Technical Sessions

Technical sessions are organized by **date**, then start & end **time**, and then **section/division**. Sessions organized by section/division are on pages 69-102 and include a session number. You can then use the session number to find details in this main part of the technical program.

Saturday, Nov. 9

SESSION NO. 1—1:00 PM–5:00 PM

Henry B. Gonzalez Convention Center, 221CD, 2nd Floor

Graduate Student Leadership Conference -Saturday

Graduate Student Sessions

SESSION NO. 2—7:30 PM–9:00 PM

Henry B. Gonzalez Convention Center, 221AB, 2nd Level

Presidents' Trophy Competition

Undergraduate (SASES) Sessions

SESSION NO. 3—9:00 PM–10:00 PM

Henry B. Gonzalez Convention Center, 221AB, 2nd Level

SASES Business Meeting

Undergraduate (SASES) Sessions

SESSION NO. 4—10:00 PM–10:30 PM

Henry B. Gonzalez Convention Center, 221AB, 2nd Level

SASES Delegate Training

Undergraduate (SASES) Sessions

Sunday, Nov. 10

SESSION NO. 5—7:30 AM–2:00 PM

Henry B. Gonzalez Convention Center, 221CD, 2nd Floor

Graduate Student Leadership Conference - Sunday

Graduate Student Sessions

SESSION NO. 6—10:45 AM–12:15 PM

Henry B. Gonzalez Convention Center, North/Main Lobby, 1st Level

SASES Club Poster Contest

Undergraduate (SASES) Sessions

Experience Agronomy Event at Iowa State University Jarrett Stoner*, Wyatt Westfall and Austin Knight
Analysis of Key Soil Nutrients and Physical Properties on a Managed Grazing Operation in Junction City, WI Lindsey Laskowski*, Caleb Armstrong, Ella Aspenson, Laurel Deitch, Andre Doucette, Klayton Kree, Nick Rainey, Teresa Wolf, Robert C. Michitsch, Jacob Prater and Bryant Scharenbroch
Fundraising for the Future Hailey Humphreys*, Lucy Adamson and Andrew Morris
Manure Compost at the University of Wisconsin-Platteville Shannon Lamb* and bailey hermanson
Growing a Community through School Gardening Megan Owens*
Creating a Community for Agronomists of the Future Paul Skillin* and Tad Trimarco
Experience Agronomy Day Chad Lammers*, Aaron Doxon and Katie Steffen
Educating about Agronomy through Hands-on Learning Kelley Roberts* and Brittany Meyer
Texas a&M Club Poster Ryan Rakowitz* and Sarah Marsh

SESSION NO. 7—12:30 PM–3:00 PM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

Fundamental Changes in Soil Taxonomy Oral

SSSA Division: Pedology

Moderator: H. Curtis Monger

	12:30 PM	**Introductory Remarks**
7-1	12:35 PM	**A Wet Soil Order in Soil Taxonomy** Mark Stolt*
7-2	12:50 PM	**Explaining the Rationale behind the New Soil Order in Soil Taxonomy** John M. Galbraith*
7-3	1:05 PM	**Technogenic Soils and Wet Soils - a WRB Point of View to the Suggestions for New Orders in Soil Taxonomy** Peter Schad*
7-4	1:20 PM	**A Review of Gelisol and Gelic Suborder Criteria in Preparation for 21st century Taxonomic Change in Permafrost-Affected Soils** Nicolas A. Jelinski*
7-5	1:35 PM	**Forest Soil Classification for Optimizing Management** Rachel L. Cook* and Tom Fox
	1:50 PM	**Break**
7-6	2:00 PM	**An Automated Classification of Soils According to WRB** Peter Schad* and Einar Eberhardt

7-7	2:15 PM	**Characterization of Gelolls in Northern Alaska, USA** Autumn Acree*, David C. Weindorf, John M. Galbraith, Nic Jelinski and Laura Paulette
7-8	2:30 PM	**Towards Harmonising the South African and Brazilian Soil Classification Systems with the World Reference Base** Cornie van Huyssteen* and Lucia Anjos
7-9	2:45 PM	**Coastal Wetland Soils from Brazil** Tiago O. Ferreira*, Xosé Luis Otero, Gabriel Nuto Nóbrega, Diego Barcellos, Lucas R. Sartor, Hermano Melo Queiroz, Antônia Gislaine Brito Marques Albuquerque, Danilo Jefferson Romero and Valdomiro Severino Souza Jr.
	3:00 PM	**Adjourn**

SESSION NO. 8—12:30 PM–3:15 PM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

SASES Undergraduate Research Contest - Oral Session I

Undergraduate (SASES) Sessions

	12:30 PM	**Introductory Remarks**
8-1	12:35 PM	**Effects of Using Cover CROPS in a Cannabis sativa Production System** Carl Snyder*
8-2	12:50 PM	**The Effect of Crop Water Stress on Plant Growth and Tuber Yield for Chipping Potatoes** Haley M Traves*
8-3	1:05 PM	**Effectiveness of the Smallholder Sustainability Assessment of Food and Agricultural Systems App for Subsistence Farm Systems in Ecuador** Carter David Allred*
8-4	1:20 PM	**Validating the Predictive Ability of a Marker at the RMES1 Locus in Grain Sorghum for Resistance to Sugarcane Aphid.** Noah Winans*, Geoff Morris, Terry Felderhoff, Kebede Muleta and Scott Armstrong
8-5	1:35 PM	**Using Spectral Analysis to Evaluate Fungicide Effects in Wheat** Derek Lenzen* and Veronica L Justen
	1:50 PM	**Break**
8-6	2:05 PM	**Establishing an on-Farm Model to Build Soil Health and Productivity and Sustain Local Food Production Systems in West Texas.** Bryanna Edwards*, David C. Weindorf, Sanjit K Deb, Noura Bakr, Veronica Acosta-Martinez and Lindsey C. Slaughter
8-7	2:20 PM	**Getting the Most for Your Money When Selecting Cotton Seed Varieties** Bryce Macdonald*, Steve Hague, Dean McCorkle and John Robinson
8-8	2:35 PM	**Evaluating Management Practices on Winter Kill of Alfalfa** Molly McIlquham*
8-9	2:50 PM	**Exploration and Analysis of Arabidopsis thaliana Root Hair Length in Natural Accessions** Brandon Tidwell* and Ana Paez
	3:05 PM	**Concluding Remarks**
	3:15 PM	**Adjourn**

SESSION NO. 9—12:30 PM–3:15 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

SASES Undergraduate Research Contest - Oral Session II

Undergraduate (SASES) Sessions

	12:30 PM	**Introductory Remarks**
9-1	12:35 PM	**Soil Adjuvant Effects on Herbicide and Fertilizer Retention in Soils** Melissa Preston*
9-2	12:50 PM	**Old Habits Causing New Problems: Lead Concentration in Soils at California Polytechnic State University San Luis Obispo** Julia Madsen*, Zoe Dascalos, Christopher S. Appel, Cristina Lascano and Craig Stubler
9-3	1:05 PM	**Response of Soil Methane Emissions to Legume Presence in Semi-Arid Pasture** Paxton Hughes*
9-4	1:20 PM	**Utilizing Alternative Fertilizers and Surface Residues to Determine Differences in Nitrogen Mineralization Rates** Ana Gabriela Mira* and Stephanie Kulesza
9-5	1:35 PM	**Decomposition in Pasture Soil Receiving Excreta from Ruminants Fed Forage Diets Supplemented with the Polyphenolic Compound Containing Legume Sericea Lespedeza** Yang Kai Tang*, Mary Cathleen Savin, Dirk Philipp, Ken Coffey and Jiangchao Zhao
	1:50 PM	**Break**
9-6	2:05 PM	**Evaluating Commercial Microbial Amendments for Cotton Production in the Texas High Plains** Hannah Decker*
9-7	2:20 PM	**Improving Radish Cover Crops for the Upper Midwest** Mitchell Hockbein*
9-8	2:35 PM	**Survey of Soil Health Characteristics and Native Plant Species to Rehabilitate the NASA Santa Susana Field Lab Site in Chatsworth, California** Erika Yao*
9-9	2:50 PM	**Quantification of *in-Situ* Flux of Nitrogen to Determine Efficacy of Wetland Plant Uptake** Srusti Maddala*, Mary Cathleen Savin, Lisa Wood and Julie A Stenken
	3:05 PM	**Concluding Remarks**
	3:15 PM	**Adjourn**

SESSION NO. 11—1:00 PM–2:50 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

Urban and Anthropogenic Soils General Oral

SSSA Division: Urban and Anthropogenic Soils

Moderator: Tara Trammell

	1:00 PM	**Introductory Remarks**
11-1	1:05 PM	**Assessing Soil Carbon Fractions in an Urban Environment** Tania Burgos Hernández*, Leonardo Deiss, M. Scott Demyan and Brian Slater
11-2	1:20 PM	**Contributions of Artifactual Materials to the Toxicity of Anthropogenic Soils and Street Dusts in a Highly Urbanized Terrain** Jeffrey Howard*
11-3	1:35 PM	**Roadside Retrofits to Absorb Runoff** Richard A. McLaughlin*, Joshua L. Heitman and shaddy alshrah

11-4	1:50 PM	**Soil Properties Impacting Chromium Cycling in Highly Contaminated Urban Sediments** Jason Fischel* and Donald L. Sparks
11-5	2:05 PM	**Weathering Rates of Domesticated Soils: Contributions to Heavy Metal Bio-Availability in Urban Ecosystems.** Ryan Taylor*
11-6	2:20 PM	**Remediation of a Highly Contaminated Urban Gardening Site** Anna Paltseva*, Zhongqi Cheng, Maha Deeb, Sara Perl Egendorf and Peter M. Groffman
11-7	2:35 PM	**Initial Trends in Ecosystem Service Metrics of Urban Agriculture in Minneapolis/St. Paul, MN** Jennifer A Nicklay*, K. Valentine Cadieux, Nicolas A. Jelinski, Kat LaBine, Mary Rogers and Gaston Small
	2:50 PM	**Adjourn**

SESSION NO. 12—1:10 PM–5:30 PM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

C-2 Graduate Student Oral (includes student competition)

C02 Crop Physiology and Metabolism

Moderator: Walid Sadok

	1:10 PM	**Introductory Remarks**
12-1	1:15 PM	**Effects of Drought Stress at Different Growth Stages on Source and Sink Interaction in Wheat** Jingya Yang*, Xi Liang and Rui Yang
12-2	1:30 PM	**Developing High Yielding Sorghum Hybrids with Early Season Chilling Tolerance** Troy Ostmeyer*, Ramasamy Perumal, Raju Bheemanahalli and S. V. Krishna Jagadish
12-3	1:45 PM	**Effects of Ploidy on Photosynthesis, Transpiration Efficiency, and Growth of Annual Ryegrass Under Variable Atmospheric Carbon Dioxide and Water Conditions** Jennifer Timmers*, John Erickson, Esteban F. Rios, Kevin E. Kenworthy, Jose C.B. Dubeux Jr. and Cheryl L Mackowiak
12-4	2:00 PM	**Carinata Growth and Yield Response to Nitrogen Rates** Mahesh Bashyal*, Michael J. Mulvaney, Dewey Lee, Ramon G Leon, Gabriel Maltais-Landry, Chris Wilson and John Erickson
12-5	2:15 PM	**High-Throughput Techniques to Estimate Leaf Area Index and Above Ground Biomass in Peanut (*Arachis hypogaea* L.).** Sayantan Sarkar*, Brice Cazenave, Joseph Oakes and Maria Balota
12-6	2:30 PM	**Drought Response and Yield Formation of Guar Under Different Water Regimes in the Southern High Plains** Jagdeep Singh*, Sangamesh Angadi, Sultan Begna, Dawn VanLeeuwen, John Idowu and Ivette Guzman
12-7	2:45 PM	**Physiological Behaviour of *Brassica Carinata* in Response to Different Plant Population Density Under Different Tillage Systems** Joseph Enye Iboyi*, Michael J. Mulvaney and Kipling S. Balkcom
12-8	3:00 PM	**Analysis of Priming-Induced Physiological Responses in Maize (*Zea mays*) Seedlings Using DNA Methylation, Proteomics and Metabolomics Approaches** Pawanjit Kaur Sandhu*, Bhupinder Jatana and Nishanth Tharayil
	3:15 PM	**Break**
12-9	3:30 PM	**Adventitious Root Development and Aerenchyma Formation Responds to Different Auxin Rates in Two Sugarcane Cultivars Grown Under Prolonged Waterlogged Condition** Jiraporn Bamrungrai*, Brenda Tubana, Marilyn Dalen, Anan Polthanee, arunee promkhambut, Jose Rodolfo Mite, Jayvee Cruz, Wooiklee Paye and Daniel Forestieri
12-10	3:45 PM	**Differential Response of Metabolites in *Sorghum Bicolor* as Influenced By Different Arbuscular Mycorrhizal Fungal Species** Sukhmanpreet Kaur* and Vidya Suseela
12-11	4:00 PM	**Sulfur Nutrition and Plant-Parasitic Nematodes Infection on *Brassica Carinata*** Theodor Stansly*, Ramdeo Seepaul, Zane Grabau, Ian M Small and David L. Wright
12-12	4:15 PM	**Maize Hybrid Nitrogen Efficiency Estimation Based on Remotely Sensed Hyperspectral Vegetation Indices** Monica B. Olson*, Melba Crawford and Tony J. Vyn
12-13	4:30 PM	**Early Non-Dehiscent Sesame Root Development Responses to Varying Soil Moisture and Nutrients Content** Romain M. Gloaguen*, Diane L. Rowland, Hyen Chung Chun, Joshua Peebles, Weihuang Xu, Alina Zare and Zachary T Brym
12-14	4:45 PM	**Tomato Rootstock Evaluation for Root Chill Tolerance and Plant Nutrient Content** Steven Bristow*, Felipe H Barrios-Masias and Leonardo Hernandez-Espinoza
12-15	5:00 PM	**Transcriptome Changes Associated with Differential Responses to Mid-Winter Warming Events in *Lolium Perenne*** Rachael Bernstein*, Michelle DaCosta, Jeffrey S. Ebdon, Geunhwa Jung, Eric Watkins and Li-Jun Ma
12-16	5:15 PM	**Characterizing Lipidomic and Physiological Changes in Peanut Under Heat Stress** Zolian Sang Zoong Lwe*, Sruthi Narayanan Kutty and Dan Anco
	5:30 PM	**Adjourn**

SESSION NO. 13—1:30 PM–2:50 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

Soil Education and Outreach General Oral

SSSA Division: Soil Education and Outreach

Moderator: Irfan Ainuddin

	1:30 PM	**Introductory Remarks**
13-1	1:35 PM	**Assessments - A Revolving Door for Increased Students' Learning** Ngowari Jaja*
13-2	1:50 PM	**Assessing the Impact and Adoption of an Open Source Soil Science Laboratory Manual** Colby J. Moorberg*
13-3	2:05 PM	**Expectations, Preparedness and Student Experiences in Plant and Soil Science Internships** Sergio Manacpo Abit* Jr., Joshua Maples and Glenn Arthur Garcia
13-4	2:20 PM	**Participatory Digital Soil Mapping for Central America: A Pedagogical and Administrative Approach** Minerva J. Dorantes*, Bryan Fuentes, Phillip R. Owens, Zamir Libohova and David Miller
13-5	2:35 PM	**Utilizing Multi-Institutional Soils Educational Workshops and Soil Judging As a Means Increasing Diversity in Soil Sciences.** Shad D. Nelson*, Scott Cardenas, Jonah Trevino, Greta Schuster, David Sotomayor, Krishnaswamy N. Jayachandran and Jose Espiritu
	2:50 PM	**Adjourn**

SESSION NO. 14—1:15 PM–2:50 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Soils and Environmental Quality General Oral I

SSSA Division: Soils and Environmental Quality

Moderator: Danielle Weissman

	1:15 PM	**Introductory Remarks**
14-1	1:20 PM	**Alternate Wetting and Drying Irrigation to Reduce Arsenic and Cadmium Levels in Rice** Daniela Carrijo*, Chongyang Li, Sanjai J. Parikh and Bruce Linquist
14-2	1:35 PM	**Hydropotash As a Soil Amendment for Decreasing Soluble Contents of Heavy Metal in Smelting Areas** Luiz-Roberto G Guilherme*, Paula Godinho Ribeiro, Matheus P Santos, Jean Michel P Souza, Osnar S Aragão, Pedro D Barbosa, Marcos Rodrigues, Juliana Hiromi Sato, Dennis Chen, Jennifer Le Blond and Marcelo A Oliveira
14-3	1:50 PM	**Fall and Spring Soil Residual Nitrate-N As Affected By Irrigation and Nitrogen Management** Bijesh Maharjan* and Xin Qiao
14-4	2:05 PM	**Effects of Agricultural Weathering on Degradation of Biodegradable Plastic Mulches** marife anunciado*
14-5	2:20 PM	**Effects of Soil Amendments on the Quality of Soil Remediated By Thermal Desorption** Yongmin Yi, Paul Schwab and Kijune Sung*
14-6	2:35 PM	**Spraying of Nitrification Inhibitor Prior to Grassland Cultivation for Nitrous Oxide Emission Mitigation** Khagendra Raj Baral*, Søren O Petersen and Poul E Lærke
	2:50 PM	**Adjourn**

SESSION NO. 15—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

Crop Ecology, Management and Quality Oral I

C03 Crop Ecology, Management and Quality

	1:30 PM	**Introductory Remarks**
15-1	1:35 PM	**Adjuvants May Contribute to Improved Efficacy of Fungicides for Controlling Foliar Disease in Wet Conditions** Mohamed F. Khan*, Ziaur Bhuiyan, Yangxi Liu, Ehsanul Haque and Peter Hakk
15-2	1:50 PM	**Screening of Emirates Date Palm Varieties for Environmental Stress Tolerance Using Physiological and Biochemical Indices** Mohammed Salem* and Karthishwaran Kandhan
15-3	2:05 PM	**Direct and Indirect Effects of Fungal Inoculants on Switchgrass Physiology in Drought and Well-Watered Conditions** Briana Whitaker* and Christine Hawkes
15-4	2:20 PM	**Varietal Effect on the Uptake and Partitioning of Cadmium in Cacao Seedlings: A First Approach.** Eduardo Chavez*, David Arguello, Eduardo Gutierrez, Tatiana Chavez and Luis Eduardo Sanchez
15-5	2:35 PM	**Double-Cropped Sunflower after Winter Camelina in the Northern Corn Belt** Russell W. Gesch*, Maninder K. Walia and Brent S. Hulke
15-6	2:50 PM	**Growth and Yield of Quinoa Affected By Row Spacing and Weed Competition** Xi Liang*, Rui Yang and Ramon Gonzalez
15-7	3:05 PM	**Architecture, Structure and Phenotypic Plasticity of Oat Panicles: Functional Relationships with Phenology and Groat Yield** Abdullah A. Jaradat*
	3:20 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 16—1:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

Soil Biology and Biochemistry General Oral I (Soil Carbon and Nitrogen Cycling)

SSSA Division: Soil Biology and Biochemistry

Moderator: Mussie Habteselassie, Sarah Strauss

	1:30 PM	**Introductory Remarks**
16-1	1:30 PM	**Spatial Evaluation of Carbon Flow and Microbial Function through the Root-Rhizosphere-Soil Continuum** Jim Moran*, Vivian Lin, Elizabeth Denis, Peter Ilhardt, Jamie Nunez, Kumar Swatantar, Ying Zhu, Peterson Matthew, Timothy Linley, Jason Kriesel, Camille Makaram, James Kelly, Nicholas Huggett, Ryan Renslow and Mary Lipton
16-2	1:45 PM	**Predicting the Moisture Dependence of Soil Heterotrophic Respiration Using First Principles** Jinyun Tang*
16-3	2:00 PM	**Soil Moisture Regulates Microbial Carbon-Use Efficiency** Kirsten Butcher*, Megan K Nasto, Jeanette M. Norton and John M. Stark
16-4	2:15 PM	**Simulations of Nitrogen Enrichment Impacts on Carbon Dynamics in Different Grasslands** Yong Wang*, Charlotte Riggs, Christopher Walter, Qian Zhao, Lang Delancey, Jianqiu Zheng, Sarah Hobbie, Kirsten Hofmockel and Melanie Mayes
16-5	2:30 PM	**Assessing the Composition and Stability of Soil Organic Carbon Under Typical Cropping Systems of the North Central U.S.** Yichao Rui*, Matthew D. Ruark, Gregg Sanford, Leonardo Deiss, Steve Culman and Randall Jackson
16-6	2:45 PM	**Does Diverse Compost Products Influences Soil Bacterial Community Under Potato Crop?** Claudia Goyer*, Saraswoti Neupane, Bernie J. Zebarth, David L. Burton and Carolyn Wilson
	3:00 PM	**Break**
16-7	3:15 PM	**Rethinking Salty Soils: The Effects of Low Salt Concentrations on Soil Carbon** Meredith K Steele*
16-8	3:30 PM	**Effect of Biological Soil Crusts on Plant-Available Nitrogen and the Soil Microbiome in the Rooting Layers of Citrus Agroecosystems** Clayton J. Nevins*, Patrick W. Inglett and Sarah L. Strauss
16-9	3:45 PM	**Estimating Spring Agricultural N_2o Loss with DNDC Model in Various Climate Scenarios** Chih-Yu Hung* and Joann K Whalen
16-10	4:00 PM	**Deep Soil Organic Matter: The Role of Microbial Biofilms** Marjorie S. Schulz*, Mary-Cathrine Leewis and Kristen Manies
16-11	4:15 PM	**Impact of Long Term Farming Systems on Microbial Biomass, Carbon Storage, and Water Movement Down to 1 Meter** Daniel Rath*, Nathaniel Alexander Bogie and Kate M. Scow
	4:30 PM	**Adjourn**

