Panda, Fringe Flower, released by ARS scientists in Washington, DC, FY 2011

Hackberry: Prairie Harvest, released by ARS scientists in Bismarck, North Dakota, FY 2009

Halberd-Leaved Rose Mallow: Lufkin White, Halberd-Leaved Rose Mallow, Ornamental Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2011

Halberd-Leaved Rose Mallow: Lufkin Red Hibiscus, Halberd-Leaved Rose Mallow, Ornamental Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2011

Hibiscus: Sahara Sunset Red Leaf Hibiscus, released by ARS scientists in Poplarville, Mississippi, FY 2008

Japanese Snowbell: Japanese Snowbell (NA 71587) 'Spring Showers,' released by ARS scientists in McMinnville, Tennessee, FY 2010

Lilac: Old Glory, Lilac, released by ARS scientists in Washington, DC, FY 2006

Lilac: Declaration, Lilac, released by ARS scientists in Washington, DC, FY 2006

Oakleaf Hydrangea: Ruby Slippers, Oakleaf Hydrangea, released by ARS scientists in McMinnville, Tennessee, FY 2010

Oakleaf Hydrangea: Muchkin, Oakleaf Hydrangea, released by ARS scientists in McMinnville, Tennessee, FY 2010

'Ohelo Berry: Nene (N06-6) 'Ohelo Berry, released by ARS scientists in, Hilo, Hawaii, FY 2008

'Ohelo Berry: Kilauea (N06-7) 'Ohelo Berry, released by ARS scientists in Hilo, Hawaii, FY 2008

'Ohelo Berry: Red Button (N06-9) 'Ohelo Berry, released by ARS scientists in Hilo, Hawaii, FY 2008

Ornamental Ginger: Ramata, Ornamental Ginger, released by ARS scientists in Poplarville, Mississippi, FY 2010

Petunia: USNA-76202, Petunia, released by ARS scientists in Washington, DC, FY 2007

Tecoma: Tangelo, Tecoma, released by ARS scientists in Miami, Florida, FY 2008

Tecoma: Miami Sunrise, Tecoma, released by ARS scientists in Miami, Florida, FY 2008

Tecoma: Miami Sunset, Tecoma, released by ARS scientists in Miami, Florida, FY 2008

Viburnum: Nantucket, released by ARS scientists in Washington, DC, FY 2008

FORAGE CROPS (43 Releases)

Alfalfa: IAFAL-C3, Yellow Flowered Alfalfa, released by ARS scientists in Madison, Wisconsin, FY 2007

Alfalfa: Falcata, Alfalfa, released by ARS scientists in Logan, Utah, FY 2008

Bahiagrass: Tifquik, Bahiagrass germplasm, released by ARS scientists in Tifton, Georgia, FY 2006

Bahiagrass: T18 and T23, Bahiagrass, released by ARS scientists in Tifton, Georgia, FY 2007

Basalt Milkvetch: NBR-1 Germplasm, released by ARS scientists in Logan, Utah, FY 2008

Basin Wildrye: Continental, Basin Wildrye, released by ARS scientists in Logan, Utah, FY 2008

Birdsfoot Trefoil: Witt, Birdsfoot Trefoil, released by ARS scientists in Madison, Wisconsin, FY 2007

Bottlebrush Squirreltail: Rattlesnake Germplasm, released by ARS scientists in Logan, Utah, FY 2006

Bottlebrush Squirreltail: Antelope Creek, Bottlebrush Squirreltail, released by ARS scientists in Logan, Utah, FY 2009

Bottlebrush Squirreltail: Pleasant Valley, Bottlebrush Squirreltail, released by ARS scientists in Logan, Utah, FY 2009

Crested Wheatgrass: Hycrest II, Crested Wheatgrass, released by ARS scientists in Logan, Utah, FY 2008

Crested Wheatgrass: Vavilov II, Crested Wheatgrass, released by ARS scientists in Logan, Utah, FY 2008

Dallisgrass: Sabine Dallisgrass, released by ARS scientists in College Station, Texas, FY 2008

Eastern Gamagrass: Meadowcrest, released by ARS scientists in Woodward, Oklahoma, FY 2006

Forage Soybean: Greencastle Forage Soybean, released by ARS scientists in Beltsville, Maryland, FY 2008

Green Needlegrass: Fowler Germplasm, Green Needlegrass, released by ARS scientists in Logan, Utah, FY 2006

Hairy Vetch: Purple Bounty, Hairy Vetch, released by ARS scientists in Beltsville, Maryland, FY 2006

Hairy Vetch: Purple Prosperity, Hairy Vetch, released by ARS scientists in Beltsville, Maryland, FY 2008

Indian Ricegrass: White River Germplasm, released by ARS scientists in Logan, Utah, FY 2006

Indiangrass: Warrior Indiangrass, released by ARS scientists in Lincoln, Nebraska, FY 2008

Indiangrass: Scout Indiangrass, released by ARS scientists in Lincoln, Nebraska, FY 2008

Indiangrass: Chief Indiangrass, released by ARS scientists in Lincoln, Nebraska, FY 2008

Kura Clover: Kura1, Kura Clover, released by ARS scientists in Madison, Wisconsin, FY 2006

Ryegrass: Floregon Italian Ryegrass (Lolium multiflorum) with resistance to Crown Rust, released by ARS scientists in Corvallis, Oregon, FY 2006

