

A scenic landscape photograph of a green valley. In the foreground, there are green bushes and some dry, golden-brown grass. The middle ground features a large, vibrant green field with a small red barn and a few scattered trees. In the background, there are rugged, rocky mountains under a blue sky with light clouds. The overall scene is bright and clear.

Western Society of Crop Science • Western Society of Soil Science

2009 Joint Annual Meetings June 22-24, Fort Collins, CO

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Monday, June 22, 2009

SESSION NO. 3

3:00–4:45 PM

Registration 7:30 AM–4:00 PM

Registration Desk 2nd Floor Lory Student Center

Presiding: Kierra Jewell

General Program

SESSION NO. 1 9:00 AM–12:00 PM

WSSS & WSCS Plenary Session

West Ballroom, Lory Student Center, CSU

Presiding: Mark Brick, Raj Khasla

- 9:00 **Introductory Remarks.**
- 9:10 **Opportunities for Crop and Soil Science in a Flat World.** Paul Fixen*, International Plant Nutrition Institute
- 9:40 **Sustaining Crop Production with Alternatives to Synthetic Fertilizers.** William R. Horwath*, University of California, Davis
- 10:10 **Break.**
- 10:40 **Breeding for Biomedical Traits, a New Facet in Contemporary Crop Improvement.** Henry J. Thompson*, Colorado State University
- 11:10 **Developing Camelia as a Crop and Fuel.** Duane Johnson*, Montana State University.
- 11:40 **Discussion.**

SESSION NO. 2 1:10 PM–3:00 PM

Soils and Agricultural Systems

Room 214-216, Lory Student Center, CSU

Presiding: R. Khosla

- 1:10 **Introductory Remarks.**
- 1:15 **Application of the Precision Agricultural Landscape Modeling System in Semiarid Environments.** John Nelson*¹, Robert J. Lascano² and Jon D. Booker¹, (1)Texas Tech University, (2)USDA-ARS Cropping Systems Research Laboratory
- 1:30 **Precision Manure Management On Site-Specific Management Zones: Surface Soil Quality and Environmental Impact.** Matshwene Moshia*¹, Raj Khosla¹, J.G. Davis¹, D.G. Westfall¹, R. Reich² and Kathy Doesken², (1)Colorado State Univ., (2)Colorado State University
- 1:45 **Effect of Seeding and Nitrogen Rates On Limited Irrigated Corn and Forage Sorghum Yield and Nutritive Value.** Mark Marsalis*, Sangu Angadi and Francisco Contreras-Govea, New Mexico State Univ.
- 2:00 **Evaluation of Best Management Practices (BMP's) to Protect Groundwater Quality in Goshen County, Wyoming.** Christopher R. Wenzel*, Eastern Wyoming College
- 2:15 **Potential Winter Annual Legumes for Crop-Livestock Cropping Systems.** Chengci Chen*¹, David Buschena¹, Clain Jones¹, James Krall² and Roy Latta³, (1)Montana State Univ., (2)Torrington Res. & Ext. Ctr., (3)Mallee Research Station
- 2:30 **Break.**

Crop Breeding and Genetics

Room 214-216, Lory Student Center, CSU

Presiding: Leonard Panella

- 3:00 **Introductory Remarks.**
- 3:05 **QTL Detection for Bread Making Quality Traits in a Doubled Haploid Winter Wheat Population.** Walid El-Feki*, Patrick Byrne, Scott Reid, Nora Lapitan and Scott Haley, Colorado State University
- 3:20 **Molecular Markers Associated with Fusarium Wilt Resistance in Common Bean.** David S. Favero*, Patrick Byrne, Mark A. Brick, Scott Reid, Jay Kalous, J. Barry Ogg and Austin Case, Colorado State University
- 3:35 **Metabolomic Profiling of Rice to Assess Benefits to Human Nutrition & Health.** Adam L. Heuberger*, Rebecca Davidson, Jan Leach, Henry Thompson, Mark Brick and Elizabeth Ryan, Colorado State University
- 3:50 **Virus-Induced Gene Silencing for RWA Resistance in Wheat.** Victoria A. Valdez*, Nora L.V. Lapitan, Scott D. Haley, Frank B. Peairs and Leon van Eck, Colorado State University
- 4:05 **Assessing the Risk of Transgenic Drought Tolerant Wheat in the Great Plains.** Bethany Econopouly, Harold Meimberg, Scott Reid, John McKay, Patrick Byrne and Phil Westra*, Colorado State University
- 4:20 **Drag and Pleiotropy Among Hawaii's 137 near-Isogenic Lines of Tropical Corn Inbred Hi27.** James Brewbaker*, University of Hawaii
- 4:35 **Discussion.**