SESSION NO. 17—1:30 PM–4:50 PM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Crop Breeding and Genetics Oral I

C01 Crop Breeding and Genetics

Moderator: Kimberly Garland-Campbell

	1:30 PM	**Introductory Remarks**
17-1	1:35 PM	**Genome-Wide Association Mapping for Cold Tolerance during Germination Using an Enriched Rice Diversity Panel** Endang M. Septiningsih*, Ranjita Thapa, Rodante E. Tabien and Michael J. Thomson
17-2	1:50 PM	**Identification of Plant Height *sd1* Gene SNP Marker for U.S. Rice Using Haplotype Characterization Approach** Brijesh Angira*, Christopher Keith Addison, Tommaso Cerioli, Diane Wang, Jong Hyun Ham and Adam Famoso
17-3	2:05 PM	**Low Additive Genetic Variation in a Trait Under Selection in Domesticated Rice** Nicholas Karavolias, Anthony Greenberg*, Luz Barrero, Lyza Maron, Yuxin Shi, Eliana Monteverde, Miguel A. Piñeros and Susan R McCouch
17-4	2:20 PM	**Characterization and Application of Arkansas Male Sterile Lines for Hybrid Rice Production** Dustin North*, Shuizhang Fei, Ehsan Shakiba, Karen Moldenhauer and Paul Counce
17-5	2:35 PM	**Genomic Selection of Agronomic and Malting Quality Traits Using Multi-Trait Prediction Model in Barley** Madhav Bhatta*, Lucia Gutierrez, Lorena Cammarota, Fernanda Cardozo, Silvia Germán, BLanca Gómez, María Fernanda Pardo, Valeria Lanaro, Mercedes Sayas and Ariel J. Castro
17-6	2:50 PM	**Towards the Identification of Barley Salinity Tolerance Genes during Germination** Edward Mwando*, Yong Han, Tefera Angessa, Xiao-Qi Zhang, Lee-Anne McFawn and Chengdao Li
	3:05 PM	**Break**
17-7	3:20 PM	**Enriching Flax (*Linum usitatissimum* L.) Parental Stock by Exploiting Genetic Diversity** Ahasanul Hoque* and Mukhlesur Rahman
17-8	3:35 PM	**Use of Unmanned Aerial Systems for Highthroughput Evaluation of Forage Yield in Oat Breeding Nurseries** Prakriti Sharma*
	3:50 PM	**Adjourn**
17-9	3:50 PM	**Single Plant High Throughput Phenotyping (HTP) for Cotton Using Unmanned Aerial System (UAS) Data** Anjin Chang*, Nothabo Dube, Sungchan Oh, Akash Ashapure, Jinha Jung, Juan Landivar, Murilo M. Maeda and Andrea Maeda
17-10	4:05 PM	**Discovery of a Two-Pronged Defense Strategy By a Tolerant Cotton Line Against Feeding and Establishment of *Lygus Lineolaris*, the Tarnished Plant Bug** Chance Anderson, Sukumar Saha*, Kuntol Rakshit, Johnie N. Jenkins, David M. Stelly, Adam Conor and Natraj Krishnan
17-11	4:20 PM	**New High Yield Energy Cane Germplasm and Its Yield Prediction Using Unmanned Aerial System** Uriel Cholula*, Jorge Da Silva, Thiago Marconi, Jorge Solorzano and Juan Enciso
17-12	4:35 PM	**A Low Cost 3D Plant Phenotyping Platform Using Kinect V2 Sensors** Richard Bruton*, Henry Ruiz, Tyler Adams, Michael Gomez Selvaraj and Dirk B. Hays

SESSION NO. 18—1:55 PM–4:00 PM

Henry B. Gonzalez Convention Center, 225A, 2nd Level

Symposium--Paradigm Shifts in Soil Chemistry

SSSA Division: Soil Chemistry

Moderator: Sanjai Parikh, Daniel Strawn, Aaron Thompson

	1:55 PM	**Introductory Remarks**
18-1	2:00 PM	**Data and Models for Managing Carbon in Soils** Alain F. Plante*, Corey R. Lawrence and Joseph Blankinship
18-2	2:30 PM	**Managing Contaminant Risk in the Environment By Speciation - Not Total Concentration** Kirk G. Scheckel*
18-3	3:00 PM	**Short Range Order Minerals: New Insights on Their Formation and Metastability** Derek Peak*
18-4	3:30 PM	**Sensors in Soil Chemistry: Opportunities and Challenges** Ganga M. Hettiarachchi*
	4:00 PM	**Adjourn**

SESSION NO. 19—2:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

Crafting a Culture - Student Opportunities within ASA, CSSA, SSSA

Graduate Student Sessions

SESSION NO. 20—3:00 PM–4:40 PM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Extending the Cover Crop Growing Season and Imaging Technology with Cover Crops

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

Moderator: Kraig Roozeboom

	3:00 PM	**Introductory Remarks**
20-1	3:05 PM	**Yield of Soybean Relative Maturity Group Varieties Grown in the Midwest and Upper Midsouth** Christopher A Proctor*, A. Justin McMechan, Erin Haramoto, Laura E. Lindsey, Montserrat Salmeron Cortasa, Cintia Sciarresi, Wayde Looker, Josh Wehrbein, Rodrigo Werle, Roger W. Elmore and Daren D. Redfearn
20-2	3:20 PM	**Interseeding into Corn: Effects of Species and Planting Method on Cover Crop Biomass Production** Virginia Moore*, Maria Laura Cangiano and Steven B Mirsky
20-3	3:35 PM	**Simulating Modified Corn Management for Earlier Cover Crop Introduction in a Corn-Soybean Rotation System** Nilovna Chatterjee*, Sotirios V. Archontoulis, Angela Bastidas, Christopher A Proctor, Roger W. Elmore and Andrea Basche
20-4	3:50 PM	**Jump-Starting Fall Cover Crops By Relay Cropping; The Case of Italian Ryegrass and Corn** Derek Hunt*, Shabtai Bittman, Karen Koenig and Gary Telford

20-5	4:05 PM	**Using Remote Sensing to Assess Interseeded Cover Crop Establishment and Competitiveness in Maize** Aaron Brooker*, Bruno Basso and Karen A. Renner
20-6	4:20 PM	**Photography to Monitor Multi-Species Cover Crops and Weeds** Sally D. Logsdon* and Cindy Cambardella
	4:35 PM	**Concluding Remarks**
	4:40 PM	**Adjourn**

SESSION NO. 21—3:00 PM–5:00 PM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

Symposium--Progress of Evapotranspiration Simulations in Agricultural System Models

ASA Section: Climatology and Modeling

Lead Community:
Evapotranspiration Measurement and Modeling Community

Moderator: Kendall DeJonge, Huihui Zhang

	3:00 PM	**Introductory Remarks**
21-1	3:05 PM	**A History of Evolution and Testing of ET Simulations in the Apsim Agricultural Systems Model** Neil Huth*, Hamish Brown, Dean Holzworth and Sotirios V. Archontoulis
21-2	3:25 PM	**Comparison of Evapotranspiration Methods in the DSSAT Cropping System Model** Kelly R. Thorp*, Kendall DeJonge and Gary W. Marek
21-3	3:45 PM	**Current Simulation of Soil Water and ET Dynamics in Agricultural Systems Model RZ-WQM2 and Further Research Needs** Lajpat R. Ahuja*, Saseendran Anapalli and Huihui Zhang
21-4	4:05 PM	**Large Differences in the Simulation of Crop Water Use Are Indicative of the Urgent Need for Model Improvements** Claudio O. Stockle*
21-5	4:25 PM	**Prediction of Evapotranspiration and Yields of Maize:an Inter-Comparison Among 29 Maize Models and Future Plans** Bruce A. Kimball*, Kenneth J. Boote, Jerry L. Hatfield, Lajpat R. Ahuja, Claudio O. Stockle, Sotirios V. Archontoulis, Christian Baron, Bruno Basso, Patrick Bertuzzi, Julie Constantin, Delphine Deryng, Benjamin Dumont, Jean-Louis Durand, Frank Ewert, Thomas Gaiser, Sebastian Gayler, Munir P. Hoffmann, Qianjing Jiang, Soo-Hyung Kim, Jon I Lizaso, Sophie Moulin, Claas Nendel, Philip Parker, Taru I Palosuo, Eckart Priesack, Zhiming Qi, Amit Srivastava, Stella Tommaso, Fulu Tao, Kelly R. Thorp, Dennis Timlin, Tracy Twine, Heidi Webber, Magali Willaume, Karina Williams, Andrew E. Suyker and Steven R. Evett
	4:45 PM	**Discussion**
	5:00 PM	**Adjourn**

SESSION NO. 22—3:30 PM–5:00 PM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

Hot Topics with the Experts

Undergraduate (SASES) Sessions

SESSION NO. 23—3:30 PM–5:00 PM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

SASES Speech Contest - Prelims I

Undergraduate (SASES) Sessions

SESSION NO. 24—3:30 PM–5:00 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

SASES Speech Contest - Prelims II

Undergraduate (SASES) Sessions

SESSION NO. 25—3:30 PM–5:05 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Symposium--Cotton and Other Fiber Crops

ASA Section: Agronomic Production Systems

Lead Community: Cotton and Other Fibers Community

Section or Division Cosponsor: C01 Crop Breeding and Genetics,
ASA Section: Agronomic Production Systems

	3:30 PM	**Introductory Remarks**
25-1	3:35 PM	**Advancing Cotton through Product Innovation** William Kimbrell*
25-2	4:05 PM	**Hemp: An Interesting Story about a Fascinating Crop** John H. Fike*
25-3	4:35 PM	**Evaluation of Hemp Cultivars in New York State on the Path to Establishing a Comprehensive Hemp Breeding Program** Lawrence B. Smart*
	5:05 PM	**Adjourn**

SESSION NO. 26—3:30 PM–5:30 PM

Henry B. Gonzalez Convention Center, 221AB, 2nd Level

Special Session Symposium--Science Communication Hacks to Increase Public Engagement - Accessible Tools for Time-Limited Professionals

Sponsored by NCR-SARE

Special Sessions

Section or Division Cosponsor:
ASA Section: Agronomic Production Systems,
ASA Section: Education and Extension

Moderator: Danielle Treadwell

	3:30 PM	**Introductory Remarks**
26-1	3:35 PM	**Cultivating a Visual: How a Visual can be Effective in Getting Your Message and Your Research Out There** Nigel Hawtin*

26-2	4:15 PM	**Bamboo, Oil & Ice Cream - Why Ag Scientists Need to be on Youtube** Eric B. Brennan*
26-3	4:55 PM	**From Virtual to Reality: Innovative Educational Tools for Extension Education** Heather M. Darby*
	5:15 PM	**Discussion**
	5:30 PM	**Adjourn**

SESSION NO. 27—3:30 PM–5:30 PM

Henry B. Gonzalez Convention Center, 221CD, 2nd Floor

Student Networking Session - Building Professional Relationships

Sponsored by Corteva Agriscience

Graduate Student Sessions

SESSION NO. 28—4:00 PM–5:30 PM

Henry B. Gonzalez Convention Center,
Cantilever Room, 2nd Level

Turf Industry Update Oral

C05 Turfgrass Science

Moderator: Frank Wong, Bradly Shaver

SESSION NO. 29—5:00 PM–5:15 PM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

ASA Community Planning Session --Evapotranspiration Measurement and Modeling

ASA Section: Climatology and Modeling

Lead Community:
Evapotranspiration Measurement and Modeling Community

SESSION NO. 30—5:05 PM–5:20 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

ASA Community Planning Session --Cotton and Other Fiber Crops

ASA Section: Agronomic Production Systems

Lead Community: Cotton and Other Fibers Community

SESSION NO. 31—6:00 PM–7:00 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 3-4, 3rd Level

ASA, CSSA and SSSA Opening Keynote

Keynote/Plenary Sessions

Moderator: Sylvie Brouder, Shawn Kaeppler, Ole Wendroth

	6:00 PM	**Introductory Remarks**
31-1	6:15 PM	**"Remaining Awake Through A Great Revolution," Ag Relevance** Joe M. Cornelius*
	7:00 PM	**Adjourn**

SESSION NO. 33—8:00 PM–9:00 PM

Henry B. Gonzalez Convention Center, 221AB, 2nd Level

SASES Elections

Undergraduate (SASES) Sessions

SESSION NO. 34—9:15 PM–11:00 PM

Henry B. Gonzalez Convention Center, 221AB, 2nd Level

SASES Quiz Bowl Contest

Sponsored by Syngenta

Undergraduate (SASES) Sessions

Monday, Nov. 11

SESSION NO. 35—7:00 AM–8:10 AM

Hilton Palacio del Rio, La Vista ABC, 22nd Floor

Frank N. Meyer Medal for Plant Genetic Resources Breakfast and Award

C08 Plant Genetic Resources

Moderator: Clarice Coyne

	7:00 AM	**Breakfast**
35-1	7:20 AM	**Germplasm Exchange, or Ex-Change** Thomas S. Payne*
	8:00 AM	**Award Presentation**
	8:10 AM	**Adjourn**

SESSION NO. 36—7:00 AM–9:00 AM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 3-4, 3rd Level

SSSA Breakfast, Awards, and Plenary (Nyle C. Brady Frontiers of Soil Science Lectureship)

Keynote/Plenary Sessions

Moderator: Richard Dick, William Pan, Ole Wendroth

	7:00 AM	**SSSA Breakfast**
	7:20 AM	**Introductory Remarks**
36-1	7:30 AM	**SSSA Awards** Sara Uttech*
	8:10 AM	**Presidential Address**
36-2	8:25 AM	**Digital Soil Science and Beyond** Alex B. McBratney*
	9:00 AM	**Adjourn**

SESSION NO. 37—7:55 AM–8:25 AM

Henry B. Gonzalez Convention Center, 007C, River Level

Poster and 5 Minute Rapid--Crop Physiology and Metabolism Oral (includes Society-wide student competition selection)

C02 Crop Physiology and Metabolism

Moderator: John Snider

	7:55 AM	**Introductory Remarks**
37-1	8:00 AM	**Drought-Related Traits and Genotypic Diversity in Peanuts** Leticia de Aguila Moreno*, Cristiane Pilon, C. Corley Holbrook, Ana Carolina da Costa Lara-Fioreze, Beatriz Fabreti da Silva and John Snider
37-2	8:05 AM	**Characterizing Physiological and Lipidomic Changes in Peanut Under Heat Stress** Zolian Sang Zoong Lwe*, Sruthi Narayanan Kutty and Dan Anco
37-3	8:10 AM	**Root Osmotic Adjustment and Antioxidant Mechanisms of Seashore Paspalum and Centipedegrass Exposed to Iso-Osmotic Salt and Drought Stresses** Krishna Katuwal*, Bo Xiao and David Jespersen
37-4	8:15 AM	**Differing Lighting Regiments and Control for Flowering in *Cannabis sativa*** Paul Cockson*, Turner Smith and Brian Whipker
	8:20 AM	**Questions & Answers**
	8:25 AM	**Adjourn**

SESSION NO. 38—7:55 AM–11:15 AM

Hilton Palacio del Rio, Salon del Rey A, 2nd Floor

Golf Turf Management Oral I: Cultural Practices, Physiology, and Water (includes student competition)

C05 Turfgrass Science

Moderator: Travis Shaddox, Paul Koch

	7:55 AM	**Introductory Remarks**
38-1	8:00 AM	**"Sodicity and Hydrophobicity Management in Sand-Capped Fairways"** Will Jackson Bowling*, Benjamin Wherley, Kevin J. McInnes, Tony L. Provin and Chrissie Segars
38-2	8:15 AM	**Fraise Mowing Impacts Soil Physical Properties of Bermudagrass Surfaces** Raymond McCauley*, Drew Pinnix and Grady L. Miller
38-3	8:30 AM	**Impact of Woven Polypropylene Covering Strategies on Bermudagrass Canopy Temperatures.** Jordan Booth*, James M. Goatley, David S. McCall and Shawn D. Askew
38-4	8:45 AM	**Removal of Coarse Sand from Topdressing on Putting Green Turf** Hui Chen*, James Hempfling, Kyle M. Genova, Chas Schmid and James A Murphy
38-5	9:00 AM	**Effect of Alternative Aerification Practice to Maintain Soil Physical Properties of Putting Green** Naba Amgain* and Charles Henry Fontanier
38-6	9:15 AM	**Evaluation of Creeping Bentgrass Responses to Fertilization with the Branched-Chain Amino Acids** Isaac Mertz*, Nick E. Christians, Adam Thoms, Benjamin Pease and Alex Lindsey
	9:30 AM	**Break**
38-7	9:45 AM	**Diamond Zoysiagrass Seedhead Control with Plant Growth Regulators** Silas Ledford* and Lambert B. McCarty
38-8	10:00 AM	**Where Does Your Fungicide Go? Fungicide Fate Following Various Mowing and Irrigation Treatments** Cameron Stephens*, James P. Kerns and Travis W Gannon
38-9	10:15 AM	**Enhancing Application Timing Precision for Zoysiagrass Seedhead Suppression with Ethephon** Aaron J. Patton*, Jared A. Hoyle, Michael D. Richardson, Matthew Bertucci and James T Brosnan
38-10	10:30 AM	**Evaluating Biological Thatch Control on Golf Greens.** Joshua Weaver*, Lambert B. McCarty, Virgil L. Quisenberry, Lewis Ray Hubbard and William C Bridges

38-11	10:45 AM	**Barriers to the Adoption of Best Management Practices By the Florida Golf Course Management Industry** Mark G. Kann*, J. Bryan Unruh, Laura A. Warner, Jason K. Kruse and Kevin E. Kenworthy
38-12	11:00 AM	**Distribution of Cyazofamid As Affected By Irrigation Timing and Amount on a Putting Green Surface** Daniel Freund*
	11:15 AM	**Adjourn**

SESSION NO. 39—7:55 AM–11:15 AM

Hilton Palacio del Rio, Salon del Rey B, 2nd Floor

Turfgrass Pest Management Oral I (includes student competition)

C05 Turfgrass Science

Moderator: Brian Aynardi

	7:55 AM	**Introductory Remarks**
39-1	8:00 AM	**Broadleaf Herbicide Safety on Kurapia Groundcover** Pawel Orlinski*, Worku Burayu, Kai Umeda and James H. Baird
39-2	8:15 AM	***Festuca* spp. Interfere with Germination of *Trifolium repens L., Bellis perennis L.* and *Achillea millefolium* L. in Controlled Environments** Daniel Hahn*
39-3	8:30 AM	**2,4-D-Resistant Buckhorn Plantain (*Plantago lanceolata*) in Pennsylvania and Alternative Control Options** Travis R. Russell*, Tim Lulis, Brian Aynardi, Kaiyuan Tang and John E. Kaminski
39-4	8:45 AM	**Turfgrass Management Practices Influence Buckhorn Plantain (*Plantago lanceolata*) Persistence and Seed Production** Quincy Daker Law* and Aaron J. Patton
39-5	9:00 AM	**Methods to Increase Safety of Pinoxaden on St. Augustinegrass (*Stenotaphrum secundatum*)** John Peppers*, J. Scott McElroy and Jim Harris
39-6	9:15 AM	**Non-Chemical Weed Control in Amenity Grasslands Via Fraise Mowing** Christopher Sitko* and Frank S. Rossi
	9:30 AM	**Break**
39-7	9:45 AM	**Annual Bluegrass Weevil (*Listronotus maculicollis)* and Paclobutrazol for Annual Bluegrass (*Poa annua)* control in Creeping Bentgrass (*Agrostis stolonifera*) Fairways.** Katherine H. Diehl*, Matthew T. Elmore, James A. Murphy, Albrecht M. Koppenhofer and Olga S. Kostromytska
39-8	10:00 AM	**Variable Sensitivity of *Ophiosphaerella* spp. Causing Spring Dead Spot to Fungicides and Temperature** Wendell J. Hutchens*, Yumiko Nagaoka, James P. Kerns, James M. Goatley, Mizuho Nita and David S. McCall
39-9	10:15 AM	**Using Niche-Clearing Practices for Improvement of Biological Control of Brown Patch in Home Lawn Turf** Joseph Doherty* and Joseph Anthony Roberts
39-10	10:30 AM	**The Effects of Iron Sulfate Applications at Different Water Carrier Volumes on Microdochium Patch Suppression, Percent Green Cover, and Turfgrass Quality on an Annual Bluegrass Putting Green** Clint Mattox*, Alec Kowalewski and Brian W. McDonald
39-11	10:45 AM	***Pythium* Dissemination through Golf Course Irrigation Systems** Clayton A. Rushford* and Gerald L. Miller
39-12	11:00 AM	**Bermudagrass Decline: What's This Fungus (WTF) in My Greens?** Matthew Tucker*, Aline Badial, Jonas King and Maria Tomaso-Peterson
	11:15 AM	**Adjourn**