Shattercane: N614, A3N615, N616, N617, Shattercane, released by ARS scientists in Lincoln, Nebraska, FY 2011

Snake River Wheatgrass: Discovery, Snake River Wheatgrass, released by ARS scientists in Logan, Utah, FY 2008

Switchgrass: Bomaster, Switchgrass, released by ARS scientists in Raleigh, North Carolina, FY 2006

Switchgrass: Performer, Switchgrass, released by ARS scientists in Raleigh, North Carolina, FY 2006

Switchgrass: Tem-Lodorm, Switchgrass, released by ARS scientists in College Station, Texas, FY 2007

Switchgrass: Colony, released by ARS scientists in Raleigh, North Carolina, FY 2009

Switchgrass: ALB280 and ALB5B, Switchgrass, released by ARS scientists in Albany, California, FY 2010

Western Prairie Clover: Majestic Germplasm, released by ARS scientists in Logan, Utah, FY 2010

Western Prairie Clover: Spectrum Germplasm, released by ARS scientists in Logan, Utah, FY 2010

Wheatgrass: Slender Wheatgrass (Firststrike), released by ARS scientists in Logan, Utah, FY 2006

Wheatgrass: DGE-1, Durum / Wheatgrass Disomic Addition Line, released by ARS scientists in Fargo, North Dakota, FY 2006

Wheatgrass: Manifest Intermediate Wheatgrass, released by ARS scientists in Fort Collins, Colorado, FY 2007

Wheatgrass: Recovery Western Wheatgrass, released by ARS scientists in Logan, Utah, FY 2009

Wildrye: Homestead Canada Wildrye, released by ARS scientists in Lincoln, Nebraska, FY 2006

GRAIN CROPS (131 Releases)

Barley: Sidney and Stoneham, Russian Wheat Aphid-Resistant Two-Rowed Drought Hardy Spring Feed Barley Varieties, released by ARS scientists in Stillwater, Oklahoma, FY 2006

Barley: Herald Barley, released by ARS scientists in Aberdeen, Idaho, FY 2006

Barley: STARS 0601B, STARS 0602B, STARS 0603B, STARS 0604B, STARS 0605B, STARS 0606B, STARS 0607B, STARS 0608B, STARS 0609B, STARS 0610B, STARS 0611B, STARS 0612B, STARS 0613B, STARS 0614B, STARS 0615B, STARS 0616B, STARS 0617B, STARS 0618B, and STARS 0619B, nineteen spring, 6-rowed, malting barley germplasm, released by ARS scientists in Stillwater, Oklahoma, FY 2006

Barley: STARS 0620B, STARS 0621B, STARS 0622B, STARS 0623B, STARS 0624B, STARS 0625B, STARS 0626B, STARS 0627B, STARS 0628B, STARS 0629B, STARS 0630B, STARS 0631B, STARS 0632B, STARS 0633B, STARS 0634B, STARS 0635B, and STARS 0636B seventeen spring, 2-rowed, malting barley germplasm, released by ARS scientists in Stillwater, Oklahoma, FY 2006

Barley: STARS 0637B, STARS 0638B, STARS 0639B, STARS 0640B, STARS 0641B, STARS 0642B, and STARS 0643B, seven spring, 2-rowed, feed barley germplasm, released by ARS scientists in Stillwater, Oklahoma, FY 2006

Barley: Tetonia, Barley, released by ARS scientists in Aberdeen, Idaho, FY 2007

Barley: A Set of Four Low-Phytate and Wild Type Sib Pairs, released by ARS scientists in Aberdeen, Idaho, FY 2007

Barley: 95SR316A Barley, released by ARS scientists in Aberdeen, Idaho, FY 2007

Barley: RWA 1758, released by ARS scientists in Aberdeen, Idaho, FY 2007

Barley: Clearwater, released by ARS scientists in Aberdeen, Idaho, FY 2007

Barley: Lenetah, released by ARS scientists in Aberdeen, Idaho, FY 2008

Barley: Endeavor Barley, released by ARS scientists in Aberdeen, Idaho, FY 2009

Barley: LP1-2581; LP640-1304; LP3-1159; LP1-2163H, Barley, released by ARS scientists in Aberdeen, Idaho, FY 2010

Barley: 03AH3054-51, Barley, released by ARS scientists in Aberdeen, Idaho, FY 2010

Barley: 03AH6561-94, Barley, released by ARS scientists in Aberdeen, Idaho, FY 2010

Barley: STARS 1006B, STARS 1007B, STARS 1008B, STARS 1009B, STARS 1010B, STARS 1011B, STARS 1012B, and STARS 1013B, eight winter, six-rowed, feed barley (Hordeum vulgare L.) germplasm lines, released by ARS scientists in Stillwater, Oklahoma, FY 2010

Corn: CRW3(S1)C6, released by ARS scientists in Columbia, Missouri, FY 2007

Corn: TZAR101, 102, 103, 104, 105, 105, Corn, released by ARS scientists in New Orleans, Louisiana, FY 2008

Corn: MP 718 and MP 719, released by ARS scientists in Mississippi State, Mississippi, FY 2011

Hop: Teamaker, Hop, released by ARS scientists in Corvallis, Oregon, FY 2006

Hop: Kazak 2000, Hop, released by ARS scientists in Corvallis, Oregon, FY 2008

Hop: Mt. Rainier, Hop, released by ARS scientists in Corvallis, Oregon, FY 2009

Rice: Indica-14 and -15 Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2006