Tuesday, June 23, 2009

SESSION NO. 4

9:00–10:30 AM

Cereal Crops

Room 214-216, Lory Student Center, CSU

Presiding: Mark Brick

- 9:00 **Introductory Remarks.**
- 9:05 **Utilization of Common Cereal Straws by Livestock.** Lindsey A. Voigt*, Rachel Endecott, Dennis Cash, Phil Bruckner and John Paterson, Montana State University
- 9:20 **Spring Grazing Winter Cereals in Montana.** S. Dennis Cash*¹, Aimee Hafla², Lisa Surber¹, Andrew W. Lenssen³, John Paterson¹ and Alison Todd¹, (1)Montana State University, (2)Texas A&M, (3)USDA-ARS
- 9:35 **Agronomic and Fiber Characterization of Low Phytic Acid Barley.** Mackenzie T. Ellison*¹, Thomas Koehler¹, Jianli Chen², Leland Sorensen², Shulin Chen³ and Robert Zemetra¹, (1)University of Idaho, (2)University of Idaho Research and Extension Center, (3)Washington State University
- 9:50 **Discussion.**
- 10:00 **Break.**

Highlight indicates student presentations.

SESSION NO. 5

10:30 AM–1:00 PM

Biofuels, Biomass and Crop Systems

Room 214-216, Lory Student Center, CSU

Presiding: Patrick Byrne

- 10:30 **Introductory Remarks.**
- 10:35 **Evaluation of Selected Commonly-Grown Perennial Warm-Season Grasses for Cellulosic Biofuel Feedstock Quality Potential in the Rio Grande Basin – Southern High Plains – Pecos River Watershed Agro-Ecoregion.** Leonard M. Lauriault*, New Mexico State University
- 10:50 **Wheat Production Meetings and Tours.** Robert N. Klein*, University of Nebraska-Lincoln
- 11:05 **Adaptation of Fall Sown Medic, Pea, Vetch, and Lentil to the 2007-2009 Climate of the High Plains of Wyoming.** Christopher Loehr*, Jerry Nachtman, Jack Cecil, Steve Paisley and James Krall, University of Wyoming
- 11:20 **Oil Profile, a Critical Trait for Engine Performance Using Biofuel.** Jean-Nicolas Enjalbert*, Colorado State University and Syndi Nettles-Anderson, Colorado State University
- 11:35 **Physiology and Biomass Productivity of Diverse Amaranth Biotypes.** Sangu Angadi*¹, Leonard Lauriault¹, Mark Marsalis¹, Janakiraman Maruthavanan², Tracy Sterling² and David Brenner³, (1)New Mexico State Univ., (2)New Mexico State University, (3)Iowa State University
- 11:50 **Discussion.**
- 12:00 **Lunch on your own.**