SESSION NO. 40—7:55 AM–12:00 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

Symposium--Megaposium - Cross-Cutting Issues in Environmental Quality

Sponsored by Innovation Center for US Dairy

ASA Section: Environmental Quality

Moderator: Gary Feyereisen

	7:55 AM	**Introductory Remarks**
40-1	8:00 AM	**What Are the Environmental Implications of FGD Gypsum Use in Agriculture** Dexter B. Watts* and Allen Torbert
40-2	8:30 AM	**Biochar Amendments Employed in the Agronomic, Forestry and Environmental Remediation Sectors: Are They Effective?** Jeffrey Novak*, Deborah S. Page-Dumroese and Mark G. Johnson
	9:00 AM	**Break**
40-3	9:15 AM	**Integrating Information Technology Systems for Delivering Sustainable Intensification Agricultural Technologies to Rural Malawi** Regis Chikowo* and Sieg Snapp
40-4	9:45 AM	**The Promise and Perils of Carbon-Negative Farming** G. Philip Robertson*
	10:15 AM	**Break**
40-5	10:30 AM	**Modern Animal Manure Management: Production, Characteristics, and Environmental Concerns** Heidi M. Waldrip*, Zhongqi He and Paulo H. Pagliari
40-6	11:00 AM	**Scaling up Edge-of-Field Denitrification Practice Adoption: A Grand Challenge** Christopher H. Hay*
40-7	11:30 AM	**It Is a New Day in Nutrient Management and Water Quality… or Is It??** Daren Harmel*, Jorge A. Delgado, Bruce Vandenberg, Deanna L. Osmond and Michael buser
	12:00 PM	**Adjourn**

SESSION NO. 41—8:00 AM–8:50 AM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Legume Agronomy in Sub-Saharan Africa: Intercropping, Rotation, and N Fixation Maximization Oral

ASA Section: Global Agronomy

Lead Community: Agronomy in Africa Community

	8:00 AM	**Introductory Remarks**
41-1	8:05 AM	**Entrenching Classified Cassava Systems for Smallholder African Farmer** Veronica N. Uzokwe*
41-2	8:20 AM	**Evaluation of the Potential of Mungbean for Increasing Millet Yields in Senegal** Andre Diatta*, Ozzie Abaye and Wade E. Thomason

41-3	8:35 AM	**The Zambian Way: My Life As a Peace Corps Volunteer** Lucas Holmes*
	8:50 AM	**Adjourn**

SESSION NO. 42—8:00 AM–9:30 AM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

SASES Club Presidents' Round Table

Undergraduate (SASES) Sessions

Moderator: Jordyn Bush

SESSION NO. 43—8:00 AM–9:35 AM

Henry B. Gonzalez Convention Center, 006D, River Level

Modelling Long Term Effects of Cropping Systems and Management on Soil-Crop-Interactions Oral.

ASA Section: Climatology and Modeling

Lead Community: Model Applications in Field Research Community

Moderator: Daniel Moriasi, Kurt Kersebaum

	8:00 AM	**Introductory Remarks**
43-1	8:05 AM	**Modelling the Roots of the Rotation Effect** Virginia A. Nichols*, Matt Liebman and Sotirios V. Archontoulis
43-2	8:20 AM	**Maize Yield Response to Climate Adaptation Strategies across 23 Sites Differing in Productivity and Soil Carbon** Lori J. Abendroth*, Fernando Miguez, Michael J. Castellano, Philip Dixon, Matthew J Helmers, Thomas C. Kaspar and Jerry L. Hatfield
43-3	8:35 AM	**Modelling Long Term Effects of Crop Rotations across the Federal State of Brandenburg/ Germany Under Current and Future Climate Conditions** Kurt C. Kersebaum* and Evelyn Wallor
43-4	8:50 AM	**A Model Ensemble Approach to Predicting Future Sorghum Cropping System Effects at the Field Level** Ellen Maas*, Umakant Mishra, Sagar Gautam, Yong Wang, Rajan Ghimire and Rattan Lal
43-5	9:05 AM	**Specific Climate Variables Affecting Switchgrass Biomass Production at Different Locations Under Future Climate Change** Li Zhang*, Thomas E. Juenger and Kathrine Behrman
43-6	9:20 AM	**Assessing Salinity Leaching Efficiency in Three Soils By the Hydrus-1D and -2D Simulations** Ting Yang*, Laosheng Wu and Jirka Simunek
	9:35 AM	**Adjourn**

SESSION NO. 44—8:00 AM–9:35 AM

Hilton Palacio del Rio, La Vista F, 22nd Floor

U.S.-Sino Agricultural Research Forum General Oral

ASA Section: Global Agronomy

Lead Community:
U.S.-Sino Agricultural Research Forum Community

	8:00 AM	**Introductory Remarks**
44-1	8:05 AM	**A Study on Aggregate Microstructure Characteristics of Black Soil Under Freeze-Thaw Conditions** Renming Ma*, Haoming Fan and Bo Liu
44-2	8:20 AM	**Impacts of Soil Redistribution Caused By Erosion on Soil Quality in a Catchment of the Chinese Mollisol Region** Jiaqiong Zhang*, Fenli Zheng and Zhizhen Feng
44-3	8:35 AM	**Discrimination of Soil Losses from Ridge and Furrow in Longitudinal Ridge-Tillage Under Upslope Inflow and Rainfall Simulation** Fenli Zheng*, Lei Wang, Xunchang Zhang, Glenn V. Wilson, Gang Liu and Jiaqiong Zhang
44-4	8:50 AM	**Variations and Cause Analysis of Runoff and Sediment Load in the Source Regions of Yangtze River** Yinghui Guan*
44-5	9:05 AM	**Improved Interrill Erosion Prediction By Considering the Impact of the Near-Surface Hydraulic Gradient** Bin Wang*
44-6	9:20 AM	**A Weather Generator-Based Climate Downscaling Tool for Assessing Climate Change Impact on Crop Production and Soil Erosion in NE China** Xun-Chang J. Zhang*, jie chen and Fenli Zheng
	9:35 AM	**Adjourn**

SESSION NO. 45—8:00 AM–10:00 AM

Henry B. Gonzalez Convention Center, 210A, 2nd Level

Special Session Symposium--Tough Choices, Soil, and Climate Change

Special Sessions

Section or Division Cosponsor:
ASA Section: Agronomic Production Systems,
ASA Section: Land Management and Conservation,
SSSA Division: Forest, Range and Wildland Soils,
SSSA Division: Soils and Environmental Quality,
SSSA Division: Pedology,
SSSA Division: Wetland Soils

	8:00 AM	**Introductory Remarks**
45-1	8:05 AM	**Climate Change Update** Eugene Takle*
45-2	8:25 AM	**Climate Change Impacts on Agriculture** Jerry L. Hatfield*
45-3	8:45 AM	**Climate Change and Infectious Disease** Kristie Ebi*
45-4	9:05 AM	**Climate Change and the U.S. Military** John Conger*
45-5	9:25 AM	**Responsibility to Prepare- Climate and Security** Caitlin Werrell*
	9:45 AM	**Discussion**
	10:00 AM	**Adjourn**

SESSION NO. 46—8:15 AM–11:00 AM

Henry B. Gonzalez Convention Center, 006B, River Level

Predictive Agriculture Foundations I: Forecasting Crop Adaptation for International Agriculture Oral

ASA Section: Climatology and Modeling

Lead Community:
Agroclimatology and Agronomic Modeling Community

Section or Division Cosponsor:
ASA Section: Climatology and Modeling,
C01 Crop Breeding and Genetics,
C02 Crop Physiology and Metabolism,
C03 Crop Ecology, Management and Quality

Moderator: Carlos Messina, Sotirios Archontoulis

8:15 AM **Introductory Remarks**

46-1 8:20 AM **Designing Sorghum Crops for Adaptation to the Drought and Heat Risks Anticipated in Future Climates** Graeme L. Hammer*

46-2 8:35 AM **Crop Simulation Modeling Informed By Physiological Phenotyping Illuminate Context-Dependencies for Enhancing Wheat Drought Tolerance in Tunisia** Walid Sadok*, Rémy Schoppach, Michel E Ghanem, Claudio Zucca and Thomas R. Sinclair

46-4 8:50 AM **Will Climate Resilience of European Wheat Decline with Reduced Response Diversity?** Kurt C. Kersebaum, Jørgen E. Olesen*, Helena Kahiluoto, Janne Kaseva and Mirek Trnka

46-5 9:05 AM **Levins and Landraces: A Home Field Advantage Increases Yields of Modern Maize Hybrids By 7%** Patrick M. Ewing*, Bryan Runck, Tom Kono and Michael Kantar

46-6 9:20 AM **Development of an Automated Gridded Crop Growth Simulation Support System for Distributed Computing with Virtual Machines** Kwang Soo Kim*, Jinew Park, Shin Woo Hyun, Junwhan Kim and David H. Fleisher

9:35 AM **Break**

46-7 9:50 AM **Prediction of Crop Yields and Soil-Plant Nitrogen Dynamics in the US Corn Belt Using Apsim** Sotirios V. Archontoulis*, Michael J. Castellano, Mark A. Licht, Virginia A. Nichols, Mitch E. Baum, Isaiah L. Huber, Rafael A Martinez-Feria, Laila A. Puntel, Raziel A. Ordoñez, Javed Iqbal, Emily E. Wright, Ranae N. Dietzel, Matthew J. Helmers, Andrew VanLoocke, Matthew Z. Liebman, Jerry L. Hatfield, Daryl Herzmann, S. Carolina Cordova, Patrick M. Edmonds, Kaitlin Togliatti, Ashlyn M. Kessler, Gerasimos J. Danalatos, Heather R. Pasley, Carl Pederson and Kendall R. Lamkey

46-8 10:05 AM **Integrating Satellite, Field, and Weather Data with Machine Learning Tools for Improving Crop Yield Prediction.** Ignacio A. Ciampitti* and Rai Schwalbert

46-9 10:20 AM **Modelling Yield Boosting Traits** Diego N. L. Pequeno*, Matthew P. Reynolds, Senthold Asseng and Kai Sonder

46-10 10:35 AM **Geospatial Assessment for Crop Genetic and Management Improvements** Thomas R. Sinclair*, Afshin Soltani, Helene Marrou, Michel Ghanem and Vincent Vadez

10:50 AM **Concluding Remarks**

11:00 AM **Adjourn**

SESSION NO. 47—8:00 AM–11:20 AM

Henry B. Gonzalez Convention Center, 006C, River Level

Global Climate Change General Oral I (includes student competition)

ASA Section: Climatology and Modeling

Lead Community: Global Climate Change Community

Moderator: Xiaomao Lin, Sushil Thapa

8:00 AM **Introductory Remarks**

47-1 8:05 AM **Climate Smart Agriculture: The Role of Biological Nitrification Inhibition** Nithya Rajan*, William L Rooney, Sakiko Okumoto, Ronnie W. Schnell, Muthukumar Bagavathiannan, Jacqueline Aitkenhead-Peterson, John Jifon, kung-Hui Chu, Kenneth D. Casey and Guntur V Subbarao

47-2 8:20 AM **Quantifying and Mapping Yield Penalties in Midwestern Cropland Prone to Water Excess or Deficits Under Weather Extremes** Rafael A Martinez-Feria* and Bruno Basso

47-3 8:35 AM **Screening Tools for Present and Future Climates** K. Raja Reddy*, Salah Jumaa, Naqeebullah Kakar, Charles Hunt Walne and Akanksha Sehgal

47-4 8:50 AM **Evaluation of Cropping Systems for Adapting Pennsylvania Dairy Farms to Future Climate Change and Variability** Jose Castano-Sanchez*, Heather D. Karsten and C. Alan Rotz

47-5 9:05 AM **Fluctuations of CO_2 in Free-Air CO2 Enrichment (FACE) Decrease Plant Photosynthesis, Biomass, and Seed Yield** Leon H. Allen Jr., Bruce A. Kimball*, James A. Bunce, Mayumi Yoshimoto, Yoshinobu Harazono, Jeffrey T. Baker, Kenneth J. Boote and Jeffrey W. White

47-6 9:20 AM **Winter Wheat Production in the Texas High Plains Under Changing Climate: Potential Impacts and Adaptations** Kritika Kothari*, Srinivasulu Ale, Ahmed Attia, Nithya Rajan, Qingwu Xue and Clyde Munster

9:35 AM **Break**

47-7 9:50 AM **Evaluating Climate Change Impact on Corn Yield at a Field Scale in Tanzania** Lin Liu* and Bruno Basso

47-8 10:05 AM **Modeling Maize Response to Nitrogen at Different Environmental Conditions** Vijaya R. Joshi*, Jeffrey A. Coulter and Axel Garcia y Garcia

47-9 10:20 AM **Soil Moisture-Texture Influence on Microbial Cycling of Soil Organic Carbon** Shikha Singh*, Sindhu Jagadamma, Junyi Liang, Stephanie Kivlin and Melanie Mayes

47-10 10:35 AM **Impact of Climate Change on Storage Conditions for Major Agricultural Commodities in the United States** Kyle Lesinger*, Di Tian, Courtney Leisner and Alvaro Sanz-Saez

47-11 10:50 AM **Assessing Variation in Response to Early Season Flooding Among Commercial Corn Hybrids** Charles Hunt Walne* and K. Raja Reddy

47-12 11:05 AM **The Assessment of Sorghum Hybrid Root Detection Capability of Ground Penetrating Radar in Variable Soil Conditions** Matthew Wolfe*, Richard Bruton, Tyler Adams, Ilse Barrios, Sheryl Strauch, Iliyana Dobreva and Dirk B. Hays

11:20 AM **Adjourn**

SESSION NO. 48—8:00 AM–11:35 AM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Can We Sustain Agroecosystems with Nutrient Management Practices? Oral (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Nutrient Management Professionals Community

Moderator: Ruijun Qin

8:00 AM **Introductory Remarks**

48-1 8:05 AM **Nitrogen Requirements for Various Potato Varieties in the Columbia Basin of Oregon** Ruijun Qin* and Vidyasagar Sathuvalli

48-2 8:20 AM **Corn Grain Yield Response to Nitrogen As Impacted By Nitrogen Fertilizer, Weather and Soil Organic Matter: A Summary of 11 Years of on-Farm Trials to Promote Agricultural BMPs in Minnesota.** Aicam Laacouri*, Kevin Kuehner, Ryan Lemickson and Dawn Bernau

48-3 8:35 AM **Title: Agronomic Efficiency and Nutrient Recovery from Fertilizers By Cassava on Fields with Low Soil Fertility in West Africa** Joy Geraldine Adiele*, Antonius Gerardus Theodorus Schut, Guillaume K. S Ezui, Pieter Pypers, Chiedozie Ngozi Egesi, Anthony Ano and Ken E. Giller

48-4 8:50 AM **Simulating Cassava Growth Under Rain-Fed Conditions in Nigeria** Joy Geraldine Adiele*, Antonius Gerardus Theodorus Schut, Guillaume K. S Ezui, Pieter Pypers, Chiedozie Ngozi Egesi, Anthony Ano and Ken E. Giller

48-5 9:05 AM **Using Vegetation Indices in Autumn to Estimate Nitrate Leaching during Autumn and Winter in Different Cropping Systems** Jin Zhao*, Chiara De Notaris and Jorgen Eivind Olesen

48-6 9:20 AM **Soil Phosphorus Distribution Under Two Contrasting Grassland Fields in Eastern Canada.** Jeff Nze Memiaghe*, Athyna N. Cambouris, Noura Ziadi and Antoine Karam

9:35 AM **Break**

48-7 9:50 AM **N Balance for Sustainability Performance Standards in US Corn Production Using Adapt-N Biogeochemical Modeling** Shai Sela*, Peter B. Woodbury, Rebecca Marjerison and Harold van Es

48-8 10:05 AM **Engaged Farmers: Building a Corn Silage and Grain Yield Potential Database for Nutrient Management Decisions in New York** Quirine M. Ketterings*, Tulsi Kharel, Dilip Kharel, Sheryl Swink and Karl J. Czymmek

48-9 10:20 AM **Corn Yield and Nitrogen Loss Differences between Urea and Poultry Litter Systems** Rajveer Singh*, Rishi Prasad, Kipling S. Balkcom, Elizabeth A. Guertal, Jasmeet Lamba and Brenda V. Ortiz

48-10 10:35 AM **Impact of Integrated Crop -Livestock Production Systems on Crop Performance in South Dakota** Teerath Rai*, Thandiwe M. Nleya, Sandeep Kumar and Peter J. Sexton

48-11 10:50 AM **Investigating the Interactions between Cover Crops and Complex Agricultural Terrain in Southeastern Maize Systems.** Sam J Leuthold*, Hanna Poffenbarger, Montserrat Salmeron Cortasa, Ole Wendroth and Erin Haramoto

48-12 11:05 AM **Use of High-Resolution CT Scanning to Characterize Soil Pore Network As Influenced By Long Term Application of Cattle Manure and Synthetic Fertilizers** Navdeep Singh*, Sheela Katuwal, Sandeep Kumar, Lis Wollesen de Jonge, Ranjith P. Udawatta and Stephen H. Anderson

48-13 11:20 AM **Improving Corn N Fertilizer Recommendations Using Rainfall Effects on Crop N Demand** Caleb Niemeyer*, Ken J. Janovicek, Joshua Nasielski and Bill Deen

11:35 AM **Adjourn**

SESSION NO. 49—8:15 AM–11:35 AM

Henry B. Gonzalez Convention Center, 006A, River Level

Translational Genomics Oral

C07 Genomics, Molecular Genetics and Biotechnology

8:15 AM **Introductory Remarks**

49-1 8:20 AM **Translational Genomics and Marker Assisted Trait Introgression in Sorghum** Gloria B. Burow*, Ratan Chopra, Zhanguo Xin, Paxton Payton, John J. Burke, Doreen Ware and Yinping Jiao

49-2 8:35 AM **Developing a Superior Hard White Winter Wheat 'TAM 114' Using Gene Editing** Jorge L. Valenzuela-Antelo*, Amir M.H. Ibrahim, Michael J. Thomson, Shuyu Liu and Jackie C. Rudd

49-3 8:50 AM **Genomic Analysis of Host Plant Resistance to Sugarcane Aphid in Sorghum** Yinghua Huang* and Jian Huang

49-4 9:05 AM **The Genetic Basis of Cold Stress Tolerance in Rice at the Seedling Stage Identified in Two Independent High Resolution Genome-Wide Association Mapping Studies** Georgia C. Eizenga*, Naoki Shimoyama, Aaron K. Jackson, Jeremy D. Edwards and Michael R. Schlappi

49-5 9:20 AM **High-Resolution Genome-Wide Association Study of Yield-Related Traits for Direct-Seeded Rice.** Sumeet Mankar*, Nitika Sandhu, Ma. Teresa Sta. Cruz, Khushboo Rastogi, Arvind Kumar and Endang M. Septiningsih

9:35 AM **Break**

49-6 9:50 AM **Reverse Genetic Analysis of the *Early Heading 1(Ehd1)* gene for an Association between Seed Dormancy and Flowering Time in Rice (*Oryza sativa* L.)** Yeter Karakoc*

49-7 10:05 AM **Genetic Mapping for Wheat Stem Sawfly (*Cephus cinctus*) Resistance in Winter Wheat** Bradley Pakish*, Tori Anderson, Emily Hudson-Arns, Frank Peairs, Darren Cockrell and Scott Haley

49-8 10:20 AM **Comparison of Analysis Algorithms for Extracting Yield Information from Potato, Yams, and Cassava Data Acquired with Ground Penetrating Radar** Iliyana Dobreva*, Henry Ruiz, Brody L Teare and Dirk B. Hays

49-9 10:35 AM **Deciphering the Genetic Architecture of Senescence in Maize Using an Integrated Approach** Rajandeep Sekhon*, Rohit Kumar, Christopher Saski, Feng Luo and William C Bridges