Rice: Indica-16,-17,-18 Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2007

Rice: M-202/IR50 (MI) Recombinant Inbred Mapping Populations, released by ARS scientists in Davis, CA, FY 2006

Rice: TIL:455, Rice, released by ARS scientists in Beaumont, Texas, FY 2006

Rice: TIL:514, Rice, released by ARS scientists in Beaumont, Texas, FY 2006

Rice: TIL:642, Rice, released by ARS scientists in Beaumont, Texas, FY 2006

Rice: RU9101001/KATY, released by ARS scientists in Stuttgart, Arkansas, FY 2007

Rice: Deletion Mutant Population of Katy Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2007

Rice: Presidio Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2008

Rice: Deltabelle Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2009

Rice: Rondo Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2009

Rice: JES Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2009

Rice: RIL103, Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2010

Rice: RIL158, Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2010

Rice: RIL186, Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2010

Rice: RIL220, Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2010

Rice: RIL221, Rice, released by ARS scientists in Stuttgart, Arkansas, FY 2010

Rice: M-105, Rice Cultivar, released by ARS scientists in Davis, California, FY 2011

Sorghum: Sorghum Genetic Stocks: BN611, A/BN612, RN613, released by ARS scientists in Lincoln, Nebraska, FY 2007

Spring Oat: Maverick, Spring Oat, released by ARS scientists in Aberdeen, Idaho, FY 2006

Spring Oat: Monico, Spring Oat, released by ARS scientists in Aberdeen, Idaho, FY 2006

Waxy Proso Millet: Plateau, released by ARS scientists in Lincoln, Nebraska, FY 2009

Wheat: ARS15144 and ARS14142, Hard Red Winter Wheat, released by ARS scientists in Pullman, Washington, FY 2008

Wheat: Appalachian White, Wheat,released by ARS scientists in Raleigh, North Carolina, FY 2009

Wheat: Camelot, Winter Wheat, released by ARS scientists in Lincoln, Nebraska, FY 2008

Wheat: Cara, Wheat, released by ARS scientists in Pullman, Washington, FY 2008

Wheat: Centerfield, Wheat, released by ARS scientists in Stillwater, Oklahoma, FY 2007

Wheat: Duster, Wheat, released by ARS scientists in Stillwater, Oklahoma, FY 2007

Wheat: Hard Kernel Puroindoline Allele Near-Isogenic Line (NIL), released by ARS scientists in Pullman, Washington, FY 2007

Wheat: Mace Hard Red Winter Wheat Cultivar, released by ARS scientists in Lincoln, Nebraska, FY 2008

Wheat: NE01481, Hard Red Winter Wheat, released by ARS scientists in Lincoln, Nebraska, FY 2010

Wheat: NE01643, Hard Red Winter Wheat, released by ARS scientists in Lincoln, Nebraska, FY 2007

Wheat: NH03614 CL, Winter Wheat, released by ARS scientists in Lincoln, Nebraska, FY 2008

Wheat: NI04421, Hard Red Winter Wheat, released by ARS scientists in Lincoln, Nebraska, FY 2010

Wheat: Anton Hard White Winter Wheat Cultivar, released by ARS scientists in Lincoln, Nebraska, FY 2008

Wheat: Oregon Feed Wheat #5, Winter Wheat, released by ARS scientists in Pullman, Washington, FY 2008

Wheat: Stars 0601W Wheat, released by ARS scientists in Stillwater, Oklahoma, FY 2007

Wheat: WQL7CENTL; WQL7CENTH; WQL8AWSL; WQL8DAWSH, Wheat Genetic Stocks, released by ARS scientists in Pullman, Washington, FY 2010

Wheat: Nueast, Wheat, released by ARS scientists in Raleigh, North Carolina, FY 2009

Wheat: Waxy-Pen, Wheat, released by ARS scientists in Pullman, Washington, FY 2006

LEGUMES (47 Releases)

Black Bean: TARS-MST1 and SB-DT1, Multiple-Stress Tolerant Black Bean Germplasm, released by ARS scientists in Mayaguez, Puerto Rico, FY 2011

Chickpea: Dylan, released by ARS scientists in Pullman, Washington, FY 2006

Chickpea: Sawyer Chickpea, released by ARS scientists in Pullman, Washington, FY 2008

Chickpea: CA0469C025C, Chickpea, released by ARS scientists in Pullman, Washington, FY 2010

Common Bean: ABC Weihing, Common Bacterial Blight, Rust and Mosaic Resistant, Semi-Upright, High Seed Quality Great Northern Bean Germplasm Line, released by ARS scientists in Lincoln, Nebraska, FY 2007

Common Bean: Verano Common Bean, released by ARS scientists in Mayaguez, Puerto Rico, FY 2008

Common Bean: NE1-06-12 Great Northern Common Bean, released by ARS scientists in Lincoln, Nebraska, FY 2008

Common Bean: Badillo, Common Bean, released by ARS scientists in Mayaguez, Puerto Rico, FY 2009

Common Bean: TARS-HT1 and TARS-HT2 Common Bean Germplasm Lines, released by ARS scientists in Mayaguez, Puerto Rico, FY 2010

Common Bean: PR0401-259 and PR0650-31, released by ARS scientists in Mayaguez, Puerto Rico, FY 2011

Common Bean: TARS MST1, TARS-MST2, TARS-MST3 and SB-DT1, released by ARS scientists in Mayaguez, Puerto Rico, FY 2010