SESSION NO. 6

1:00 PM-5:00 PM

Crop & Soil Posters Authors Present 1:00-3:00 PM

Cherokee Park Ballroom, Lory Student Center, CSU

Presidings: R. Khosla; Mark Brick

- 1 **Warming-Enhanced Soil Inorganic N Availability May Alleviate Progressive N Limitation Under Elevated CO₂ in a Semi-Arid Grassland.** Feike A. Dijkstra*¹, Dana Blumenthal¹, Jack A. Morgan¹, Elise Pendall², J. Megan Steinweg³, Matthew D. Wallenstein³ and Ronald F. Follett¹, (1) USDA-ARS, (2)Univ. of Wyoming, (3)Natural Resource Ecology Lab.
- 2 **Precision Manure Management On Site-Specific Management Zones: Nitrogen Mineralization.** Matshwene Moshia*¹, Raj Khosla¹, D.G. Westfall¹, J.G. Davis¹ and R. Reich², (1)Colorado State Univ., (2)Colorado State University
- 3 **Modeling Salt Redistribution in Response to Deep Sub-surface Drip Irrigation.** Carleton Bern*, U.S. Geological Survey
- 4 **Evaluation of Brassica Juncea, Camelina Sativa, and Brassica Carinata in Colorado Environments.** Shusong Zheng*¹, Jean-Nicolas Enjalbert¹, Patrick Byrne¹ and Jerry Johnson², (1)Colorado State University, (2)Colorado State Univ.
- 5 **Short Periods of Heat and Water Stress at Flowering On Yield Formation of Green Bean Varieties.** Sangu Angadi*¹, Sultan Begna¹, Mark Marsalis¹ and Russ Wallace², (1)New Mexico State Univ., (2)Texas AgriLife Extension Service
- 6 **Plot-Scale Modeling of Full and Limited Irrigation of Corn in Northern Colorado.** Kendall C. DeJonge*¹, Allan A. Andales², James C. Ascough II³ and Neil Hansen², (1)Colorado State University, (2)Colorado State Univ., (3) USDA-ARS, NPA ASRU

- 7 **The Effect of Organic Annual Forages Grown in Rotation with Winter Vegetables On Soil Quality.** Daniel A. Goldhamer*¹, F.H. Stonaker², Joe Brummer², Mayssoon Mikha³, Matt R. Booher¹ and Jessica G. Davis¹, (1)Colorado State University, (2)Colorado State Univ., (3)USDA-ARS
- 8 **Soil Carbon Fractionation Under Perennial Forage.** Dwi P. Widiastuti*¹, Jessica G. Davis¹, Mayssoon M. Mikha², Matthew R. Booher¹ and Joe E. Brummer¹, (1)Colorado State University, (2)USDA
- 9 **Small Grain Crops in the Great Plains of Wyoming May Have a Potential Asannual Forages.** Anowarul Islam¹, Malay C. Saha², Jack Cecil*¹ and Jerry Nachtman¹, (1)University of Wyoming, (2)Samuel Roberts Noble Foundation
- 10 **Plant Breeding for Drought Tolerance: A New Field-Oriented Short Course.** Pat Byrne*¹, John McKay¹, Bjorn Martin² and P. Stephen Baenziger³, (1)Colorado State University, (2)Oklahoma State University, (3)University of Nebraska
- 11 **Nitrogen Mineralization Under An Organically-Grown Perennial Forage Mix of Cool Season Grasses.** Tunsisa T. Hurisso*, Jessica G. Davis, Joe E. Brummer and Matt R. Booher, Colorado State University
- 12 **Corn (zea maize) Response to Limited Irrigation Management.** Robert Pearson*, Troy Bauder and Neil Hansen, Colorado State Univ.
- 13 **CSU Winter Wheat Drought Tolerance Research Program.** Marc Moragues*, Pat Byrne and Scott Haley, Colorado State University
- 14 **Decision Support System for Selection of Best Energy and Machinery Management Practices.** Jaskarn Mahal*¹, Pawan Gupta¹, Rohit Sharma¹ and Balwinder Panesar², (1) Punjab Agricultural University, (2)SCS Engineers
- 15 **Effects of a Single Surface Application of Raw Manure, Composted Manure and Urea After Two Years On Physical Properties of Soil Sampled Under An Established Stand of Mixed Cool-Season Grasses Grown Under Irrigation.** Katherine C. Doesken*, Katherine C. Doesken and Jessica G. Davis, Colorado State University
- 16 **Evaluation of the Bare Soil Line From Reflectance Measurements On Seven Dissimilar Soils.** Stephan Maas and Nithya Rajan*, Texas Tech University

Refreshments will be served from 3:00 to 3:30.