49-10 10:50 AM **Genetic and Molecular Analyses of Nuclear Male Sterility Loci in Sorghum** Junping Chen*, Haydee Laza, Yinping Jiao, Doreen Ware and Zhanguo Xin

49-11 11:05 AM **Association Analysis in Texas Elite Breeding Lines to Identify Gene Loci Affecting Grain Yield and Resistance to Arthropods** Chenggen Chu*, Shichen Wang, Haixiao Dong, Ravindra N. Devkota, Jason A. Baker, Shannon Baker, Bryan Simoneaux, Gigi Opena, Nithya Subramanian, Xiaoxiao Liu, Kirk Jessup, Jackie C. Rudd, Amir M.H. Ibrahim, Qingwu Xue, Zhiwu S. Zhang and Shuyu Liu

49-12 11:20 AM **Comprehensive Characterization of Restorer-of-Fertility-like Gene Family in Bread Wheat Reveals Novel Alleles for Fertility Restoration** Vikas Belamkar*, Philip M. Terry, Sarah Blecha, Jesse Poland, Bhoja R. Basnet and P. Stephen Baenziger

11:35 AM **Adjourn**

SESSION NO. 50—8:00 AM–11:50 AM

Henry B. Gonzalez Convention Center, 007B, River Level

Crop Breeding and Genetics Oral II

C01 Crop Breeding and Genetics

Moderator: Malli Gelli

8:00 AM **Introductory Remarks**

50-1 8:05 AM **Re-Imagining the Potential of Plants for a Healthy Future: The Plant Science Decadal Vision (2020-2030), an Overview of Where We Are in Process** David D. Baltensperger*, Natalie Henkhaus, Seth C Murray, Ole Wendroth, Shawn M. Kaeppler, Samantha Shoaf Miller and Mitch C. Hunter

50-2 8:20 AM **Breeding with Partners: The Case for Maize and Nitrogen-Fixing Bacteria** Walter Goldstein, Abdullah A. Jaradat*, Charles R. Hurburgh and Major M. Goodman

50-3 8:35 AM **Characterization of Spontaneous Haploid Genome Doubling in Maize** Nicholas Boerman*, Ursula Frei and Thomas Lubberstedt

50-4 8:50 AM **Triumphs and Tribulations of Long-Term Germplasm Development** Mario R. Carlone*, Edwin M. Grote, David M. Bubeck and Eli Rodgers-Melnick

50-5 9:05 AM **Stalk Lodging: A Portable Device for Phenotyping Stalk Bending Strength of Maize and Sorghum** Christopher Stubbs*, Douglas D Cook, Witold de la Chapelle, Ting-Che Lin, Shien Yang Lee, Wenhuan Sun, Chase Joyner, Arlyn Ackerman, Christopher McMahan, Rajandeep Sekhon and Daniel J Robertson

50-6 9:20 AM **Elucidating Genetic Architecture of Salt Tolerance in Maize By Characterizing Natural Diversity** Devinder Sandhu*, Manju Pudussery, Rohit Kumar, Andrew Pallete, Paul Markley, William C Bridges and Rajandeep Sekhon

50-7 9:35 AM **Identification of Salinity Tolerant Southwestern Maize for Use in Forage Cultivar Breeding** Randall Montgomery*

9:50 AM **Break**

50-8 10:05 AM **Why Hybrid Wheat, Why Now?** P. Stephen Baenziger*, Vikas Belamkar, Amir M.H. Ibrahim, Jackie C. Rudd, Amanda Easterly, Nicholas Garst, Hannah Stoll, Anil Adhikari, Geraldine Opena, Sarah Bleccha, Ibrahim Elbasyoni, Bhoja R. Basnet, Jochen Reif, Friedrich Longin and Jean Benoit Sarazin

50-9 10:20 AM **Exploring the of Genetics of Fertility Restoration in Cytoplasmic Male Sterility Based Seed Production System of Hybrid Wheat** Anil Adhikari*, Bhoja R. Basnet, Amir M.H. Ibrahim, Jackie C. Rudd, P. Stephen Baenziger, Sussane Dresigacker, Nithya Subramanian and Shuyu Liu

50-10 10:35 AM **Counting on Crossovers: Fine-Mapping a Kernel Morphology Gene in Wheat** Ella Taagen*

50-11 10:50 AM **Dissecting Grain Shape and Size in Durum and Bread Wheat** Ajay Kumar*, Elias M. Elias and Mohamed Mergoum

50-12 11:05 AM **Prospects and Challenges to Improve Wheat Grain Yield Components Using Molecular Markers** Jianli Chen*, Rui Wang, Kyle Isham, Weidong Zhao, Justin Wheeler and Natalie Klassen

50-13 11:20 AM **Transfer New Sources of Resistance to Three Pest Resistance Simultaneously into Local Adapted Cultivars** Shuyu Liu*, Chenggen Chu, Jackie C. Rudd, Amir M.H. Ibrahim, Qingwu Xue, Xiangyang Xu, Ming-Shun Chen, Shichen Wang, Richard Metz, Charles Johnson, Jason A. Baker, Ravindra N. Devkota, Jaqueline A. Avila, Kele Hui, Shannon Baker, Brittany M. Ehrlich and Xiaoxiao Liu

50-14 11:35 AM **Identifying Loci and Genomic Prediction Models for PHS Tolerance in Northeast Soft Wheat Breeding Programs** Shantel A Martinez* and Mark E. Sorrells

11:50 AM **Adjourn**

SESSION NO. 51—8:00 AM–11:50 AM

Henry B. Gonzalez Convention Center, 007A, River Level

Crop Ecology, Management and Quality Oral II

C03 Crop Ecology, Management and Quality

Moderator: Romulo Lollato, Patricio Grassini

8:00 AM **Introductory Remarks**

51-1 8:05 AM **Corn Emergence Uniformity As Impacted By Planting Depth** Kyle Nemergut*, Peter R. Thomison, Edward McCoy, Paul R. Carter and Alexander J. Lindsey

51-2 8:20 AM **Corn Nitrogen Responsiveness in North America: A Review** Adrian A. Correndo*, José Luis Rotundo, Nicolas Tremblay, Jeffrey A. Coulter, Alan J. Franzluebbers, Jared D. Williams, Sotirios V. Archontoulis, Emerson Nafziger, Dorivar A. Ruiz Diaz, Kurt Steinke, David W. Franzen, Jason L. De Bruin, Rai Schwalbert, Carlos D. Messina and Ignacio A. Ciampitti

51-3 8:35 AM **Ecotyping for Increased Maize Production in the Rainforest Agroecology of Southwest Nigeria** Morakinyo Abiodun Bamidele Fakorede*, Chris Adegoke Fayose, Abimbola Oluwaranti, Abebe Menkir and Baffour Badu-Apraku

51-4 8:50 AM **A Method for Automated Large-Scale Cultivation of Maize to Full Maturity in an Artificial Environment** Matthew A. Wiethorn*, Chad J. Penn and James J. Camberato

51-5 9:05 AM **Maize and Soybean Root Growth over Time in Central Iowa** Raziel A. Ordoñez*, Sotirios V. Archontoulis and Michael J. Castellano

51-6 9:20 AM **Nitrogen and Water-Soluble Carbohydrates Dynamics Are Conserved for Contrasting Maize Genotypes** Javier A. Fernandez*, Carlos D. Messina, José Luis Rotundo and Ignacio A. Ciampitti

51-7	9:35 AM	**Barley in Texas: A Viable Option for Food, Feed, and Forage in the Lone Star State** Brandon James Gerrish* and Clark B. Neely
51-8	9:50 AM	**Evaluating Different Irrigation Regimes for Potato Production in Wisconsin** Trevor W Crosby* and Yi Wang
	10:05 AM	**Break**
51-9	10:20 AM	**Response of Guar to Various Irrigation Regimes** Kulbhushan K. Grover*, Alonso Garcia, Brian J. Schutte, Blair Stringam, Murali Darapuneni and Dawn VanLeeuwen
51-10	10:35 AM	**Cover Crop Growth and Competition in Representative Agroecosystems of South Florida** Zachary T Brym*
51-11	10:50 AM	**Allometric Analysis Reveals Enhanced Reproductive Allocation in Historical Set of Soybean Varieties** Santiago Tamagno*, Victor O. Sadras, Osler Ortez and Ignacio A. Ciampitti
51-12	11:05 AM	**Soil and Terrain Attributes That Predict Differences in Local Ideal Seeding Rate for Soybean** Emma Matcham*, John Fulton, Elizabeth M. Hawkins, Pierce Paul, Sakthi Subburayalu and Laura E. Lindsey
51-13	11:20 AM	**Relative Tillage and Rotation System Performance in Corn and Soybean with Progressively Later Planting Dates** Tony J. Vyn* and Terry West
51-14	11:35 AM	**Planting Blended Seeds: 'egan' Containing Gene for High Protein + Other High-Yielding Wheat Cultivars.** Jessica A Torrion*, Bob Stougaard and Peggy F. Lamb
	11:50 AM	**Adjourn**

SESSION NO. 52—8:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 216B, 2nd Level

Applied Soybean Research Oral I (includes student competition)

Sponsored by Bayer CropScience

ASA Section: Agronomic Production Systems

Lead Community: Applied Soybean Research Community

Moderator: Josh Copes

	8:00 AM	**Introductory Remarks**
52-1	8:05 AM	**Establishing Plant Population and Row Orientation for Soybean in Mississippi.** Richard E. Turner* and M. W. Ebelhar
52-2	8:20 AM	**Differences in Bioavailability of Three Herbicides to Soybean (*Glycine max*) and Other Sensitive Species across Varying Soil Textures** Shwetha Ramanathan*, Travis W Gannon, Anna Locke and Wesley J. Everman
52-3	8:35 AM	**Optimum Sulfur Application for Soybeans in Oklahoma** Gwendolyn Wehmeyer*
52-4	8:50 AM	**Nitrogen and Sulfur Application Effects on Soybean Quality and Yield** Dakota Miller* and Shaun Casteel
52-5	9:05 AM	**Soybean Nitrogen Sources and Demand during the Seed-Filling Period** Osler Ortez*, Santiago Tamagno, Fernando Salvagiotti, P. V. Vara Prasad and Ignacio A. Ciampitti
52-6	9:20 AM	**Can NPK Fertilization Simultaneously Increase Yield and Seed Quality of Soybean?** Vitor Favoretto* and Frederick E. Below
52-7	9:35 AM	**Long Photoperiod in a Short Growing Season: Climate and Photoperiod Influence Phenology of Short Season Soybean in Canada** Nathaniel Ort*, Malcolm J. Morrison, Elroy Cober and Yvonne Lawley
	9:50 AM	**Break**
52-8	10:00 AM	**Maturity Group and Planting Population Adjustments to Manage Soybean Planting Window** Thomas Siler* and Maninder Pal Singh
52-9	10:15 AM	**Soybean Phenology Prediction Tool for the Midsouth** Caio dos Santos*, Larry C. Purcell and Montserrat Salmeron Cortasa
52-10	10:30 AM	**Response of Simulated Stress on Soybean Production Systems in Oklahoma: Growth Parameters and Yield.** Sarah Kezar*, Josh Lofton, Anna Zander and Chase Harris
52-11	10:45 AM	**Nutrient Cycling in a Winter Rye Cover Crop System and Its Effects on the Nutrient Status of Soybeans** Ben Brockmueller*, Peter J. Sexton, Shannon L. Osborne, Bee Chim and Chelsea Sweeter
52-12	11:00 AM	**Effect of Soybean Seeding Rate on Self-Thinning** Jenna Moore*, Laura E. Lindsey, Anne Dorrance, Christine Dazil Sprunger and Elizabeth M. Hawkins
52-13	11:15 AM	**Soybean Grain Yield and Quality Effect Due to in-Season Management in Eastern South Dakota** Kelsey E. Bergman* and Peter Kovacs
52-14	11:30 AM	**On-Farm Evaluation of Soybean Furrow and Flood Irrigation Strategies** Corey Bryant*, L. Jason Krutz and Gene Spencer
52-15	11:45 AM	**Assessing Soybean Stands with Suas in Indiana** Richard Mitchell Smith* and Shaun Casteel
	12:00 PM	**Adjourn**

SESSION NO. 53—8:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Cover Crop Research Oral I (includes student competition)

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

Moderator: Katie Lewis, Katja Koehler-Cole

	8:00 AM	**Introductory Remarks**
53-1	8:05 AM	**Effect of Cereal Rye and Hairy Vetch on Pest Suppression and Corn Yield** Mahesh Bashyal*, Connor Ferguson, Oscar Perez-Hernandez and Nigel Hoilett
53-2	8:20 AM	**Field Assessment of Heterodera Glycines Populations in Winter Oilseed Cover Crop Rotation.** Cody Hoerning*, Donald L. Wyse, Katherine Frels, M. Scott Wells, James A. Anderson and Senyu Chen
53-3	8:35 AM	**Getting Legume Cover Crops to Work in Mid-Atlantic Crop Rotations** Cara Peterson*
53-4	8:50 AM	**Radish Cover Crop Growth and Compaction Alleviation: Effects of Cultivar and Planting Date** Trevor Cofer*, Audrey V. Gamble, Elizabeth A. Guertal and Kipling S. Balkcom
53-5	9:05 AM	**Kura Clover Living Mulch Reduces Fertilizer N Requirements and Increases Profitability of Maize** Jonathan R Alexander*, John M. Baker, Rodney T. Venterea and Jeffrey A. Coulter
	9:20 AM	**Break**

53-6	9:35 AM	**Cover Crops and Wheat Stubble Management Affect Rainfed Corn Productivity in Semi-Arid Western Nebraska** Alexandre Tonon Rosa*, Strahinja Stepanovic, Cody Creech, Roger W. Elmore, Daran R. Rudnick, Chuck Burr and Rodrigo Werle
53-7	9:50 AM	**Stochastic Analysis of Economic Risk and Uncertainty Following Cover Crop Adoption** Richard T. Roth*, Carson Reeling and Shalamar D. Armstrong
53-8	10:05 AM	**Cover Crops in Southwest: Obtaining Ecosystem Services While Minimizing Water Use** Prashasti Agarwal*
53-9	10:20 AM	**Rye Cover Crop and in-Furrow Fertilizer and Fungicide Effects on Corn Optimum Seeding Rate and Grain Yield** Daniel Quinn*, Hanna Poffenbarger and Chad D Lee
53-10	10:35 AM	**Utilization of Mineralizable N in White Clover Residue from a Living Mulch Cover Crop Corn Production System** Jill Mullican*, Matthew R. Levi, Nicholas Basinger, Aaron Thompson, Miguel L. Cabrera and Nicholas Hill
	10:50 AM	**Break**
53-11	11:00 AM	**Relay Cropping Soybean with Oil Seed Cover Crops.** Swetabh Patel*, Andrew W. Lenssen and Kenneth J. Moore
53-12	11:15 AM	**Impact of Cover Cropping Systems on Corn (*Zea mays*) and Grain Sorghum (*Sorghum bicolor* (L) Moench) Production in Texas** Jackson Nielsen*
53-13	11:30 AM	**Short - Term Influence of Winter Cover Crops on Yield in a Corn - Soybean Rotation** Bradley Hurst*, Trenton L. Roberts, William Jeremy Ross, Robyn Mulloy, Drew Dillion, Caio dos Santos, Kyle Hoegenauer and Dustin Bolton
53-14	11:45 AM	**The Economic Evaluation of Soybean Following Winter Cover Crops Vs. Double-Cropped Soybean** Drew Dillion*, Trenton L. Roberts, William Jeremy Ross, Robyn Mulloy, Bradley Hurst, Kyle Hoegenauer and Dustin Bolton
	12:00 PM	**Adjourn**

SESSION NO. 54—8:00 AM–6:00 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

Excellence in Extension Materials on Display I

ASA Section: Education and Extension

Lead Community: Extension Education Community

SESSION NO. 55—8:00 AM–6:00 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

Teaching Materials Display

ASA Section: Education and Extension

Lead Community: K-16 Education and Outreach Community

Moderator: Melanie Bayles

SESSION NO. 56—8:15 AM–9:50 AM

Henry B. Gonzalez Convention Center, 007D, River Level

Crop Physiology and Metabolism Oral I

C02 Crop Physiology and Metabolism

Moderator: Krishna Jagadish

	8:15 AM	**Introductory Remarks**
56-1	8:20 AM	**Nitrogen Management Consequences on Endosperm Cell Number Formation in Maize Kernels** Lia B. Olmedo Pico*, Cankui Zhang and Tony J. Vyn
56-2	8:35 AM	**Amino Acid Exporters Involved in Long Distance N Transport** Sakiko Okumoto* and Julien Besnard
56-3	8:50 AM	**Dry Matter Partitioning and K Distribution of Vegetable Soybean Genotypes with Potassium Higher Efficiency** Changkai Liu, Yansheng Li, Qiuying Zhang* and Xiaobing Liu
56-4	9:05 AM	**A Novel Transgenic Approach to Improving Yield Stability in Maize** Jeff Habben, Ben Weers, Salim Hakimi, Jeffrey Schussler*, H. Renee Lafitte, Bo Shen, Scott Adair, Carla Gho, Quincey Tuttle and Jingrui Wu
56-5	9:20 AM	**Investigating Variation in Grain Protein Accumulation Among Barley Genotypes with a Diverse Background** Xi Liang* and Gongshe Hu
56-6	9:35 AM	**Re-Evaluation of the Biomass Partitioning and Nutrient Accumulation of Cotton Cultivars in Texas Southern High Plains** Irish Lorraine Pabuayon*, Glen Lorin Ritchie and Katie L. Lewis
	9:50 AM	**Adjourn**

SESSION NO. 57—8:25 AM–11:35 AM

Hilton Palacio del Rio, El Mirador West, 22nd Floor

Global Agronomy Oral

ASA Section: Global Agronomy

	8:25 AM	**Introductory Remarks**
57-1	8:30 AM	**Cotton Stand Characterization with Unmanned Aerial Systems** Will Dodge*, Andrew Young, James R. Mahan and Paxton Payton
57-2	8:45 AM	**Post Nepal Earthquake Agricultural Projects Increase Gross Community Income By $90,000 in Two Years** Jason D Streubel*, Harold P. Collins, Samuel Tamang and Christopher Groh
57-3	9:00 AM	**The Benefit of Indigenous Knowledge in Subsistence Farming: Implications for Sustainable Agricultural Production in Oromiya, Ethiopia** Oli Bachie* and Worku Burayu
57-4	9:15 AM	**A New Green Revolution with the Same Silver Bullets? on-Farm Trials in West Africa Find Limited Adoption Effect of Promoted New Varieties.** Jon Eldon*, Saidou Sidibeh and Carol Shennan
	9:30 AM	**Break**
57-5	9:45 AM	**How Can North America Benefit from Agroecology?** Haben Asgedom*, Ben Thomas and Kirsten Hannam
57-6	9:50 AM	**Sustainable World Food Security: Global Focus on Sub-Saharan Africa** Morakinyo Abiodun Bamidele Fakorede*

57-7	10:05 AM	**Analysis of Past Research Data on Wheat Nitrogen and Water Stress across Europe** Davide Cammarano*, Miguel Soares, Lúcia Barão, Pierre Martre, Philippe Hinsinger and Gottlieb Basch
57-8	10:20 AM	**Effect of POLY4 Compared with SOP on the Yield and Quality of Citrus in Sichuan, China** Xiaohui Fan*, Rachel Fields, Ross Mitchell, Robert Meakin and Yusheng Qin
57-9	10:35 AM	**The Significance of POLY4 for Global Corn Production** Rachel Fields*, David Lagarrigue and Robert Meakin
57-10	10:50 AM	**The Contentious Nature Connecting Soil, Plant and Grain Nutrient Status for a Modified One Health Approach** Zachary P. Stewart*, M Djanaguiraman, P.V. Vara Prasad and Charles A. Shapiro
57-11	11:05 AM	**Oil Palm Intensification for Land Saving in Indonesia** Patricio Grassini*, Antoine Couedel, Juan I Rattalino Edreira, Jose F. Andrade, Maja Slingerland, Rob van den Beuken, Fahmuddin Agus and Suroso Rahutomo
57-12	11:20 AM	**Pathway to Sustainable Rice Production: Cross-Country Analysis** Shen Yuan*, Kenneth G Cassman, Shaobing Peng and Patricio Grassini
	11:35 AM	**Adjourn**

SESSION NO. 58—8:15 AM–11:50 AM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Bioenergy Systems General Oral