Common Bean/Dry Bean: USPT-CBB-5 and USPT-CBB-6,released by ARS scientists in Prosser, Washington, FY 2006

Cowpea: Zippercream-GC, Southernpea (Cowea), released by ARS scientists in Charleston, South Carolina, FY 2008

Cowpea: Whiteacre-DG, SouthernPea (Cowpea), released by ARS scientists in Charleston, South Carolina, FY 2008

Cowpea: US11-36, US11-37, and US11-38, Cowpea, released by ARS scientists in Charleston, South Carolina, FY 2009

Dry Bean: USWK-CBB-17, released by ARS scientists in Prosser, Washington, FY 2006

Dry Bean: BD1003 Cranberry Dry Bean, released by ARS scientists in Prosser, Washington, FY 2008

Dry Bean: USCR-CBB-20 Dry Bean-Cranberry Market Class, released by ARS scientists in Prosser, Washington, FY 2008

Dry Pea: Spector, Dry Pea, released by ARS scientists in Pullman, Washington, FY 2006

Kidney Bean: Silver Cloud White Kidney Bean, released by ARS scientists in Prosser, Washington, FY 2006

Lentil: Riveland, Lentil, released by ARS scientists in Albany, California, FY 2007

Lentil: Cedar, Lentil, released by ARS scientists in Pullman, Washington, FY 2008

Lentil: Shasta, Lentil, released by ARS scientists in Pullman, Washington, FY 2008

Lentil: Essex, Lentil released by ARS scientists in Pullman, Washington, FY 2009

Lentil: Morena, Spanish Brown Type Lentil, released by ARS scientists in Pullman, Washington, FY 2010

Pea: Medora, released by ARS scientists in Pullman, Washington, FY 2006

Pea: Windham, released by ARS scientists in Pullman, Washington, FY 2006

Pea: RIL 846-34, RIL 846-40, RIL 847-36, released by ARS scientists in Pullman, Washington, FY 2007

Pea: 00-5001, 00-5003, 00-5004, 00-5005, 00-5006 and 00-5007 Fusarium Wilt and Root Rot Resistant Green Pea Breeding Lines, released by ARS scientists in Prosser, Washington, FY 2010

Pinto Bean: Quincy, Pinto Bean, released by ARS scientists in Prosser, Washington, FY 2006

Southernpea: Greenpack-DG, Southernpea, released by ARS scientists in Charleston, South Carolina, FY 2006

OIL CROPS (65 Releases)

Lesquerella: WCL-L03, released by ARS scientists in Maricopa, Arizona, FY 2006

Peanut: C724-19-15, Peanut, released by ARS scientists in, Tifton, Georgia, FY 2007

Peanut: TIFGP-1, Peanut, released by ARS scientists in Tifton, Georgia, FY 2007

Peanut: Georganic, Peanut, released by ARS scientists in Tifton, Georgia, FY 2007

Peanut: GS-CRSP15, Peanut, released by ARS scientists in Griffin, Georgia, FY 2008

Peanut: Red River Runner Peanut, released by ARS scientists in Lubbock, Texas, FY 2009

Peanut: C724-19-25, Peanut, released by ARS scientists in Tifton, Georgia, FY 2010

Safflower: WSRC01, WSRC02, WSRC03, Safflower, released by ARS scientists in Pullman, Washington, FY 2007

Soybean: Minimax Soybean, released by ARS scientists in Beltsville, Maryland, FY 2006

Soybean: DS4-SCN05, released by ARS scientists in Stoneville, Mississippi, FY 2006

Soybean: Nitrasoy Soybean, released by ARS scientists in Raleigh, North Carolina, FY 2006

Soybean: Stout-RPS1K, Soybean, released by ARS scientists in Wooster, Ohio, FY 2006

Soybean: Prohio, Soybean, released by ARS scientists in Wooster, Ohio, FY 2006

Soybean: S01-9364 and S01-9391 Soybean Germplasm lines Resistant to Soybean Cyst Nematode and Seed Oil Low in Linolenic, released by ARS scientists in Columbia, Missouri, FY 2007

Soybean: HC99-2763, released by ARS scientists in Wooster, Ohio, FY 2007

Soybean: Wooster, Soybean, released by ARS scientists in Wooster, Ohio, FY 2007

Soybean: Glycine, Soybean, released by ARS scientists in Raleigh, North Carolina, FY 2007

Soybean: N8001, Soybean, released by ARS scientists in Raleigh, North Carolina, FY 2007

Soybean: Barc-19, Soybean, released by ARS scientists in Beltsville, Maryland, FY 2008

Soybean: N8101, Soybean, released by ARS scientists in Raleigh, North Carolina, FY 2008

Soybean: Triple Null Soybean, released by ARS scientists in Columbia, Missouri, FY 2009

Soybean: LG-04-6863, released by ARS scientists in Urbana, Illinois, FY 2009

Soybean: N6202, Soybean, released by ARS scientists in Raleigh, North Carolina, FY 2009

Soybean: SB-01, Soybean, released by ARS scientists in Columbia, Missouri, FY 2010

Soybean: DS-880, Soybean, released by ARS scientists in Stoneville, Mississippi, FY 2010

Soybean: LG00-6925, Soybean, released by ARS scientists in Urbana, Illinois, FY 2010

Soybean: LG04-6000, Soybean, released by ARS scientists in Urbana, Illinois, FY 2010