SESSION NO. 7

3:30 PM–8:30 PM

Awards Ceremony, Business Meeting, and Barbecue Dinner

Cherokee Park Ballroom, Lory Student Center, CSU

Presidings: R. Khosla; Mark Brick

- 3:30 **Awards Ceremony.**
- 4:00 **Joint Business Meeting of WSSS & WSCS.**
- 5:00 **Adjourn.**
- 6:00 **Barbecue Dinner – Montfort Quad**

Wednesday, June 24, 2009

SESSION NO. 8 TOUR

9:00 AM–11:00 AM

National Center for Genetic Resource Preservation

National Center for Genetic Resources Preservation

Presidings: Leonard Panella; Mark Brick

Western Society of Crop Science • Western Society of Soil Science

Joint Plenary Session, June 23, 8:30 AM–12:00 PM

Opportunities for Crop and Soil Science in a Flat World, Paul Fixen



Paul Fixen is Senior Vice President of the International Plant Nutrition Institute where his primary responsibilities are coordination of the Institute's programs in the Americas and serving as director of the Institute's research efforts. His technical focus has been in the area of nutrient management and how soil fertility and fertilizer use fit into the overall scheme of crop production systems and the environment. Dr. Fixen is a Fellow in the American Society of Agronomy, the Soil Science Society of America, the American Association for the Advancement of Science, and the Fluid Fertilizer Foundation.

Sustaining Crop Production with Alternatives to Synthetic Fertilizers, William R. Horwath



Dr. Horwath is the Vice Chair of the Dept. of Land air and Water Resources and the J. G. Boswell Endowed Chair in Soil Science and Professor of Soil Biogeochemistry. Dr. Horwath's research emphasizes the biogeochemistry of agricultural and natural systems. His research programs deal with plant nutrient use efficiency, agriculture impacts on greenhouse gas emissions, and agricultural impacts on water quality. In his studies on plant nutrients, he emphasizes the role nutrient sources and of soil organic matter in affecting the efficiency of fertilizer uptake by crops. Dr. Horwath has extensive experience working in rice systems. He has written and published over 100 journal articles in the areas of soil sustainability, soil carbon dynamics, forest soils and the environment.

Breeding for Biomedical Traits, a New Facet in Contemporary Crop Improvement, Henry Thompson



Henry Thompson worked in the field human nutrition for over 30 years. During that time his lab has been involved in the development and evaluation of retinoids, selenium compounds, polyamine anti-metabolites, and cancer prevention diets using model systems. Dr. Thompson joined the faculty of Colorado State University in January 2003 and established the Cancer Prevention Laboratory (CPL) in the College of Agricultural Sciences. Dr. Thompson believes that plant breeders and biomedical scientists must work together to establish the link between human health and health beneficial characteristics of staple crops. Since establishing the Cancer Prevention Laboratory, he has determined that the diet can influence chronic disease incidence and biomarkers for chronic disease in dry beans, potato and rice, and his data support the hypothesis that staple crop varieties differ for their health protective ability.

Developing Camelina as a Crop and a Fuel, Duane Johnson



Dr. Duane Johnson is the Vice President for Agricultural Development for the Camelina Company, Bigfork, Montana. He began work on new crops and value-added products more than 30 years ago. He developed canola-based, four-stroke motor oils, then worked on improving functional properties of vegetable oils in lubricant applications. His research has led to the development of new, alternative crops such as quinoa, bluecorn, edamame soybean, canola, gluten free cereals (Indian Ricegrass, Timothy and Oats), and extended to horse-care products, and currently in bio-based energy products such as biodiesel from camelina. His recent research has focused on camelina as a source of low cost oil to replace petroleum diesel with Great Plains, the Camelina Company.