ASA Section: Agronomic Production Systems

Lead Community: Bioenergy Systems Community

Moderator: Ramdeo Seepaul, Juan Solomon

	8:15 AM	**Introductory Remarks**
58-1	8:20 AM	**Yield and Water Use Efficiency of Biomass Sorghum Under Different Water Regimes** Sushil Thapa*, Qingwu Xue, Kirk Jessup, Robert M. Aiken, Jourdan M. Bell and William L Rooney
58-2	8:35 AM	**Biomass and Nutrient Contribution of Summer (Sweet Sorghum) and Winter Cover Crops in Energy Cane Production in Louisiana** Marilyn Sebial Dalen*, Brenda Tubana, Howard Viator, Lisa M. Fultz, Wooiklee Paye and Daniel Forestieri
58-3	8:50 AM	**Crop Enterprise and Environmental Budgeting Tool (CE2T) for Biomass Cropping Systems** Gregg A. Johnson*, Dean A. Current, William Lazarus, Diomy S. Zamora, Airton Serra Jr., Gary Wyatt, Jacob Jungers and Joshua D. Gamble
58-4	9:05 AM	**Bioenergy Feedstock Yield and Quality across a Spectrum of Marginal Soils** Kurt D. Thelen* and Gregg Sanford
58-5	9:20 AM	**Industrial Hemp Pilot Studies: Production Potentials and Challenges in Eastern Virginia** Maru K. Kering*
58-6	9:35 AM	**Tillage and Nitrogen Management for Irrigated Sugar Beet Production** Chengci Chen* and Apurba Sutradhar
	9:50 AM	**Break**
58-7	10:05 AM	***Brassica Carinata* Growth and Yield Response to Nitrogen and Sulfur Fertilizers** Dwarika Bhattarai, Thandiwe M. Nleya* and Sandeep Kumar
58-8	10:20 AM	**Carinata Dry Matter Production and Nutrient Uptake Responses to Nitrogen Fertilization** Ramdeo Seepaul*, Ian M Small, Sheeja George and David L. Wright
58-9	10:35 AM	**The Effect of Nurse Crops on Carinata Stand Establishment, Erosion Potential, Growth, and Seed Yield** Ramdeo Seepaul*, Ian M Small, Sheeja George and David L. Wright
58-10	10:50 AM	**Nitrogen Application Rates and Cultivars Influence on Camelina Biomass Decomposition in a Semiarid Environment** Juan K. Q. Solomon*
58-11	11:05 AM	**Leaching of Dissolved Organic Carbon (DOC) and Dissolved Organic Nitrogen (DON) from Agricultural Soils in Southern Michigan** Mir Zaman Hussain*, G. Philip Robertson, Bruno Basso and Stephen Hamilton
58-12	11:20 AM	**Spatial Crop-Soil Data to Parameterize Modeling of Nitrous Oxide Emissions from Corn Production for Biofuel** Yushu Xia, Hui Xu, Michelle Wander and Hoyoung Kwon*
58-13	11:35 AM	**Root-to-Shoot Ratios and Contributions to Soil Carbon By Perennial Bioenergy Crops in the Upper Midwest US, Comparing Pit Versus Deep Soil Core Sampling.** S. Carolina Carolina Cordova*, Ilya Gelfand and G. Philip Robertson
	11:50 AM	**Adjourn**

SESSION NO. 59—8:15 AM–11:50 AM

Hilton Palacio del Rio, La Vista DE, 22nd Floor

Robert F. Barnes Ph.D. Oral (includes Society-wide student competition selection)

C06 Forage and Grazinglands

Moderator: James Rogers

	8:15 AM	**Introductory Remarks**
59-1	8:20 AM	**Can Alfalfa in Mixture with Grass Reduce Enteric Methane Emissions from Cattle on Pasture?** Kathryn Radicke*, Chuck West and Darren Henry
59-2	8:35 AM	**Genome Wide Association Studies and QTL Mapping in Chickpeas for Resistance to *Ascochyta Blight* and *Pythium Ultimum*** Chiti Agarwal*, George J. Vandemark, Weidong Chen and Rajeev K. Varshney
59-3	8:50 AM	**Effects of Imazapic (Plateau) Herbicide Use and Rates on Establishment of Native Warm-Season Grass and Wildflower Stands** Shayan Ghajar*, Benjamin F. Tracy, Megan O'Rourke and Jennie Wagner
59-4	9:05 AM	**^{13}c Stable Isotope Signature of Methane Emissions from Beef Steers Consuming C3-C4 Binary Mixtures** David M. Jaramillo*, Jose C.B. Dubeux Jr., Martin Ruiz-Moreno, Nicolas DiLorenzo, Luana M. Dantas Queiroz, Erick Rodrigo da Silva Santos and Liza Garcia Jimenez
59-5	9:20 AM	**Trade-Off between Forage Quality Improvement and Crop Water Use for Alfalfa-Grass System** Madhav Dhakal* and Charles P. West
59-6	9:35 AM	**Association of Targeted Genes with Heading Date within an Orchardgrass Population Selected for Late-Heading and Forage Quality.** Megan M. Getz*, B. Shaun Bushman, Kevin B. Jensen, Matthew D. Robbins and Earl Creech
	9:50 AM	**Break**

59-7	10:05 AM	**Enhancing Yield and Cold Tolerance of Forage Bermudagrass in Oklahoma through Interspecific Hybrids As Determined By Transferable SSR Markers** Ryan Bryant-Schlobohm*
59-8	10:20 AM	**Above and Belowground Biomass Characteristics of Rhizoma Peanut Entries and Their Relationship with Soil C and N** Liliane Severino da Silva*, Lynn E. Sollenberger, Katie D. Cooley, Marta M. Kohmann, Parmeshwor Aryal, Bruno Carneiro Pedreira, Gabriel Baracat Pedroso, Maria Lucia Silveira and Jose C.B. Dubeux Jr.
59-9	10:35 AM	**Enteric Methane δ13c Signature from Beef Cattle Fed Increasing Levels of a Tannin-Rich Legume** Flavia van Cleef*, Jose C.B. Dubeux Jr., Martin Ruiz-Moreno, Erick Rodrigo da Silva Santos, Harley D. Naumann, Lynn E. Sollenberger, Joao M.B. Vendramini and Nicolas DiLorenzo
59-10	10:50 AM	**Root-Rhizome Mass, Growth, and Decomposition of Rhizoma Peanut (Arachis glabrata Benth.)** Erick Rodrigo da Silva Santos*, Jose C.B. Dubeux Jr., Cheryl L Mackowiak, Lynn E. Sollenberger, David M. Jaramillo, Flavia van Cleef, Michelle Siqueira and Martin Ruiz-Moreno
59-11	11:05 AM	**Effect of Row Spacing and Water Regimes on the Forage Yield and Quality of Three Summer Legumes** Gurjinder S. Baath*, Alexandre C. Rocateli, Prasanna H. GOWDA and Brian K. Northup
59-12	11:20 AM	**Bahiagrass Herbage Accumulation and Nutritive Value As Affected By Biosolids and Biochar Application** Yanyan Lu*, Maria Lucia A. Silveira, Joao M.B. Vendramini, John E. Erickson and Yuncong Li
	11:35 AM	**Discussion**
	11:50 AM	**Adjourn**

SESSION NO. 60—8:25 AM–12:00 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Organic Management Systems Oral (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Organic Management Systems Community

Moderator: Tunsisa Hurisso

	8:25 AM	**Introductory Remarks**
60-1	8:30 AM	**Effect of Olive Vegetation Water on Weed Seed Germination** Ashraf Tubeileh* and Rashaan Souikane
60-2	8:45 AM	**Getting Nature's Services and Eating It Too** Vicki L. Morrone*, Sieglinde S. Snapp, Kim Cassida and Jacob Jungers
60-3	9:00 AM	**Lessons from the Cornell Organic Grain Cropping Systems Experiment** Matthew R. Ryan*, Margaret G. Ball, Ashley B. Jernigan, Chris J. Pelzer, Sandra Wayman and Charles L. Mohler
60-4	9:15 AM	**Cover Crop Effectiveness Varies in Cover Crop-Based Rotational Tillage Organic Soybean Systems Depending on Species and Environment** Laura Vincent-Caboud, Léa Vereecke*, Erin M. Silva and Joséphine Peigné
60-5	9:30 AM	**Corn (*Zea mays* L.) Yield Response to Tillage Radish (*Raphanus sativus* L.) When Planted with Annual and Winter Hardy Cover Crops** Emily Evans*, Paulo H. Pagliari, Steve Quiring and Lee Klossner
60-6	9:45 AM	**Transitioning into Organic Grain Production in Texas: Challenges and Environmental Impact** Diana Zapata*, Nithya Rajan, Jonathan Moreno, Ronnie W. Schnell, Shyam Nair and Kenneth D. Casey
60-7	10:00 AM	**Developing Field and Sweet Corn Hybrids for Organic Producers: The Aces Project** Kathleen Delate*, Thomas Lubberstedt, Paul Scott, William F. Tracy and Robert Turnbull
	10:15 AM	**Break**
60-8	10:30 AM	**Combining Cover Crops, Strip Tillage, and Novel Mulches to Manage Weeds in Carrot** Jesse Puka-Beals* and Greta G. Gramig
60-9	10:45 AM	**Soil-Mediated Effects on Weed-Crop Competition** Uriel Menalled*, Matthew R. Ryan and Christopher J Pelzer
60-10	11:00 AM	**Summer Cover Crop Growth and Effect on Soil Quality in Upper Midwest Vegetable Rotations** Vivian Wauters*, Julie M. Grossman, Paulo H. Pagliari and Anne Pfeiffer
60-11	11:15 AM	**Nitrogen Isotope Composition of Organically and Conventionally Grown Crops** Xia Zhu-Barker*, Ehsan Toosi and William R. Horwath
60-12	11:30 AM	**Estimating Organic Carbon and Nitrogen Mineralization from Winter Cereal Cover Crops Residue in Organic Crop Production Systems** Pramod Pokhrel*, Nithya Rajan and Ronnie W. Schnell
60-13	11:45 AM	**The Scalability of Agroecological Practices in the United States: Motivations, Barriers, and the Effect of Farm Size, Management, and Cropping System** Jeff Liebert*, Matthew R. Ryan, Rachel Bezner Kerr, Alison Power, Thomas Björkman and Miguel Gomez
	12:00 PM	**Adjourn**

SESSION NO. 61—8:30 AM–11:40 AM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

Soil Health I: Data-Driven Integrated Approaches Towards Sustainable Agriculture Oral

ASA Section: Land Management and Conservation

Lead Community: Soil Health Community

Moderator: Caley Gasch

	8:30 AM	**Introductory Remarks**
61-1	8:35 AM	**A Multivariate Approach to Quantify Responsiveness and Consistency of Soil Health Parameters** Ayush Joshi Gyawali*, Ryan Stewart, Michael Strickland, Wade E. Thomason and Steven C. Hodges
61-2	8:50 AM	**Switchgrass Root Mycobiome Dynamics and Responses to Management in a Conservation Agroecosystem** Keerthi Mandyam*, Ari Jumponen, Anna Kazarina, Joseph Bridges, Ananda Nanjundaswamy and Girish K. Panicker
61-3	9:05 AM	**Picrust Vs Tax4Fun: A Comparison of Functional Prediction Tools Applied to Southwest Florida Soil Bacteria** David R. Toole* and Sarah L. Strauss
61-4	9:20 AM	**Tillage Erosion and Its Effect on SOC in the Mollisols Region of China** Enheng Wang*

61-5	9:35 AM	**Impact of Management Practices on Carbon and Water Fluxes in Corn-Soybean Rotations** Christian Dold*, Jerry L. Hatfield, John H. Prueger, Thomas J. Sauer, Thomas B. Moorman and Ken Wacha
61-6	9:50 AM	**Response of Soil Carbon and Nitrogen Fractions to Intercropping Kura Clover (*Trifolium ambiguum M. Bieb*) with Prairie Cordgrass (*Spartina pectinata Link.*)** Gandura Omar Abagandura* and Sandeep Kumar
	10:05 AM	**Break**
61-7	10:20 AM	**Carbon Sequestration Potential of Perennial Sorghum.** Russell W. Jessup* and Dirk B. Hays
61-8	10:35 AM	**Effects of Strip Planting and Orientation on Volunteer Seedling Performance in Early-Succession Native Warm-Season Grass Stands** Vitalis Wilbald Temu*, Maru K. Kering and Laban K. Rutto
61-9	10:50 AM	**Soil Health in New Zealand Pastoral Land Uses: Macroporosity As an Often Overlooked Indicator** Bryan Stevenson* and John Drewry
61-10	11:05 AM	**Simulated Impact of Grazing Management Practices on Sediment and Nutrient Losses, and Soil Carbon Sequestration** JungJin Kim, Srinivasulu Ale* and William Richard Teague
61-11	11:20 AM	**Soil Organic Carbon Accumulation in Response to Different Grazing Management Practices** Sutie Xu*, Sindhu Jagadamma, Amanda J. Ashworth, Surendra Singh, Phillip R. Owens and Philip Moore
	11:35 AM	**Concluding Remarks**
	11:40 AM	**Adjourn**

SESSION NO. 62—8:35 AM–10:40 AM

Henry B. Gonzalez Convention Center, 007C, River Level

Symposium--Native Genes from Exotic Germplasm and Wild Relatives for Improving Crop Disease and Insect Resistance: Part 1 - Identification and Introgression

C08 Plant Genetic Resources

	8:35 AM	**Introductory Remarks**
62-1	8:40 AM	**Utilizing Peanut Genetic Resources for Cultivar Improvement** H. Thomas Stalker* and Soraya Leal-Bertioli
62-2	9:10 AM	**The Hunt for Sources of and Introgressed Resistance Genes of *Fusarium* Wilt Race 4 (FOV4) in Cotton** Mauricio Ulloa*, Robert Hutmacher, TariLee Frigulti, Margaret Ellis, Philip A. Roberts and Robert L. Nichols
62-3	9:40 AM	**Wild Potatoes As Sources of Disease Resistance Genes** Jansky Shelley*
62-4	10:10 AM	**Development of High Yielding Synthetic-Derived Winter Wheat in Texas** Jackie C. Rudd*, Amir M.H. Ibrahim, Qingwu Xue, Shuyu Liu, Audrey Girard and Joseph Awika
	10:40 AM	**Adjourn**

SESSION NO. 63—8:35 AM–12:00 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

Precision Agriculture Systems Graduate Student Oral (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Precision Agriculture Systems Community

Moderator: Kyle Egbert, Lance Conway

	8:35 AM	**Introductory Remarks**
63-1	8:40 AM	**Comparison of Pulse-Width-Modulation (PWM) Nozzles with Fixed-Orifice (FO) Nozzles for Achieving Sensor-Based Target Nitrogen Rate Recommendations** Jackson Stansell*, Samantha Teten, Joe D. Luck, John Parrish, Laura Thompson, Richard B Ferguson, Laila A. Puntel and Brian T Krienke
63-2	8:55 AM	**Evaluating Crop Circle Phenom Active Canopy Sensor for Corn Nitrogen Status Diagnosis in Minnesota** Cadan Cummings*, Yuxin Miao, Fabian G. Fernandez and Gabriel Dias Paiao
63-3	9:10 AM	**Does Integration of Soil and Plant Measurements Using Crop Sensor Information Improve Maize-N Model Predictions?** Mohammed A Naser*, Richard B Ferguson, Brian Krienke, Suat Irmak, Daran R. Rudnick, Tim Shaver, Charles A. Shapiro and Keith L. Glewen
63-4	9:25 AM	**Predicting Precision Nitrogen Side-Dress Applications for Maize with a Simulation Model** Arianna Toffanin*, Maurizio Borin, Miguel L. Cabrera, Anna Orfanou, Brenda V. Ortiz, Dimitrios Pavlou, Calvin Perry and George Vellidis
63-5	9:40 AM	**Identifying the Limiting Factors in Maize Production with DSSAT-CERES-Maize Model** Anna Orfanou*, Dimitrios Pavlou, Kenneth J. Boote, Miguel L. Cabrera, Glendon Harris, R. Dewey Lee, Reagan L. Noland, George Vellidis and Wesley M Porter
63-6	9:55 AM	**On-Farm Precision Experimentation with Cotton to Generate Algorithms for Site-Specific Management of Nitrogen Fertilizers Based on Airborne Imagery** Luciano Shozo Shiratsuchi*, Pericles Briante, Ziany Brandao, David S. Bullock and Carlos Antonio Silva Junior
	10:10 AM	**Break**
63-7	10:25 AM	**Assessing Spatial Pattern of Soil Microbial Community at Landscape Scale for Precision Soil Management** Jasmine Neupane*, Wenxuan Guo, Veronica Acosta-Martinez, Fangyuan Zhang, Zhe Lin and Amanda Cano
63-8	10:40 AM	**The Use of Multispectral and Thermal Imaging for Variable Rate Irrigation in Cotton** Lorena Nunes Lacerda*, John Snider, Yafit Cohen, Vasileios Liakos and George Vellidis
63-9	10:55 AM	**Precision Planting in Small Grains: Role of Singulation, Seeding Rate and Row Spacing in Maximizing Yield Potential** Kalvin Canfield*, Maninder Pal Singh and Dennis R. Pennington
63-10	11:10 AM	**Mapping Protein Variability in Spring Wheat Using a Combine-Mounted NIR Analyzer** Melissa Geiszler* and Joel Ransom
63-11	11:25 AM	**Early Prediction of the Level of Infestation and Competitive Interactions of Italian Ryegrass in Wheat Using Digital Image Analysis** Bishwa Sapkota*, Vijay Singh and Muthukumar Bagavathiannan

63-12	11:40 AM	**Sugarcane Yield Map Prediction: A Preliminary Study** Felippe Hoffmann Silva Karp*, Murilo de Santana Martins, Jimmy Flanagan and Luciano Shozo Shiratsuchi
	11:55 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 64—8:45 AM–9:50 AM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

Making the Most of on-Farm Trials Using Spatial Statistics Oral

ASA Section: Biometry and Statistical Computing

Lead Community:
Spatial Statistics and On-Farm Research Community

	8:45 AM	**Introductory Remarks**
64-1	8:50 AM	**Efficiency of a Spatial Analysis in Potato Breeding Trials and Impacts on Selection** Mario H.M.L. Andrade*, Cesar A.B. Pinto and Lincoln Zotarelli
64-2	9:05 AM	**Analysis of on-Farm Large Scale Nitrogen Trials for Wheat in Argentina** zhangliang chen*, Bruce Maxwell, Davis Philip, Taro Mieno, David S. Bullock, Rodrigo Goncalves Trevisan, Nicolas Federico Martin and Laila A. Puntel
64-3	9:20 AM	**What Do We Mean When We Say 'p-Value'?** Peter Claussen*
64-4	9:35 AM	**Year to Year Variability in Yield Stability Based Management Zone for Corn** Jason Cho*, Ben Lehman, Tulsi Kharel, Dilip Kharel, Karl J. Czymmek, Joe Guinness and Quirine M. Ketterings
	9:50 AM	**Adjourn**

SESSION NO. 65—8:50 AM–9:05 AM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

ASA Community Planning Session --Agronomy in Africa

ASA Section: Global Agronomy

Lead Community: Agronomy in Africa Community

SESSION NO. 66—9:00 AM–10:00 AM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

SASES Speech Contest - Finals

Undergraduate (SASES) Sessions

SESSION NO. 67—9:00 AM–11:05 AM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

Symposium--Embracing Digital Technologies and Decision Support Systems for Smart Management of Soil and Water

ASA Section: Agronomic Production Systems

Lead Community:
Soil and Water Management Professionals Community

Moderator: Gary Feng

	9:00 AM	**Introductory Remarks**
67-1	9:05 AM	**Making Irrigation Decisions Using the Water Irrigation Scheduler for Efficient Application (WISE App) in Colorado** Allan A. Andales*
67-2	9:25 AM	**Development and Use of Decision Support Tools for Nitrogen Fertiliser Management** Deli Chen*, So Pyay Thar, Robeert Farquharson and Yong Li
67-3	9:45 AM	**Decision Supporting Tools in Irrigation Management for Smallholder Farmers in the North China Plain** Xiying Zhang* and Hongjun Li
67-4	10:05 AM	**Creating and Optimizing Data for Soil and Water Management in Agriculture** Robert Hale*, Simon van Donk and Caleb Midgley
67-5	10:30 AM	**A Decision Supporting Tool for Recommending Practices to Control Agricultural Diffusive Pollution at the Catchment Scale** Yong Li*
67-6	10:50 AM	**Smart Decision Support Database Tool to Improve Water Utilization and Close Yield Gap** Gary Feng*
	11:05 AM	**Adjourn**

SESSION NO. 68—9:30 AM–11:00 AM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Symposium--Agroecological Benefits of Tropical Legumes across Diverse Cropping Systems