Soybean: N7003CN, Soybean Cultivar, released by ARS scientists in Raleigh, North Carolina, FY 2010

Sunflower: RS3, Sunflower Germplasm, released by ARS scientists in Fargo, North Dakota, FY 2006

Sunflower: RHA 461, RHA 462, RHA 463, RHA 464, Sunflower, released by ARS scientists in Fargo, North Dakota, FY 2006

Sunflower: HA 465, HA 466, HA 467, RHA 468, Sunflower, released by ARS scientists in Fargo, North Dakota, FY 2006

Sunflower: HA 458, HA 459, HA 460, Sunflower, released by ARS scientists in Fargo, North Dakota, FY 2006

Sunflower: HA 469, RHA 470, RHA 471, Sunflower, released by ARS scientists in Fargo, North Dakota, FY 2007

Sunflower: CONFSCLB1, CONFSCLB2, and CONFSCLR1 to CONFSCLR6, released by ARS scientists in, Fargo, North Dakota, FY 2007

Sunflower: TOCOB1, TOCOR1, TOCOR2 Sunflower, released by ARS scientists in Fargo, North Dakota, FY 2008

Sunflower: RS5, Sunflower, released by ARS scientists in Fargo, North Dakota, FY 2010

Sunflower: RHA 472, RHA 473, RHA 474, RHA 475, Oilseed Sunflower, released by ARS scientists in Fargo, North Dakota, FY 2011

Vernonia: WCL-VP1, Vernonia, released by ARS scientists in Maricopa, Arizona, FY 2006

Vernonia: WCL-VP2, Vernonia, released by ARS scientists in Maricopa, Arizona, FY 2007

Vernonia: WCL-VP3, Vernonia, released by ARS scientists in Maricopa, Arizona, FY 2007

SMALL FRUIT CROPS (29 Releases)

Blackberry: Wild Treasure Thornless Trailing Blackberry, released by ARS scientists in Corvallis, Oregon, FY 2006

Blackberry: Newberry Trailing Blackberry, released by ARS scientists in Corvallis, Oregon, FY 2009

Blackberry: Onyx Blackberry, released by ARS scientists in Corvallis, Oregon, FY 2010

Blueberry: Blue Suede Blueberry Cultivar, released by ARS scientists in Griffin, Georgia, FY 2008

Blueberry: Earlibirdblue, Southern Highbrush Blueberry, released by ARS scientists in Poplarville, Mississippi, FY 2011

Blueberry: Prince Rabbiteye Blueberry, released by ARS scientists in Poplarville, Mississippi, FY 2008

Blueberry: TH-605, released by ARS scientists in Washington, DC, FY 2009

Blueberry: Pearl Blueberry, released by ARS scientists in Poplarville, Mississippi, FY 2010

Blueberry: Sweetheart Blueberry, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: Razz, Highbush Blueberry Cultivar, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: TH-681, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: TH-743, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: TH-754, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: TH-759, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: TH-761, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: TH-763, released by ARS scientists in Beltsville, Maryland, FY 2010

Blueberry: Summer Sunset, Blueberry, released by ARS scientists in Beltsville, Maryland, FY 2011

Gooseberry: Jeanne, Gooseberry Cultivar, released by ARS scientists in Corvallis, Oregon, FY 2007

Grape: Dwarf Grapevine, released by ARS scientists in Geneva, New York, FY 2006

Grape: Eudora, Muscadine Grape, released by ARS scientists in Poplarville, Mississippi, FY 2007

Grape: Sunglo, Raisin Grape Cultivar, released by ARS scientists in Parlier, California, FY 2010

Grape: Scout, Hybrid Grape Cultivar, released by ARS scientists in Geneva, New York, FY 2010

Grape: Matador, Grape, released by ARS scientists in Geneva, New York, FY 2010

Grape: Kingfisher, Grape, released by ARS scientists in Geneva, New York, FY 2010

Grape: Minotaur, Grape, released by ARS scientists in Geneva, New York, FY 2010

Grape: F10, Grape, released by ARS scientists in Parlier, California, FY 2011

Raspberry: Vintage Red Raspberry, released by ARS scientists in Corvallis, Oregon, FY 2011

Strawberry: Stolo Strawberry, released by ARS scientists in Corvallis, Oregon, FY 2007

Strawberry: Valley Red Strawberry, released by ARS scientists in Corvallis, Oregon, FY 2009

SUGAR CROPS (52 Releases)

Sugarbeet: EL53 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2006

Sugarbeet: FC723, Sugarbeet Line, released by ARS scientists in Fort Collins, Colorado, FY 2006

Sugarbeet: FC723 CMS, Sugarbeet Line, released by ARS scientists in Fort Collins, Colorado, FY 2006

Sugarbeet: EL-X1 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2006

Sugarbeet: EL-X2 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2006

Sugarbeet: EL-X3 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2006

Sugarbeet: EL-X4 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2006

Sugarbeet: FC7221 Sugarbeet, released by ARS scientists in Fort Collins, Colorado, FY 2008

Sugarbeet: FC7220 Sugarbeet, released by ARS scientists in Fort Collins, Colorado, FY 2008

Sugarbeet: C812-41 and C812-41CMS Sugarbeet Beta, released by ARS scientists in Salinas, California, FY 2008