ASA Section: Global Agronomy

Lead Community: Tropical Legumes Community

Moderator: Arun Jani

	9:30 AM	**Introductory Remarks**
68-1	9:35 AM	***Ecosystem Services from Warm-Climate Forage Legumes*** Jose C.B. Dubeux* Jr., Lynn E. Sollenberger, Valéria X.O. Apolinário, Liza Garcia, Mercia Virginia Ferreira Santos, James P. Muir, Joao M.B. Vendramini, José Rangel and Nicolas DiLorenzo
68-2	9:50 AM	**The Effect of Mung Bean on Improving Dietary Diversity of Women and Children in Senegal** A. Ozzie Abaye*
68-3	10:05 AM	**Growing Warm-Season Legume Cover Crops in Temperate Agroecozones: Biomass Production and Soil Health Benefits** Humberto Blanco* and Sabrina Ruis
68-4	10:20 AM	***Sunn Hemp*: A Multifunctional Legume for Diverse Agroecosystems** Stuart A. Weiss* and Arun D Jani

68-5	10:35 AM	***Feed the World: Domesticate a Novel Legume*** James P. Muir*, Maria Carlota Vaz Patto and Mercia Virginia Ferreira dos Santos
	10:50 AM	**Panel Discussion**
	11:00 AM	**Adjourn**

SESSION NO. 69—9:30 AM–11:05 AM

Henry B. Gonzalez Convention Center, 213B, 2nd Level

Role of Wildfire in Forest, Range, and Wildland Soils Oral

SSSA Division: Forest, Range and Wildland Soils

Moderator: Jeff Hatten

	9:30 AM	**Introductory Remarks**
69-1	9:35 AM	**Factors Controlling the Distribution of Pyrogenic Carbon across the Continental US** Jeff A. Hatten*, Adrian C. Gallo, Lauren Matosziuk, Michael D. Sanclements, Margaret Bowman, Jessie Egan, Brian D. Strahm, Angela R. Possinger, Tyler Weiglein, Katherine Heckman and Lucas E. Nave
69-2	9:50 AM	**Fire Impacts on Grassland Soils: Formation, Function, and Sustainability.** Daniel G. Neary*
69-3	10:05 AM	**Do Changes in Soil Nutrient Supply or Demand Explain Persistent Post-Fire Increases in Stream Nitrogen?** Charles C. Rhoades*, Tim S. Fegel II, Allison Rhea and Tim Covino
69-4	10:20 AM	**The Effect of Wildfire on Soil Erosion and Some Soil Properties in Puerto Rico.** Mario L Flores Mangual* and Lyvette Trabal
69-5	10:35 AM	**Wood Decomposition after Severe Wildfire and Site Remediation Efforts in a Southern California Forest** Chris Miller*, Martin F. Jurgensen and Deborah S. Page-Dumroese
69-6	10:50 AM	**The Effects of Prescribed Fire and Thinning on Soil Physical and Chemical Properties and Plant Community Dynamics in Wisconsin Forests.** Alyssa Archuleta* and Jacob Reed Prater
	11:05 AM	**Adjourn**

SESSION NO. 70—9:30 AM–11:05 AM

Henry B. Gonzalez Convention Center, 221C, 2nd Level

Macronutrients for Crop Production Oral

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Bhupinder Farmaha, Stephanie Kulesza

	9:30 AM	**Introductory Remarks**
70-1	9:35 AM	**4Rs Variables for Corn Production with Urea-Containing Fertilizers in the US Upper Midwest** Fabian G. Fernandez, Daniel E. Kaiser, Jeffrey A. Vetsch and Karina P. Fabrizzi*
70-2	9:50 AM	**Use of ^{15}N-Labeled Anhydrous NH_3 to Determine the Efficiency of Fall N Fertilization for Corn Production** Kelsey Griesheim*
70-3	10:05 AM	**Changes in Phosphorus Fractions with Long-Term Fertilizer Placement in Different Kansas Soils** Marta J. Arruda Coelho* and Dorivar A. Ruiz Diaz
70-4	10:20 AM	**Comparison of Sources of Sulfur for Fall Application to Corn** Daniel E. Kaiser*
70-5	10:35 AM	**Sulfur Response in Potatoes in Maine** Lakesh Sharma*, Ahmed A Zaeen, Ahmed Jasim, Sukhwinder Bali and Austin A Bouchard
70-6	10:50 AM	**Effects of Multiple Applications of POLY4 Fertiliser on Tea Crops and Soils** Ross Mitchell*, Xiaohui Fan, Neeraj Awasthi, Rachel Fields and Robert Meakin
	11:05 AM	**Adjourn**

SESSION NO. 72—9:30 AM–11:30 AM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

Symposium--Crop and Nutrient Management Recommendations Based on Integrated Unmanned Aerial Vehicle and Digital Camera Systems

ASA Section: Agronomic Production Systems

Lead Community: Sensor-based Nutrient Management Community

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition,
C03 Crop Ecology, Management and Quality

Moderator: Xinhua Yin

	9:30 AM	**Introductory Remarks**
72-1	9:35 AM	**Integrating Remote Sensing with Crop Modeling for Variable Rate Nitrogen Prescription** Bruno Basso*
72-2	10:00 AM	**Crop Nutrient Recommendation Using Uav Mounted Active Optical Sensors** Kyle H. Holland*
72-3	10:25 AM	**High Throughput Phenomics, Can It be Useful for Nutrient Management?** Michael R. Schlemmer*
72-4	10:50 AM	**Assessment of Drone Based Sensors to Direct Variable-Rate, in-Season, Aerial Nitrogen Application on Corn through on-Farm Research** Laura Thompson*
	11:15 AM	**Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 73—9:30 AM–11:30 AM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

Symposium--Modernization of Soil Testing Recommendations: The Problem

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Paul Fixen

	9:30 AM	**Introductory Remarks**
73-1	9:35 AM	**Soil Testing History and Fertilization Philosophies** Robert J. Florence*
73-2	9:55 AM	**Soil Testing Challenges and Opportunities** Peter J. A. Kleinman*, Steven W. Culman, Robert O. Miller, Nathan O. Nelson, Deanna L. Osmond, Nathan A. Slaton, John T. Spargo and Hailin Zhang

73-3	10:15 AM	**Soil Test Based P and K Rate Recommendations across the Southeast: Similarities and Differences; Opportunities and Challenges** John H. Grove*, Hailin Zhang, Joao Antonangelo, Shannon Alford, Robert J. Florence, Gobena Huluka, David H. Hardy, Jason T. Lessl, Rory O. Maguire, Rao S. Mylavarapu, Larry Oldham, Deanna L. Osmond, Eugenia M. Pena-Yewtukhiw, Tony L. Provin, Nathan A. Slaton, Leticia S. Sonon, David Sotomayor and Jim J. Wang
73-4	10:40 AM	**Survey of Land-Grant University Soil Test Recommendations and Analytical Methods** John T. Spargo*, Tony L. Provin, David H. Hardy, Thomas F. Morris, Deanna L. Osmond, Nathan A. Slaton and Hailin Zhang
73-5	11:05 AM	**Developing a Minimum Data Protocol for Soil Testing Research in the U.S.** Nathan A. Slaton*, John T. Spargo, Deanna L. Osmond, Brian Arnall, Thomas W. Bruulsema, Bhupinder Singh Farmaha, John H. Grove, Peter J. A. Kleinman, Sarah E Lyons, Joshua M. McGrath, Mark S. Reiter, Amy L. Shober and Gurpal Toor
	11:30 AM	**Adjourn**

SESSION NO. 74—9:30 AM–11:30 AM

Hilton Palacio del Rio, La Reina, 2nd Floor

Symposium--Think Globally, Sample Locally: Assessing Anthropogenic Effects of Urban Soils at Multiple Scales

SSSA Division: Urban and Anthropogenic Soils

Moderator: Richard Pouyat

	9:30 AM	**Introductory Remarks**
74-1	9:35 AM	**Think Globally, Sample Locally - the Characteristics of Urban Soils at Multiple Scales.** Richard V. Pouyat* and Tara L.E. Trammell
74-2	10:00 AM	**Global Comparison of Urban Soils: Lessons Learned from a Pilot Study** Katalin Szlavecz*
74-3	10:25 AM	**Urban Soil Homogeneity Versus Heterogeneity - Urban Soil Characteristics at Regional to Continental Scales** Tara L.E. Trammell*, Richard V. Pouyat and Vince D'Amico
74-4	10:50 AM	**Just Add Organic Matter? the Reality of Using Biochar or Compost to Improve Damaged and Compacted Urban Soils** Peter Somerville, Claire Farrell, Peter May and Stephen Livesley*
	11:15 AM	**Discussion**
	11:25 AM	**Concluding Remarks**
	11:30 AM	**Adjourn**

SESSION NO. 75—9:30 AM–11:35 AM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

Symposium--Soil Biodiversity Knowledge in a Digital Age

SSSA Division: Soil Biology and Biochemistry

Moderator: Andre Franco

	9:30 AM	**Introductory Remarks**
75-1	9:35 AM	**Tracking Soil Biodiversity across Ecosystems** Tandra Fraser*, Lindsey Clairmont, Hannah Arseneault, Aaron Mills, Adam Foster, Kyra Stiles and Judith Nyiraneza
75-2	10:05 AM	**National-Scale Standardized Soil Biodiversity and Soil Properties Data from the National Ecological Observatory Network (NEON)** Edward Ayres* and Lee Stanish
75-3	10:35 AM	**The Case for Global Soil Biodiversity Collaboration** Diana H. Wall* and Carl Wepking
75-4	11:05 AM	**Mobile Apps for Supporting Soil – and Soil Biodiversity – Management for Sustainability** Jeffrey E. Herrick*, Dylan Beaudette, Jonathan J. Maynard, Meghan Mize, Toby O'Geen and Shawn Salley
	11:35 AM	**Adjourn**

SESSION NO. 76—9:30 AM–11:35 AM

Henry B. Gonzalez Convention Center, Cantilever Room, 2nd Level

Symposium--Conservation Practices That Improve Water Quality Outcomes

SSSA Division: Soils and Environmental Quality

Moderator: Katherine Tully

	9:30 AM	**Introductory Remarks**
76-1	9:35 AM	**Persistent Themes in Managing Nutrients to Protect Water Quality in the Northeastern United States.** Peter J. A. Kleinman*
76-2	9:55 AM	**Southern Conservation Practices: Effectiveness, Policy, and Economics** Deanna L. Osmond*, Andrew N. Sharpley and Dana Hoag
76-3	10:15 AM	**Iowa's Nutrient Reduction Strategy: Challenges and Opportunities for Reducing Downstream Nutrient Fluxes** Matthew J Helmers*
76-4	10:35 AM	**NRCS Edge-of-Field Monitoring - Updates and Lessons Learned** Karma Anderson*
76-5	10:55 AM	**Linking Soil Health to Improved Water Quality Via the Planting of Cover Crops in Two Indiana Watersheds.** Jennifer L Tank*
	11:15 AM	**Discussion**
	11:35 AM	**Adjourn**

SESSION NO. 77—9:30 AM–11:50 AM

Henry B. Gonzalez Convention Center, 213A, 2nd Level

Digital Pedology Oral (includes student competition)

SSSA Division: Pedology

Moderator: Alfred Hartemink

	9:30 AM	**Introductory Remarks**
77-1	9:35 AM	**Soils2026 and Digital Soil Mapping: Foundation for the Future of Soils Information and Conservation Activities** Suzann Kienast-Brown, James A. Thompson*, Tom D'Avello and Colby Brungard
77-2	9:50 AM	**Global or Regional Models?** Colby Brungard*, Travis Nauman and Michael Duniway
77-3	10:05 AM	**Landpks Soilid: A Global Modeling Framework for Location-Based Soil Identification** Jonathan J. Maynard*, Jeffrey E. Herrick, Shawn Salley, Dylan Beaudette, Anthony Toby O'Geen and David Hoover

77-4	10:20 AM	**Integrating Machine Learning and Knowledge-Based Soil Inference Classification in the White Mountain National Forest** Jessica Philippe*
77-5	10:35 AM	**Data Fusion of Vis-NIR and XRF Spectra to Predict Soil Physical and Chemical Properties** Yakun Zhang* and Alfred E. Hartemink
	10:50 AM	**Break**
77-6	11:05 AM	**A Soil Spatial Information System to Aid Decision-Making in the Central America Dry Corridor** Bryan Fuentes*, Minerva J. Dorantes, Phillip R. Owens and Zamir Libohova
77-7	11:20 AM	**Digital Soil Mapping Using Legacy Data in Central America.** Phillip R. Owens*, Minerva J. Dorantes, Bryan Fuentes, Zamir Libohova, Axel Schmidt and Amanda J. Ashworth
77-8	11:35 AM	**Dynamic Soil Survey - an Evolving Approach to Soil Survey** Soil Survey Staff and David L. Lindbo*
	11:50 AM	**Adjourn**

SESSION NO. 78—9:30 AM–11:50 AM

Henry B. Gonzalez Convention Center, 212A, 2nd Level

Agricultural Practices to Improve Nitrogen-Use Efficiency Oral

SSSA Division: Soil and Water Management and Conservation

Moderator: Javed Iqbal, Dinesh Panday

	9:30 AM	**Introductory Remarks**
78-1	9:35 AM	**Differential Responses of Target Soil Microbial Communities to Nitrification and Urease Inhibitors in a Corn Production System** Lori Phillips*, Alex Woodley, Jing Li, Yash Bhatt, Brent Seuradge and Craig F. Drury
78-2	9:50 AM	**Exploring Cash Crops and the Soil Microbiome Nitrogen Demand Synchrony after Cover Crop Inclusion** Shalamar D. Armstrong*, Cindy Nakatsu, Clayton J. Nevins and Corey Lacey
78-3	10:05 AM	**Modeling Water Potential and Nitrogen Mineralization from Surface-Applied Cover Crop Residues** Carson Dann* and Miguel L. Cabrera
78-4	10:20 AM	**Nitrogen Management Under Diversified Cropping System Using Precision Ag Tools.** Vishal Seth*
78-5	10:35 AM	**Testing and Predicting Nitrogen Mineralisation in Agricultural Soils in New Zealand** Michael H. Beare*, Denis Curtin, Craig Tregurtha, Richard Gillespie, Rebekah Tregurtha, Weiwen Qiu, Robyn White and Robert Zyskowski
	10:50 AM	**Break**
78-6	11:05 AM	**Effects of N-Stabilizers and N-Fixing Microorganisms on Nitrous Oxide Emissions in Urea-Fertilized Corn and Potato** Emerson Souza*, Carl J Rosen and Rodney T. Venterea
78-7	11:20 AM	**Effect of Winter Cover Crop on Pasture Yield and Nitrogen Loss Pathways** Yili Meng*, Jim J. Wang, Syam K. Dodla, Zhuo Wei and Guillermo Scaglia
78-8	11:35 AM	**Responses of Soil C, N and Greenhouse Gas Emission to Straw Mulching on the Loess Plateau of China** Jun Wang*, Fu Xin, Upendra M. Sainju and Wenzhao Liu
	11:50 AM	**Adjourn**

SESSION NO. 79—9:30 AM–11:50 AM

Henry B. Gonzalez Convention Center, 210B, 2nd Level

Soil and Water Management and Conservation General Oral I (includes Society-wide student competition selection)

SSSA Division: Soil and Water Management and Conservation

Moderator: Mohammad Golabi, Neha Chatterjee

	9:30 AM	**Introductory Remarks**
79-1	9:35 AM	**Soil Amendments Improve Citrus Establishment and Growth Rate** Bardia Dahghanmanshadi*, Mica Franklin and Glen Obear
79-2	9:50 AM	**Do Crop Rotation Complexity and No-till Improve Corn Drought Resistance By Increasing Soil Water Conservation?** Leah LR Renwick*, Bill Deen and Amelie CM Gaudin
79-3	10:05 AM	**Assessing the Phosphorus Loss Reduction Potential of a Slow Release Fertilizer Struvite for the Midwest** Neha Chatterjee* and Andrew J. Margenot
79-4	10:20 AM	**Growth Stage Specific Evapotranspiration Measurements Using Eddy Covariance Compared to DSSAT Evapotranspiration Simulation for Dryland Corn and Cotton in South-Central Texas.** Dorothy Menefee*, Nithya Rajan and Song Cui
	10:35 AM	**Break**
79-5	10:50 AM	**Assessing Spatio-Temporal Patterns of Groundwater–Surface Water Interactions in Big Sunflower River Watershed** Yiwen Han*, Gary Feng, Ying Ouyang, Zhong Liu, Wei Jin, Fei Gao and Johnie N. Jenkins
79-6	11:05 AM	**Long-Term Impact of Manure Application and Inorganic Fertilization on Soil Organic Carbon, Nitrogen, and Aggregation Stability in South Dakota** Asmita Gautam*, Jose G. Guzman, Peter Kovacs, Peter J. Sexton and Sandeep Kumar
79-7	11:20 AM	**Effects of Hard Winter Wheat Variety and Stubble Residue on Soil Water Content and Subsequent Corn Yield** Luana Simão*, Cody Creech, Amanda Easterly, Samuel Koeshall, Guilherme Chudzik and Matheus Gonçalves
79-8	11:35 AM	**Computed Tomography-Measured Soil Pores, and Selected Hydrological and Physical Properties As Influenced By Different Rotations, Tillage, and Cover Crop Management** Jasdeep Singh*, Navdeep Singh, Sandeep Kumar and Peter J. Sexton
	11:50 AM	**Adjourn**

SESSION NO. 80—9:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 225A, 2nd Level

Soil Chemistry and Human Health Oral (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality

Moderator: Ganga Hettiarachchi, Nicholas Basta

	9:30 AM	**Introductory Remarks**

80-1	9:35 AM	**Oral Bioavailability of As, Cd and Pb in Foods: Implications for Human Health** Lena Q. Ma*
80-2	9:50 AM	**Using Soil and Fertilizer Chemistry to Effectively Biofortify Crops with Micronutrients** Michael J. McLaughlin*
80-3	10:05 AM	**Soil Chemical Processes Reduce Bioaccessible Pb, Cd, and As and Human Exposure** Nicholas T. Basta*, Loryssa Lake, Alyssa Zearley, Shane D. Whitacre and Elizabeth A. Dayton
80-4	10:20 AM	**Relationship between Plant Variety and Soil Properties to Reduce Cadmium in Wheat** Daniel G. Strawn*, Jianli Chen and Xi Liang
80-5	10:35 AM	**Impact of Environment on Common Bean Yield and Grain Nutritional Composition** Rosemary Bulyaba*
	10:50 AM	**Break**
80-6	11:00 AM	**The Impact of Mining Contamination Source on Copper Phytotoxicity in Agricultural Soils** Jason W. Stuckey*, Pedro Mondaca, Carlos Guzmán and Alexander Neaman
80-7	11:15 AM	**Soil, Wheat and Scalp Hair Heavy Metal Concentrations Near a Lead Smelter** Liping Li*, Yuqing Zhang, James A. Ippolito, Weiqin Xing, Hao Yang and Kunyan Qiu
80-8	11:30 AM	**The Effect of Antibiotics on Plant Growth** Isam I Bashour* and Lara Jacques El Gemayel Jr.
80-9	11:45 AM	**Quantification and Mobility of Arsenic from Sediments and Soils Enriched with Titanium Dioxide (TiO_2) Drinking Water Filter Waste** Matthew G. Siebecker*, Amanda Jo Zimmerman, David C. Weindorf, Virginia Montero Campos, Sanjit K Deb, Sharon Ulate Chacón and Gautier Landrot
	12:00 PM	**Adjourn**

SESSION NO. 81—9:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

Applications of in-Situ, Proximal, and Remote Sensing for Soil Moisture Information in Agriculture and Hydrology Oral I

SSSA Division: Soil Physics and Hydrology

Moderator: Emmanuel Ojo, Andres Patrignani, Jingyi Huang

	9:30 AM	**Introductory Remarks**
81-1	9:35 AM	**Applications of Satellite Soil Moisture for Agriculture from Fields to Regions** Catherine Champagne*
81-2	9:50 AM	**Texas Water Observatory: Assessing Soil Moisture Variability in the Lower Brazos River Basin at Multiple Scales** Nandita Gaur*, Binayak P. Mohanty, Deanroy Mbabazi, Siddharth Singh, Cristine L. S. Morgan, Gretchen Miller, Georgianne W. Moore, Mark Everett, Daniel Goldberg, Aline Jaimes and Haly L. Neely
81-3	10:05 AM	**Potential for Precision Irrigation in Southern Alberta, Canada** Willemijn Appels*
81-4	10:20 AM	**Multi-Scale Soil Moisture Sensing, Modeling, and Fusion for Agricultural and Hydrologic Applications** Binayak P. Mohanty*
	10:35 AM	**Break**
81-5	10:45 AM	**Remote Sensing of Crop Water Stress and Water Use Efficiency** Ebrahim Babaeian*, Maria Newcomb, Paheding Sidike, Richard Ward, Vasit Sagan and Markus Tuller
81-6	11:00 AM	**Measuring, Modeling, and Validating Diffuse Groundwater Recharge Estimates from Satellites** Todd Caldwell*, Tara Bongiovanni, Alexander Sun and Michael Young
81-7	11:15 AM	**A Soil Water Content Estimating Method By the Image of Unmanned Aerial Vehicle with the Color Calibration Method** Hong-Yi Li*, Hong-Ru Lin, Jyun-Lin Chen, Shao-Yang Huang and Jet-Chau Wen
81-8	11:30 AM	**Unraveling Location-Specific and Time-Dependent Interactions between Soil Water Content and Environmental Factors in Cropped Sandy Soils Using Sentinel-1 and Moisture Probes** Jingyi Huang*, Alfred E. Hartemink, Francisco J. Arriaga and Nathaniel W Chaney
	11:45 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 82—9:35 AM–9:50 AM