Sugarbeet: EL54 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2008

Sugarbeet: F1017, F1018, F1019, F1020, F1021, F1022, F1023, released by ARS scientists in Fargo, North Dakota, FY 2009

Sugarbeet: EL55 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2009

Sugarbeet: SR98 Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2009

Sugarbeet: CN12-446, CN12-770, and CN72-652, Sugarbeet, released by ARS scientists in Salinas, California, FY 2009

Sugarbeet: FC1018, Sugarbeet, released by ARS scientists in Fort Collins, Colorado, FY 2009

Sugarbeet: FC1019, Sugarbeet, released by ARS scientists in Fort Collins, Colorado, FY 2009

Sugarbeet: FC1020, Sugarbeet, released by ARS scientists in Fort Collins, Colorado, FY 2009

Sugarbeet: FC1022, Sugarbeet, released by ARS scientists in Fort Collins, Colorado, FY 2009

Sugarbeet: F1024, Sugarbeet, released by ARS scientists in Fargo, North Dakota, FY 2010

Sugarbeet: SR98/2, Sugarbeet, released by ARS scientists in East Lansing, Michigan, FY 2011

Sugarbeet: F1025, F1026, and F1027, released by ARS scientists in Fargo, North Dakota, FY 2011

Sugarcane: HOCP 00-950 Sugarcane Cultivar, released by ARS scientists in Houma, Louisiana, FY 2007

Sugarcane: HOCP 91-552, released by ARS scientists in Houma, Louisiana, FY 2007

Sugarcane: HO 00-961, Sugarcane, released by ARS scientists in Houma, Louisiana, FY 2007

Sugarcane: L 79-1002, High Fiber Sugarcane Variety, released by ARS scientists in St. Gabriel, Louisiana, FY 2007

Sugarcane: CP 00-1101, released by ARS scientists in Canal Point, Florida, FY 2007

Sugarcane: CP 00-1446, released by ARS scientists in Canal Point, Florida, FY 2007

Sugarcane: CP 00-2180, released by ARS scientists in Canal Point, Florida, FY 2007

Sugarcane: CP 88-1165, released by ARS scientists in Canal Point, Florida, FY 2007

Sugarcane: CP 01-1372 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2008

Sugarcane: CPCL 97-2730 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2008

Sugarcane: CPCL 99-4455 Sugarcane, released by ARS scientists in Canal Point, Florida, FY 2009

Sugarcane: CP 03-1912, Sugarcane Cultivar, released by ARS scientists in Canal Point, Florida, FY 2010

Sugarcane: CPCL 00-4111, Sugarcane Cultivar, released by ARS scientists in Canal Point, Florida, FY 2010

Sugarcane: CPCL 02-0926, released by ARS scientists in Canal Point, Florida, FY 2011

Sugarcane: CPCL 02-1295, released by ARS scientists in Canal Point, Florida, FY 2011

Sugarcane: CPCL 95-2287, released by ARS scientists in Canal Point, Florida, FY 2011

Sugarcane: CP 04-1935, released by ARS scientists in Canal Point, Florida, FY 2011

Sugarcane: CP 04-1844, released by ARS scientists in Canal Point, Florida, FY 2011

Sugarcane: CP 04-1566, released by ARS scientists in Canal Point, Florida, FY 2011

TREE FRUITS (28 Releases)

Apple: G.778, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.890, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.214, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.222, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.707, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.87, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.969, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.210, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apple: G.179, Apple, released by ARS scientists in Geneva, New York, FY 2010

Apricot: Bolaroja, Apricot, released by ARS scientists in Parlier, California, FY 2007

Apricot: Primarosa, Apricot, released by ARS scientists in Parlier, California, FY 2007

Apricot: TWOCOT, Apricot, released by ARS scientists in Parlier, California, FY 2011

Citrus Rootstock: US-897, released by ARS scientists in Fort Pierce, Florida, FY 2006

Citrus Rootstock: US-802, released by ARS scientists in Fort Pierce, Florida, FY 2006

Citrus Rootstock: US-942, released by ARS scientists in Fort Pierce, Florida, FY 2010

Mandarin: U.S. Early Pride, released by ARS scientists in Fort Pierce, Florida, FY 2009

Orange: US Seedless Pineapple Orange, released by ARS scientists in Fort Pierce, Florida, FY 2009

Peach: August Prince, Peach, released by ARS scientists in Byron, Georgia, FY 2006

Peach: Early August, Peach, released by ARS scientists in Byron, Georgia, FY 2006

Peach: Gulfcrimson (AP01-7), Peach, released by ARS scientists in Byron, Georgia, FY 2007

Peach: HB X OK '10', released by ARS scientists in Davis, California, FY 2009

Peach: HB X OK '32', released by ARS scientists in Davis, California, FY 2009

Peach: KV981175 Peach, released by ARS scientists in Kearneysville, West Virginia, FY 2009

Peach: KV00398, released by ARS scientists in Kearneysville, West Virginia, FY 2009

Peach: HBOK 50, Peach Rootstock, released by ARS scientists in Parlier, California, FY 2010

Pear: Sunrise, Pear Cultivar, with Superior Resistance to Fire Blight and Excellent Fruit Quality, released by ARS scientists in Kearneysville, West Virginia, FY 2006

Plum: Sharpe (FLA1-1), Plum, released by ARS scientists in Byron, Georgia, FY 2007

Plum: Orablue Plum, released by ARS scientists in Kearneysville, West Virginia,FY 2010