Hilton Palacio del Rio, La Vista F, 22nd Floor

ASA Community Planning Session --US-Sino Agricultural Research Forum

ASA Section: Global Agronomy

Lead Community:
U.S.-Sino Agricultural Research Forum Community

SESSION NO. 83—9:40 AM–11:40 AM

Henry B. Gonzalez Convention Center, 212B, 2nd Level

Symposium--the LTAR Network: Collaborative Science to Enhance Agricultural Sustainability I

SSSA Division: Soil and Water Management and Conservation

Moderator: Matt Moore, Joshua Gamble

	9:40 AM	**Introductory Remarks**
83-1	9:45 AM	**Status of the USDA ARS Long term Agroecosystem Research Network (LTAR)** Teferi Tsegaye*, Peter J. A. Kleinman, Glenn Moglen and Ray B. Bryant
83-2	10:00 AM	**Defining Agroecoregions for the Long-Term Agroecosystem Research Network** Alisa Coffin*, Claire Baffaut, Rowan Gaffney, Sarah Goslee, William Hargrove, Chandra Holifield Collins, David James, Jitendra Kumar, Guillermo Ponce Campos and Lindsey Yasarer
83-3	10:15 AM	**Ltar Network Weather and Climate Working Group Support for Regional Modeling and Analysis** Stuart Hardegree*, Emile Elias, Philip Heilman and John Sadler
83-4	10:30 AM	**The Ltar Modeling Vision** Daniel N. Moriasi* and David D. Bosch

83-5	10:45 AM	**The Ltar Croplands Common Experiment: Long-Term Research for Improved Agricultural Sustainability** Mark A. Liebig*, Phil Robertson, David W. Archer, Tala Awada, John M. Baker, Michel Cavigelli, Harold P. Collins, Curtis J. Dell, David R. Huggins, Abdullah A. Jaradat, Jane M-F Johnson, Kevin King, Peter J. A. Kleinman, John L. Kovar, Martin A. Locke, Jude E Maul, Greg McCarty, Steven B Mirsky, Tom Moorman, Oliva Pisani, Doug R Smith, Patrick Starks, Timothy Strickland, Kenneth A Sudduth, Kristen Sloan Veum and Brian J. Wienhold
83-6	11:00 AM	**The Ltar Grazinglands Working Group: Long-Term Research for Improved Sustainability** Patrick Clark, Kathy Soder, Wayne Polley, Stuart Hardegree*, Sheri Spiegal, Elizabeth Boughton, David J. Augustine, Dana Blumenthal and Amanda Bentley Brymer
83-7	11:15 AM	**Ltar Human Dimensions: Grappling with Rural Prosperity** David W. Archer*, J.D. Wulfhorst, Alisa Coffin, Dannele Peck, Hailey Wilmer and Amanda Bentley-Brymer
	11:30 AM	**Discussion**
	11:40 AM	**Adjourn**

SESSION NO. 84—9:40 AM–12:00 PM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

Nutrient Management and Soil and Plant Analysis General Oral I

SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Gurpreet Kaur, Rishi Prasad

	9:40 AM	**Introductory Remarks**
84-1	9:45 AM	**Total-Dissolved and Dissolved-Reactive Phosphorus in Surface Runoff for Differing Sources and Soil Conservation Practices** John D. Jones*, Antonio P. Mallarino and Mazhar U. Haq
84-2	10:00 AM	**Longterm Dynamics of Soil Test P As Affected By Soil Management Practices** J. Andrés Quincke* and Kathrin Grahmann
84-3	10:15 AM	**Understanding the Phosphorus Loss Risk from P-Hotspots in Alabama Soil** Rishi Prasad*, Debolina Chakraborty and Anjan Bhatta
84-4	10:30 AM	**Understanding the Nitrogen and Phosphorus Uptake in Tomato Genotypes with Varied Nutrient Use Efficiency through Grafting** Muhammad Shahid*, Mary Dixon, Jhangir Khan, Xin Zhao and Guodong Liu
	10:45 AM	**Break**
84-5	11:00 AM	**Corn Stalk Nitrate Test in-Field Spatial Variability** Angel Maresma Galindo*, Pilar Berenguer, Rachel Breslauer, Aristotelis Tagarakis, Tulsi Kharel, Karl J. Czymmek and Quirine M. Ketterings
84-6	11:15 AM	**Exploring the Perceived Corn Yield Gap with Reduced Tillage in the Upper Midwest** Nicholas Bero* and Francisco J. Arriaga
84-7	11:30 AM	**Fertigation of Canola and Wheat** Dale Tomasiewicz* and Reynald Lemke
84-8	11:45 AM	**Simple Diffusion Methods for Determination of Nonexchangeable Ammonium in Soils** Vander Luis Nunes*
	12:00 PM	**Adjourn**

SESSION NO. 85—9:55 AM–12:00 PM

Henry B. Gonzalez Convention Center, 006D, River Level

Symposium--Declining Aquifers: Enhancing Water Use Efficiency in Agriculture.

ASA Section: Climatology and Modeling

Moderator: Sotirios Archontoulis, Saseendran Anapalli, Nithya Rajan

	9:55 AM	**Introductory Remarks**
85-1	10:00 AM	**Water Use Efficiency: Opportunities to Decrease Soil Water Use** Jerry L. Hatfield* and Bruno Basso
85-2	10:20 AM	**Enhancing Crop Water Use Efficiency with Direct Root Zone Micro-Irrigation** Pete W. Jacoby* and Xiaochi Ma
85-3	10:40 AM	***Declining Groundwater Quality and Quantity in Central Valley California – Assessing Impact of Crop Management Practices*** George Paul*, John Dickey, Kenneth Miller, Sushant Mehan, Tim K Hartz, Andrea Schmid and Clint Kellar
85-4	11:00 AM	**Transitioning Agricultural Production for a Declining Aquifer in a Semi-Arid Region** R.Louis Baumhardt*, Robert C. Schwartz and Steve A. Mauget
85-5	11:20 AM	**Crop Monitoring from a Small Unmanned Aerial System** Jerry E. Moorhead*, Susan A O'Shaughnessy, Charlie M. Rush, Thomas H. Marek, Gary W. Marek, Kevin Heflin and Dana Porter
85-6	11:40 AM	**Declining Mississippi River Valley Alluvial Aquifer: Quantifying Crop Water Requirements for Enhanced Water Use Efficiency.** Saseendran Anapalli*, Srinivasa Pinnamaneni and Krishna Reddy
	12:00 PM	**Adjourn**

SESSION NO. 86—10:00 AM–11:00 AM

Henry B. Gonzalez Convention Center, 305, 3rd Level

Advances of *in Situ* Sensors: Measuring Soil Chemical Properties and Processes Oral (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Ganga Hettiarachchi, Andrew Margenot

	10:00 AM	**Introductory Remarks**
86-1	10:05 AM	**Current Needs and Transitional Concepts Related to Soil Sensors** Stephen Welch*, Ganga M. Hettiarachchi, Nora Bello and Phillip D Alderman
86-2	10:20 AM	**Visualizing the Rice Root Rhizosphere *in Situ*** Matt Limmer*, Abby Evans and Angelia L. Seyfferth
86-3	10:35 AM	**Geochemically Based Quantitative Analogies Representing Various Soil Classes Built from Destructive and Nondestructive Compositional Datasets** Mark A. Chappell*, Jennifer M. Seiter, Haley M West, Brian D. Durham, Beth E. Porter and Cynthia L. Price
	10:50 AM	**Discussion**
	11:00 AM	**Adjourn**

SESSION NO. 87—10:00 AM–11:30 AM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

Skills for Success: Mentorship & Supervision

Early Career Sessions

SESSION NO. 88—10:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

CCA Career Accelerator Round Table

Undergraduate (SASES) Sessions

Moderator: Luther Smith

SESSION NO. 89—10:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 301B, 3rd Level

Grad School Workshop for Undergrads

Undergraduate (SASES) Sessions

Moderator: Roch Gaussoin

10:00 AM **Panel Participants - Faculty:**
10:00 AM **Keenan Amundsen, Associate Professor, Graduate Chair, University of Nebraska-Lincoln, Department of Agronomy and Horticulture**
10:00 AM **Doug Karcher, Professor, University of Arkansas, Department of Horticulture**
10:00 AM **Henry Sintim, Assistant Professor, University of Georgia, Department of Crop & Soil Sciences**
10:00 AM **Panel Participants - Graduate Students:**
10:00 AM **Travis Russell, PhD Candidate, The Pennsylvania State University, Department of plant Science**
10:00 AM **Elizabeth Widder, MS student, University of Nebraska-Lincoln, Department of Agronomy & Horticulture**
10:00 AM **Panel Participants - Graduate Student Support:**
10:00 AM **Cynthia Hight, Academic Program Specialist, University of Florida, Agronomy Department**
10:00 AM **Panel**
12:00 PM **Adjourn**

SESSION NO. 90—10:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 007D, River Level

Poster and 5 Minute Rapid--Crop Breeding and Genetics Oral (includes Society-wide student competition selection)

C01 Crop Breeding and Genetics

Moderator: Jillian Foerster

10:00 AM **Introductory Remarks**

90-1 10:05 AM **Response in Grain Fructan Content to Yield Improvement in Great Plains Winter Wheat** Liza Van der Laan* and Brett F. Carver

90-2 10:10 AM **QTL Analysis of End-Use Quality in a Texas Wheat Line** Mehmet Dogan*, Jorge L. Valenzuela Antelo, Smit Dhakal, Chenggen Chu, Xiaoxiao Liu, Qingwu Xue, Amir M.H. Ibrahim, Jackie C. Rudd, Ravindra N. Devkota, Shannon Baker, Jason A. Baker, Shichen Wang, Paul St. Amand, Guihua Bai, Hongbin Zhang and Shuyu Liu

90-3 10:15 AM **Mapping of Traits Adaptive to the U.S. Southern and Central Great Plains in a 'TAM 204'/'Iba' Population** Jorge L. Valenzuela-Antelo*, Amir M.H. Ibrahim, Chenggen Chu, Xiaoxiao Liu, Mehmet Dogan, Jaqueline A. Avila, Brittany M Ehrlich, Kele Hui, Shichen Wang, Richard Metz, Charles Johnson, Qingwu Xue, Geraldine Opena, Bryan Simoneaux, Michael J. Thomson, Jason A. Baker, Shannon Baker, Jackie C. Rudd and Shuyu Liu

90-4 10:20 AM **Mapping of Quantitative Trait Loci for Seed Size and Color in a Winter Wheat Population** Xiaoxiao Liu*, Chenggen Chu, Jorge L. Valenzuela Antelo, Mehmet Dogan, Jaqueline A. Avila, Brittany M. Ehrlich, Kele Hui, Jason A. Baker, Shannon Baker, Ravindra N. Devkota, Jackie C. Rudd, Amir M.H. Ibrahim and Shuyu Liu

90-5 10:25 AM **Phenomic Prediction of Maize Grain Yield Using Near-Infrared Reflectance Spectroscopy** Holly M Lane*, Seth C Murray, Osval A. Montesinos-Lopez, Abelardo Montesinos-Lopez, Jose Crossa, David K Rooney, Ivan D Barrero-Farfan, Gerald N De La Fuente and Cristine L. S. Morgan

90-6 10:30 AM **Identifying Loci for Delayed Temperate Flowering: Improving Southern Maize (*Zea Mays* L.) for Midwestern Seed Production** Alper Adak*, Jose Ignacio Varela, Dustin Eilert, Nithya Subramanian, Seth C Murray, Jianming Yu and Natalia De Leon

90-7 10:35 AM **Genetic Diversity Among Tropical *Shrunken*-2 Maize Lines and Relationships with Inbred Lines of Known Heterotic Classification Using Microsatellite Markers** Joseph Enye Iboyi*, Ayodeji Abe and Victor Olawale Adetimirin

90-8 10:40 AM **Assessing the Grain Yield and Functionality of Grain Sorghum Hybrids with Increased Protein Digestibility and Waxy Endosperm** Mitchell Allen Kent* and William L Rooney

90-9 10:45 AM **Analysis of Genetic Diversity for Days to Flowering in Rice (*Oryza sativa* L.) Using Mulitplex Amplicon Sequencing** Karina Morales*, Benjamin Rogers, Richard Metz, Marcel Brun, Shichen Wang, Charlie Johnson and Michael J. Thomson

90-10 10:50 AM **Mapping QTLs and Dissecting the Molecular Mechanisms of Reproductive Stage Salinity Tolerance in Rice** Sejuti Mondal*, Rakesh Kumar Singh, Endang M. Septiningsih and Michael J. Thomson

10:55 AM **Questions & Answers**

90-11 11:05 AM **Effects upon on Cotton Lint Yield and Fiber Quality Due to Selection Pressure** Caitlyn Lakey*, Steve Hague and Haley Kennedy

90-12 11:10 AM **Proof of Concept: Gene Based Breeding Vs Field Based Breeding in Improving Fiber Quality Traits in Cotton.** Drutdaman Bhangu*, Wayne Smith and Hongbin Zhang

90-13 11:15 AM **Mapping Bunch Growth Habit in Peanut.** Nino Brown* and William D. Branch

90-14 11:20 AM **Role of ABA in Conferring Drought Tolerance in *Solanum Lycopersicoides*-Derived Germplasm** Puneet Kaur Mangat* and Rosalyn B. Shim

90-15	11:25 AM	**Tackling Emerging Disease Threats with Grower and Researcher Teams** Jodi A. Scheffler*
90-16	11:30 AM	**Breeding for High-Protein Rice** Herry S. Utomo* and Ida Wenefrida
90-17	11:35 AM	**New Breeds for Coastal Erosion Control** Herry S. Utomo*, Ida Wenefrida and Prasanta K. Subudhi
90-18	11:40 AM	**Speed Breeding Success Is Genotype Dependent in Oats** Pablo Gonzalez Barrios*, Madhav Bhatta, Madalene Halley, Pablo Sandro and Lucia Gutierrez
90-19	11:45 AM	**Genome Wide Association Analysis and Prediction of FHB Resistance in Soft Winter Wheat** Dylan Larkin*
	11:50 AM	**Questions & Answers**
	12:00 PM	**Adjourn**

SESSION NO. 91—10:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

Symposium--Use and Abuse of Empirical and Physical Models in Soil Physics, Hydrology and Geo-Engineering from Pore to Landscape Scales

SSSA Division: Soil Physics and Hydrology

Moderator: Tamir Kamai, Ryan Stewart, Ronald Breitmeyer

	10:00 AM	**Introductory Remarks**
91-1	10:05 AM	**What Do We Miss By Treating Dynamic Soils As Rigid Porous Media?** Teamrat Ghezzehei*
91-2	10:30 AM	**The Use and Abuse of Numerical Models in Soil Physics, Vadose Zone Hydrology, and Environmental Sciences** Jirka Simunek* and Giuseppe Brunetti
91-3	10:55 AM	**Evaporation from Homogeneous and Heterogeneous Soil Systems: Modeling Approaches and Experimental Data** Shmuel Assouline* and Tamir Kamai
91-4	11:20 AM	**The Influence of Wind Field Development Above Undulating Soil Surfaces on Evaporation Behavior** Kathleen Smits*, Bo Gao and John Farnsworth
	11:45 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 92—10:00 AM–12:05 PM

Henry B. Gonzalez Convention Center, 008AB, River Level

Symposium--the Plant Microbiome and Abiotic Stress Tolerance.

Sponsored by LI-COR, PlantResponse Biotech, and Timac Agro

C02 Crop Physiology and Metabolism

Moderator: John Snider

	10:00 AM	**Introductory Remarks**
92-1	10:05 AM	**Unraveling the Mechanisms of Microbe-Induced Abiotic Stress Tolerance in Plants** Jason Wallace* and Carolyn Young
92-2	10:35 AM	**Salicaceae Endophytes Increase Water Use Efficiency of Host Plants Under Abiotic Stress Conditions: Findings in Leaf Physiological Traits** Hyungmin Tony Rho*, Sharon Lafferty Doty and Soo-Hyung Kim
92-3	11:05 AM	**Inheritance of Seed Microbiomes of Common Bean (*Phaseolus vulgaris* L.) Under Drought and Nutrient Excess Stresses** Ari Fina Bintarti* and Ashley Shade
92-4	11:35 AM	**Enhanced Crop Abiotic Stress Tolerance from a Synthetic Microbial Discovery Platform** Qingzhang John Xu, Leonela Carriedo* and Jon Margolis
	12:05 PM	**Adjourn**

SESSION NO. 93—10:10 AM–11:15 AM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

Soil Chemistry in the Face of Climate Change: Trace Element and Nutrient Dynamics in Soils and Sediments Oral (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Matthew Siebecker, Devin Rippner, Youjun Deng, Gaurav Jha

	10:10 AM	**Introductory Remarks**
93-1	10:15 AM	**In the Eye of the Hurricane: How Storm Surges Influence Coastal Marsh Biogeochemistry** Angelia L. Seyfferth*, Kristy Northrup, Margaret Capooci, Frances Bothfeld and Rodrigo Vargas
93-2	10:30 AM	**How Future Sea Level Rise May Impact Legacy Arsenic in an Urban Soil** Joshua J. LeMonte*, Ryan Tappero, Jörg Rinklebe and Donald L. Sparks
93-3	10:45 AM	**Impacts of Water Management on As and Cd Concentrations in Southern Florida Rice** Ruifang Hu*, Jennifer Cooper, Samira H. Daroub and Angelia L. Seyfferth
93-4	11:00 AM	**Sea-Level-Rise-Induced Release of Heavy Metals from Flood-Prone Contaminated Coastal Sediments** Fatemeh Izaditame*, Matthew G. Siebecker and Donald L. Sparks
	11:15 AM	**Adjourn**

SESSION NO. 94—10:10 AM–12:10 PM

Henry B. Gonzalez Convention Center, 210A, 2nd Level

Special Session Symposium--Implementing Nutrient Management Combined with Conservation Planning: The Rest of the Story

Special Sessions

Moderator: Jeffrey Strock

	10:10 AM	**Introductory Remarks**
94-1	10:15 AM	**How to Connect Site Risk Assessment with Nutrient Management Planning and Conservation Planning** Aaron Lauster*
94-2	10:40 AM	**4R Nutrient Stewardship and Conservation Working Together for Local Goals** Sally A. Flis*
94-3	11:05 AM	**Connecting Environmental Aspects of Nutrient Management and Conservation Planning.** Nathan O. Nelson* and Peter J. Tomlinson
	11:30 AM	**Discussion**
	12:00 PM	**Concluding Remarks**
	12:10 PM	**Adjourn**

SESSION NO. 95—11:00 AM–11:15 AM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

ASA Community Planning Session --Tropical Legumes

ASA Section: Global Agronomy

Lead Community: Tropical Legumes Community

SESSION NO. 96—11:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

Advances of *in Situ* Sensors: Measuring Soil Chemical Properties and Processes - Panel

SSSA Division: Soil Chemistry

Moderator: Ganga Hettiarachchi, Andrew Margenot

SESSION NO. 97—11:05 AM–11:20 AM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

ASA Community Planning Session--Soil and Water Management Professionals

ASA Section: Agronomic Production Systems

Lead Community:
Soil and Water Management Professionals Community

Moderator: Asim Biswas, Gary Feng

SESSION NO. 98—11:15 AM–12:20 PM

Henry B. Gonzalez Convention Center, 221C, 2nd Level

Poster and 5 Minute Rapid--Soil Fertility and Plant Nutrition Ph.D. Student and Nutrient Management and Soil and Plant Analysis M.S. Student (includes Society-wide student competition selection)

Sponsored by
Koch Agronomic Services, Nutiren, Wilbur-Ellis and J.R. Simplot

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Tom Bruulsema, Terry Tindall