TREE NUTS (4 Releases)

Pecan: Lakota, Pecan, released by ARS scientists in College Station, Texas, FY 2007

Pecan: Mandan Pecan, released by ARS scientists in College Station, Texas, FY 2009

Pecan: Apalachee Pecan, released by ARS scientists in College Station, Texas, FY 2009

Pecan: Lipan, Pecan, released by ARS scientists in College Station, Texas, FY 2011

VEGETABLES (69 Releases)

Broccoli: USVL089, Broccoli, released by ARS scientists in Charleston, South Carolina, FY 2006

Broccoli: USVL115-GL, USVL115-NG, USVL188-GL, USVL188-NG, Broccoli, released by ARS scientists in Charleston, South Carolina, FY 2008

Carrot: B1111, Carrot, released by ARS scientists in Madison, Wisconsin, FY 2007

Lettuce: Lines 04-0344, 04-0350, 04-0353, 04-0363, 04-0368, 04-0375, and 04-0379, seven breeding lines of crisphead lettuce, released by ARS scientists in Salinas, California, FY 2006

Lettuce: RH05-0336, RH05-0339, and RH05-0340, F9 iceberg type lettuce breeding lines with resistance to Verticillium wilt, released by ARS scientists in Salinas, California, FY 2007

Lettuce: MU06-857, released by ARS scientists in Salinas, California, FY 2008

Lettuce: RH04-0157-3, a BLS resistant F4:5 breeding line, released by ARS scientists in Salinas, California, FY 2008

Lettuce: RH07-0370M, RH07-0373M, RH07-0379M, RH07-0380M, RH07-0386M, and RH07-0387M, six F6:8 breeding lines selected from RH04-0157-3 for improved horticultural characteristics, released by ARS scientists in Salinas, California, FY 2008

Lettuce: MU06-859 Lettuce, released by ARS scientists in Salinas, California, FY 2008

Lettuce: 06-831-1 and 06-833-1 Lettuce, released by ARS scientists in Salinas, California, FY 2009

Lettuce: 06-810-1 Lettuce, released by ARS scientists in Salinas, California, FY 2009

Lettuce: SM09A and SM09B Lettuce, released by ARS scientists in Salinas, California, FY 2010

Lettuce: RH08-0472 and RH08-0475, Lettuce, released by ARS scientists in Salinas, California, FY 2011

Onion: OH-1, released by ARS scientists in Madison, Wisconsin, FY 2007

Onion: SKI-1 A&B, released by ARS scientists in Madison, Wisconsin, FY 2007

Onion: B8667 A&B, released by ARS scientists in Madison, Wisconsin, FY 2007

Pepper: 05C113-7, Pepper, released by ARS scientists in Washington, DC, FY 2007

Pepper: 05C69-12, Pepper, released by ARS scientists in Washington, DC, FY 2007

Pepper: 05C37-3, Pepper, released by ARS scientists in Washington, DC, FY 2007

Pepper: 06C84, Pepper, released by ARS scientists in Washington, DC, FY 2007

Pepper: 05C104-4, Pepper, released by ARS scientists in Washington, DC, FY 2007

Pepper: Numex Las Cruces, Cayenne Pepper, released by ARS scientists in Kimberly, Idaho, FY 2011

Pepper: PA-559, Habanero-Type Pepper, released by ARS scientists in Charleston, South Carolina, FY 2008

Pepper: PA-560, Habanero-Type Pepper, released by ARS scientists in Charleston, South Carolina, FY 2009

Pepper: PA-566, Pimento-Type Pepper, released by ARS scientists in Charleston, South Carolina, FY 2010

Pepper: Tigerpaw-NR, Habanero-Type Pepper, released by ARS scientists in Charleston, South Carolina, FY 2006

Pepper: Truhart-NR, Pimento-Type Pepper, released by ARS scientists in Charleston, South Carolina, FY 2009

Potato: Blazer Russet, Potato, released by ARS scientists in Aberdeen, Idaho, FY 2006

Potato: Peter Wilcox, Potato, released by ARS scientists in Beltsville, Maryland, FY 2007

Potato: Premier Russet, Potato, A93157-6LS, released by ARS scientists in Aberdeen, Idaho, FY 2007

Potato: Highland, A9045-7, Potato released by ARS scientists in Aberdeen, Idaho, FY 2007

Potato: Yukon Gem, NDA5507-3Y, Potato, released by ARS scientists in Aberdeen, Idaho, FY 2007

Potato: A84180-8, released by ARS scientists in Aberdeen, Idaho, FY 2008

Potato: A88338-1, released by ARS scientists in Aberdeen, Idaho, FY 2008

Potato: Classic Russet, Potato, released by ARS scientists in Aberdeen, Idaho, FY 2009

Potato: Clearwater Russet, Potato, released by ARS scientists in Aberdeen, Idaho, FY 2009

Potato: Alpine Russett, released by ARS scientists in Aberdeen, Idaho, FY 2009

Potato: M1,M2,M3,M4,and M5 Advanced Selections, Potato, released by ARS scientists in Madison, Wisconsin, FY 2011

Spinach: 03-04-9, Spinach Breeding Line, released by ARS scientists in Salinas, California, FY 2006

Spinach: 03-04-63, Spinach Breeding Line, released by ARS scientists in Salinas, California, FY 2007

Sweet Potato: Charleston Scarlet, released by ARS scientists in Charleston, South Carolina, FY 2006

Sweet Potato: W-311 and W-361, Multiple Pest-Resistant Orange-Fleshed Sweet Potoato Breeding Lines, released by ARS scientists in Charleston, South Carolina, FY 2007

Sweet Potato: W-315 and W-388, Sweet Potato, released by ARS scientists in Charleston, South Carolina, FY 2007

Table Beet: TBEL1, released by ARS scientists in East Lansing, Michigan, FY 2006

APPENDIX 4

National Program 301
Plant Genetic Resources, Genomics, and Genetics Improvement

ACCOMPLISHMENT REPORT 2006 – 2011

Selected Supporting Information and Documentation for Accomplishments and Impact of NP 301 Research

RELATIONSHIP OF NATIONAL PROGRAM 301 TO THE ARS STRATEGIC PLAN:

Outputs of NP 301 research support the actionable strategies associated with the performance measure shown below from the *ARS Strategic Plan for 2006- 2011*, Strategic Goal 2, Enhance the Competitiveness and Sustainability of Rural and Farm Economies; Objective 2.2: *Increase The Efficiency Of Domestic Agricultural Production And Marketing Systems*.

> **Performance Measure 2.2.3:** Expand, maintain, and protect our genetic resource base, increase our knowledge of genes, genomes, and biological processes, and provide economically and environmentally sound technologies that will improve the production efficiency, health, and value of the Nation's crops.
>
> **Target**: New technologies developed and used by ARS customers to increase production efficiency and enhance the economic value and quality of U.S. crop production while decreasing the environmental footprint of production systems.

PLANNING AND COORDINATION – SELECTED NP 301 WORKSHOPS AND STAKEHOLDER GATHERINGS:

- NP 301 Customer and Stakeholder Workshop, Baltimore, Maryland, November 2005.
- Plant Germplasm Operations Committee Annual Meetings, Beltsville, Maryland, 2006-2011.
- National Plant Germplasm Committee Annual Meetings, 2006-2011.
- 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 29-31, 2007.
- Potato Expo Research Brainstorming Session, Orlando, Florida, January 6, 2010.
- ARS – Industry Sugarbeet Meeting, Orlando, Florida, February 24, 2009.
- National HLB/ACP Research Coordination Launching Workshop, Washington, D.C., December 2 – 3, 2009.
- Citrus Strategic Research Planning Meeting, Beltsville, Maryland, March 2-3, 2010.
- Citrus Health Research Forum, Denver, Colorado, June 16-18, 2010.
- National Clean Plant Network Stakeholder Workshops; Riverdale, Maryland, May 8-9, 2007, and Davis, California, May 11-13, 2010.

- Pulse Health Initiative Workshop- Planning Meeting, Beltsville, Maryland, November 18, 2009.
- National Vegetable Crop Initiative (NVCI) strategic planning workshop, Denver, Colorado, May 12-13, 2008.
- USDA National Institute of Food and Agriculture (NIFA) Customer Workshop, Washington, D.C., April 2010.
- Crop Germplasm Committee Chairs Biennial Meetings, various locations, 2006, 2008, and 2010.
- GRIN-Global Project Technical Steering Group Meetings, Beltsville, Maryland and Ames, Iowa, 2008, 2009, 2010.
- World Cocoa Foundation-ARS Research Roundtables, quarterly, various locations, 2006-2011.
- Mars-ARS Cocoa Research Initiative Planning Workshop, 2006.
- Mars-ARS Cocoa Research Review, 2008.
- U. S.-Mexico-Canada NORGEN Genetic Resources Annual Meetings, 2007-2011.
- American Seed Research Summit (ARS co-organized), 2008.
- ARS Pacific Basin Agricultural Research Center Customer/Stakeholder Workshop, Hilo, Hawaii, 2008.

EXTERNAL AWARDS:

Peer-reviewed research grants and stakeholder awards are a useful indicator of the quality and value of the NP 301 program. From 2006 to 2011, NP 301 National Program scientists were awarded 555 grants and awards that complemented and enhanced the objectives of the NP 301 Action Plan. As you can see from Table 1 below, the largest portion of the external funding sources were from industry (47.7 percent) – evidence that the research is valued by stakeholders. University grants were the second largest number, and usually involved cooperative research projects jointly conducted with university partners. ARS scientists were also successful in competing outright for grants from other Federal sources (80 in all).

External Grant Sources of Funding for National Program 301 Projects - 2006-2011

UNIVERSITY	GOVERNMENT							INTERNATIONAL	INDUSTRY	MISC
	APHIS	ENERGY	FAS	FS	NIFA	OTHER FEDERAL	STATE/ LOCAL			
147	7	5	10	5	46	7	15	27	265	21

Table 1. Peer-reviewed research grants and awards given to NP 301 project scientists from 2006-2011.

SCIENTIST TRAINING:

The training and preparing of young scientists for careers in agriculture is critical for sustaining our modern society. Table 2 shows that from 2006-2011 NP 301 National Program scientists trained and mentored more than 2,000 postdoctoral fellows and graduate and undergraduate students. Together, the external research grants and awards, and the training of young scientists are important measures of the leadership and community stewardship that NP 301 research leaders and scientists are contributing to agriculture and related sciences.

	Postdoctoral Fellows	Graduate Students	Undergraduate Students
Total	302	394	1,400

Table 2. Students trained by NP 301 research leaders and scientists from 2006-2011.