	11:15 AM	**Introductory Remarks**
98-1	11:20 AM	**Soybean Response to Macro and Micronutrient Application** Gena Ram Mahato*, Thandiwe M. Nleya and Peter Kovacs
98-2	11:25 AM	**Evaluation of Soil Test Methods and Wheat Response to Phosphorus Fertilization in Kansas** Christopher Weber* and Dorivar A. Ruiz Diaz
98-3	11:30 AM	**Is There a Better Way to Fertilize Corn with Potassium?** Scott Foxhoven* and Frederick E. Below
98-4	11:35 AM	**Effects of Nitrogen and Irrigation Application Rates on Open-Field Fresh-Market Tomato Production** Ibukun Timothy Ayankojo* and Kelly T. Morgan
98-5	11:40 AM	**Identifying Optimal Nitrogen Use Efficiency for Agronomic and Environmental Outcomes in Potato Using the Nitrogen Nutrition Index** Brian J. Bohman*, Carl J Rosen and David J Mulla
98-6	11:45 AM	**Nitrogen Response in Small Grains after Alfalfa** Collin Pound*, Matt A. Yost, Earl Creech, Grant E. Cardon, Kathleen Russell, Deric Despain, Jody Gale, Kevin Heaton, Boyd Kitchen, Michael Pace, Steven Price, Chad Reid, Matthew Palmar and Mark Nelson
98-7	11:50 AM	**Response to Timing of Nitrogen Fertilization in Winter Wheat Under Limited and Unlimited Nitrogen Rates** Joao Luis Bigatao Souza*, Vaughn Reed, Evandro Archilia, Bronc Finch and D. Brian Arnall
98-8	11:55 AM	**Studying the Relationship of Nitrogen Fertilizer Rates and Corn Plant Population Using Sensor Fusion Considering Plant and Soil Spatial Variability.** Murilo de Santana Martins*, Felippe Hoffmann Silva Karp, Luciano Shozo Shiratsuchi, Syam K. Dodla, Daniel D. Fromme and Guy Boyd Padgett
98-9	12:00 PM	**Hyperspectral Vegetation Indices for Predicting Corn Nitrogen Status Under Different Soil Drainage and Tillage Conditions** Gabriel Dias Paiao*, Fabian G. Fernandez, Tyler J. Nigon and Seth L. Naeve
98-10	12:05 PM	**Source and Timing of Nitrogen Application to Enhance Upper Midwest Corn Production** Jared A. Spackman*, Fabian G. Fernandez, Gabriel Dias Paiao and Karina P. Fabrizzi
	12:10 PM	**Questions and Answers**
	12:20 PM	**Adjourn**

SESSION NO. 99—11:35 AM–11:50 AM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

ASA Community Planning Session --Nutrient Management Professionals

ASA Section: Agronomic Production Systems

Lead Community: Nutrient Management Professionals Community

Moderator: Amitava Chatterjee

11:35 AM	**Introductory Remarks**
11:40 AM	**Discussion**
11:50 AM	**Adjourn**

SESSION NO. 100—11:35 AM–11:50 AM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

ASA Community Planning Session --Sensor-Based Nutrient Management

ASA Section: Agronomic Production Systems

Lead Community: Sensor-based Nutrient Management Community

SESSION NO. 101—11:40 AM–11:55 AM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

ASA Community Planning Session--Soil Health

ASA Section: Land Management and Conservation

Lead Community: Soil Health Community

SESSION NO. 102—11:40 AM–12:00 PM

Hilton Palacio del Rio, La Reina, 2nd Floor

Poster and 5 Minute Rapid--Urban and Anthropogenic Soils Oral (includes Society-wide student competition selection)

SSSA Division: Urban and Anthropogenic Soils

Moderator: Tara Trammell

	11:40 AM	**Introductory Remarks**
102-1	11:45 AM	**Inspections of Erosion and Sediment Control Practices Via UAV-Aided Applications** Rich McLaughlin and Jalen Hairston*
102-2	11:50 AM	**Biogeochemical Homogenization in Urban Soils - a Six-City Comparison** Christopher D. Ryan* and Peter M. Groffman
	11:55 AM	**Questions & Answers**
	12:00 PM	**Adjourn**

SESSION NO. 103—12:00 PM–1:30 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 3-4, 3rd Level

Special Session--Diversity in ACS: What Gains Have We Made? What Is the Outlook for the Future?

Special Sessions

	12:00 PM	**Introductory Remarks**
	12:05 PM	**Speaker Introductions**
	12:10 PM	**Progress in Increasing Diversity within the USDA-Agricultural Research Service** Chandra Holifield Collins*
	12:20 PM	**Increasing Understanding of Sexual Orientation and Gender Identity within the Agronomy Societies** Christopher D. Ryan*
	12:30 PM	**Programs Supporting the Success of Native Americans in Academia** Karen Francis-Begay*
	12:40 PM	**Panel Speaker Presentation 4** Jean E. McLain*
	12:50 PM	**Discussion**
	1:30 PM	**Adjourn**

SESSION NO. 104—1:30 PM–2:00 PM

Henry B. Gonzalez Convention Center, 006A, River Level

Poster and 5 Minute Rapid--Biomedical, Health-Beneficial and Nutritionally Enhanced Plants Oral (includes Society-wide student competition selection)

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

	1:30 PM	**Introductory Remarks**
104-1	1:35 PM	**Identifying Low Phytic Acid Mutants in a Durum Wheat (Triticum turgidum ssp. durum) Tilling Population** Emily F Klarquist*
104-2	1:40 PM	**Factors Affecting Farmers' Decision to Adopt Specialty Potato Varieties: A Case Study of San Luis Valley Colorado Potato Growers** Sahar Toulabi*, Becca Jablonski, Dave G Holm, Michael Carolan and Adam L. Heuberger
104-3	1:45 PM	**Human Health from Soil to Society: Barley β-Glucan, Glycemic Control, and Appetite** Julianne Kellogg*, Martine Perrigue and Kevin Murphy
104-4	1:50 PM	**The Effects of an Integrated Plant Nutrition System (IPNS) with Biostimulants on Cannabis Development.** Jose Franco Da Cunha Leme Filho*, Wade E. Thomason and Bee Chim
104-5	1:55 PM	**Effect of Genotype x Environment x Management Interactions on Iron and Zinc Content of Two Barley Breeding Lines** Walker Orr*, Cedric Habiyaremye, Daniel Packer, Kurtis L. Schroeder, John Reganold and Kevin Murphy
	2:00 PM	**Adjourn**

SESSION NO. 105—1:30 PM–2:20 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Poster and 5 Minute Rapid--Agronomic Production Systems - Soybean and Other Crops

ASA Section: Agronomic Production Systems

Moderator: Brian Marsh

	1:30 PM	**Introductory Remarks**
105-1	1:35 PM	**Nutrient Contribution and Different Cover Crop Species in Row Crops Production Systems in Louisiana** Jose Rodolfo Mite*, Brenda Tubana, Lisa M. Fultz, Marilyn Sebial Dalen, Daniel Forestieri, Jayvee Cruz, Wooiklee Paye, Jiraporn Bamrungrai, Diego Mayorga and Hector Mendoza
105-2	1:40 PM	**Agronomic and Economic Considerations for Late-Planted Soybean in the North Central US** Emma Matcham*, Laura E. Lindsey and Spyridon Mourtzinis
105-3	1:45 PM	**Influence of Foliar Fertilizers on Nutrient Distribution and Crop Yield for Soybean Production Systems in the Southern Great Plains.** Anna Zander*, Josh Lofton, Chase Harris and Sarah Kezar

105-4	1:50 PM	**Optimum Leaf Area Index to Reach Soybean Yield Potential in Subtropical Environment** Alencar Zanon*, Eduardo Lago Tagliapietra, Nereu Augusto streck, Thiago Schmitz Marques da Rocha, Gean Leonardo Richter, Michel Rocha da Silva, Giovana Ghisleni Ribas, Darlan Balest, Jose Eduardo wink, Bruna San Martin Rolin Riberio, Kelin Bexaira, Jossana Cera, Cleber Maus Alberto, Luis Loose and Juliano Dalcin Martins
105-5	1:55 PM	**Rotation Impact on on-Farm Rice Yield and Input-Use Efficiency in Southern Brazil** Giovana Ghisleni Ribas*, Isabela Bulegon Pilecco, Simone Puntel, Alencar junior Zanon, Nereu Augusto Streck, Michel Rocha da Silva, Thiago Schmitz Marques da Rocha, Ary Duarte Junior, Bruna San Martin Rolin Ribeiro, Gilmara Peripolli and Lorenzo Meus
105-6	2:00 PM	**Effects of POLY4 Polyhalite Fertilizer on Growth and Yield of Cotton on US Coastal Plain Soils** Brad Farber*, William Hunter Frame, Rachel Fields and Ross Mitchell
105-7	2:05 PM	**Emergence Timing Impacts Wild Cane Culm Diameter** Brian H. Marsh*
	2:10 PM	**Questions & Answers**
	2:20 PM	**Adjourn**

SESSION NO. 106—1:30 PM–2:30 PM

Henry B. Gonzalez Convention Center, 007C, River Level

Calvin Sperling Memorial Biodiversity Lectureship

C08 Plant Genetic Resources

Moderator: David Brenner

	1:30 PM	**Introductory Remarks**
106-1	1:35 PM	**Linking Heterogeneous Data in Biodiversity Research** Pamela Soltis*
	2:25 PM	**Concluding Remarks**
	2:30 PM	**Adjourn**

SESSION NO. 107—1:30 PM–2:35 PM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Symposium--Gaining Access to Agronomic Inputs: The Role of Technology in Improving Input Adoption through Better Access and Information.

ASA Section: Global Agronomy

Lead Community: Gaining Access to Agronomic Inputs Community

	1:30 PM	**Introductory Remarks**
107-1	1:35 PM	**Agrilab Ghana Revolutionizes Agricultural Production in Africa Using Iot Sensors to Track Farm Data and a Blockchain Technology for Data Storage** Nana Akua Busia*, Daniel Afriyie, Henry Duah and Isaac Aboah
107-2	1:50 PM	**Trotro Tractor Uses Digital Services to Link Farmers to Inputs** Kamal Yakub*, Adam Muhideen Muhammed and Emmanuel Ansah-Amprofi
107-3	2:05 PM	**Sesi Technologies Uses Digital Inputs to Keep Grain Safe** Isaac Sesi*
107-4	2:20 PM	**Sayetech Ghana Uses the Digital Frontier to Help Mechanize African Agriculture** Jeffrey Appiagyei* and Theodore Ohene-Botchway
	2:35 PM	**Adjourn**

SESSION NO. 108—1:30 PM–2:35 PM

Hilton Palacio del Rio, Salon del Rey B, 2nd Floor

Golf Turf Management Oral II: Soil Chemical and Physical Properties, Water, and Biotic Stress (includes student competition)

C05 Turfgrass Science

Moderator: Marco Schiavon

	1:30 PM	**Introductory Remarks**
108-1	1:35 PM	**Wetting Agent Influence on Soil Water Repellency Parameters at Different Rootzone Temperatures** Ryan Schwab*, Brian Horgan and Samuel Bauer
108-2	1:50 PM	**An Improved Method for Visualizing Water Flow through Modified Rootzones** Dallas M Williams*, Roch E. Gaussoin, Humberto Blanco-Canqui and Keenan Amundsen
108-3	2:05 PM	**Evaluating the Suitability of Spent Coffee Grounds As an Amendment for Sand-Based Root Zones** Garrett Flores*, Benjamin Wherley and Kevin J. McInnes
108-4	2:20 PM	**Spatial Variability of Soil Physical Properties in Golf Course Fairways** Eduardo Escamilla*, Sanjit K Deb and Joseph Ronald Young
	2:35 PM	**Adjourn**

SESSION NO. 109—1:30 PM–2:55 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Cover Crop Research Oral II (includes student competition)

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

Moderator: Debasish Saha, Matthew Brown

	1:30 PM	**Introductory Remarks**
109-1	1:35 PM	**Grain Yield Response to Crop Rotation and Cover Crops in a Long-Term Corn-Soybean-Wheat Rotation Study** Lindsay Chamberlain*, John M Gaska, Joseph G. Lauer and Shawn P. Conley
109-2	1:50 PM	**Weeds and Water: Farmer-Driven Questions Answered with Farm-Driven Data** Virginia A. Nichols*, Stefan R. Gailans, Sarah Carlson and Matt Liebman
109-3	2:05 PM	**Cover Crops Decrease Initial Water Content, Sugarbeet Root Yield, and Residual N-NO_3 in the Northern Great Plains** Sergio Cabello Leiva*, Swarup Podder, Marisol T. Berti, Dulan Samarappuli, Bryce Andersen, Alex Wittenberg and Alan Peterson
109-4	2:20 PM	**Legume Fall-Planted Cover Crops Slightly Increased Corn Yield in the Northern Great Plains.** Sergio Cabello Leiva*, Marisol T. Berti, Swarup Podder, Alex Wittenberg, Bryce Andersen, Alan Peterson and Dulan Samarappuli

109-5	2:35 PM	**Can Double Cropping Provide Similar Soil Health Benefits As Cover Cropping in Texas?** Perejitei Ebikirifagha Bekewe*, Haly L. Neely, Clark B. Neely, Lauren Tomlin, Jamie Foster, Katie L. Lewis and Thomas W. Boutton
	2:50 PM	**Concluding Remarks**
	2:55 PM	**Adjourn**

SESSION NO. 110—1:30 PM–3:00 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 2, 3rd Level

Career Path Opportunities for Students, Post-Docs, and Early Career Members

Graduate Student Sessions

SESSION NO. 111—1:30 PM–3:00 PM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

Extension Grassroots - Developing a Successful Program in your Region

Early Career Sessions

SESSION NO. 112—1:30 PM–3:05 PM

Henry B. Gonzalez Convention Center, 006C, River Level

Global Climate Change General Oral II (includes student competition)

ASA Section: Climatology and Modeling

Lead Community: Global Climate Change Community

Moderator: Sultan Begna

	1:30 PM	**Introductory Remarks**
112-1	1:35 PM	**Shift in California Farmer's Perceptions of Climate Change Following Five Years of Drought** Meredith T Niles*, Jessica Ball and Amy Nickerson
112-2	1:50 PM	**Sensitivity Analysis of Sustainability Metrics Free Online Platform to Assess Environmental Outcomes at the Field Level** Eric Coronel*, Allison M. Thomson, Kathy Xiong and Paul Hishmeh
112-3	2:05 PM	**Testing of a Climate-Resilient and Eco-Friendly Crop Management Package on a Representative Range of Crops through Farmer-Participatory Adaptive Research in the Northern Province of Sri Lanka** Eeswaran Rasu*, Janendra De Costa, Devika De Costa and Warshi Dandeniya
112-4	2:20 PM	**INTER-Annual Climate Variability Causes Larger Shifts in Optimum Planting Dates for Maize THAN Anticipated Climate Change Scenarios in the Midwestern, US** Mitch E. Baum*
112-5	2:35 PM	**Changes in Commercial Hybrid Maize Maturity from 2000-2016 in the Midwest US** Lori J. Abendroth*, Fernando Miguez, Michael J. Castellano, Paul R. Carter, Carlos D. Messina and Jerry L. Hatfield
112-6	2:50 PM	**Effects of Temperature on Vegetative Growth, Development, and Reproduction of Guar** Gurjinder S. Baath*, Vijaya Gopal Kakani, Prasanna H. GOWDA, Alexandre C. Rocateli, Brian K. Northup, Hardeep Singh and Jhansy Reddy Katta
	3:05 PM	**Adjourn**

SESSION NO. 113—1:30 PM–3:15 PM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

Special Session Symposium--Advances in the Use of Satellite Remote Sensing for Crop Modeling and Monitoring for Food Security

Special Sessions

	1:30 PM	**Introductory Remarks**
113-1	1:35 PM	**Overview of Activities of NASA Harvest** Ritvik Sahajpal*, Inbal Becker-Reshef, Alyssa Whitcraft and Chris Justice
113-2	1:55 PM	**Remote Sensing of Soil Moisture over Agricultural Domains: Past, Present, and Future** Michael Cosh*
113-3	2:15 PM	**Monitoring Agricultural Water Use and Stress from Thermal Remote Sensing** Christopher Hain*
113-4	2:35 PM	**In-Season Crop Type Mapping and Area Estimation Using Satellite Data and Field Survey** Xiao-Peng Song*, Matthew C. Hansen, Stephen Stehman, Peter V Potapov, bernard adusei, Jeffrey Pickering and Marcos Adami
113-5	2:55 PM	**Geo-Cropsim Framework to Model Crop Yields and Water Use at Regional to National Scales** Varaprasad Bandaru*, Curtis D Jones, Raghu Yaramasu, Roberto C. Izaurralde and Chris Justice
	3:15 PM	**Adjourn**

SESSION NO. 114—1:30 PM–3:20 PM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

Bioenergy Systems Graduate Student Oral (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Bioenergy Systems Community

Moderator: Ratan Chopra

	1:30 PM	**Introductory Remarks**
114-1	1:35 PM	**Exploring Cellulosic Ethanol Production Feasibility from Switchgrass Cultivated for Soil Conservation in Mississippi** Joseph Bridges*, Anna Kazarina, Temitope Omole, Keerthi Mandyam, Ananda Nanjundaswamy and Girish K. Panicker
114-2	1:50 PM	**Mycorrhizal and Endophytic Fungal Abundance in Commercial Bionergygrass—Freedom Giant Miscanthus** Temitope Omole*, Michael Felton, Keerthi Mandyam and Ananda Nanjundaswamy
114-3	2:05 PM	**Sowing Date Affects Winter Camelina Stand Establishment** Alex Wittenberg*, Marisol T. Berti, Alan Peterson, Dulan Samarappuli, Amy Greenberg, Kenneth Mozea, Sergio Cabello Leiva, Swarup Podder and James V. Anderson

114-4	2:20 PM	**Acceleration of Flowering Time and Maturity in Pennycress (*Thlaspi arvense*) Lines and Identification of Causative Genes** Matthew A. Ott*, Ratan Chopra, Katherine Frels, James A. Anderson and M. David Marks
114-5	2:35 PM	**Tillage Systems and Seeding Rate Effects on the Performance of *Brassica Carinata*** Joseph Enye Iboyi*, Michael J. Mulvaney, Kipling S. Balkcom, Ramdeo Seepaul, David L. Wright and Pratap Devkota
114-6	2:50 PM	**Influence of Winter Weeds on Carinata (*Brassica carinata*) Production** Ruby Tiwari*, Pratap Devkota, Michael J. Mulvaney and Ramon G Leon
114-7	3:05 PM	**Brassica Carinata Nutrient Uptake and Partitioning across Maturity Groups and Latitudes** Mahesh Bashyal*, Michael J. Mulvaney, Carl R. Crozier, Ramon G Leon, Gabriel Maltais-Landry, Chris Wilson and John Erickson
	3:20 PM	**Adjourn**

SESSION NO. 115—1:30 PM–3:20 PM

Henry B. Gonzalez Convention Center, 006D, River Level

Symposium--Optimizing Efficiency with Sensors for Irrigation Scheduling and Water Management

ASA Section: Climatology and Modeling

Lead Community: Sensor-based Water Management Community

Moderator: Pete Jacoby

	1:30 PM	**Introductory Remarks**
115-1	1:35 PM	**Calibration and Validation of Decision Support Models with Soil Moisture Sensors to Improve Water and Nutrient Use Efficiency** Kelly T. Morgan*, Andre da Silva, Timothy Ayankojo and Meng Zang
115-2	1:55 PM	**Role of Advanced Remote Sensing Technologies in Irrigated Crop Water Stress Assessment** Lav Khot*, Claudio O. Stockle, Troy Peters and Pete W. Jacoby
115-3	2:15 PM	**Automated Irrigation As a Game-Changer in Sub-Saharan Africa: Is It Enough?** Fred Kizito*
115-4	2:35 PM	**Evaluation of the Sensor Inputs to Surface Energy Balance Models for Evapotranspiration and Recommendations for Improving Radiation Inputs** Mark Blonquist*, Xinhua Zhou and Bruce Bugbee
115-5	2:55 PM	**Waterwise: A Plant Based Sensor and Advanced Analytics Approach for Refining Irrigation Scheduling.** Rose Brodrick, Michael Bange, Hizbullah Jamali, Huidong Jin, Quanxi Shao, Bangyou Zheng, Scott C. Chapman, Christopher Nunn, Humaira Sultana*, Joe Pasanen, David Biggins, Roger Butler, Roy Zandona, Michael Pritchard, Nicola Cowen and Simon Allen
	3:15 PM	**Concluding Remarks**
	3:20 PM	**Adjourn**

SESSION NO. 71—1:30 PM–3:25 PM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Crossdiv Symposium--the Agricultural Microbiome in the Digital Age. Connecting Data from Agricultural Systems That Drive Soil and Plant Microbiome Composition and Function at the Landscape Scale, Using Novel Social, Data and Emerging Network Ar

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Soil and Water Management and Conservation,
SSSA Division: Soils and Environmental Quality,
ASA Section: Land Management and Conservation

Moderator: Jude Maul

	1:30 PM	**Introductory Remarks**
71-1	1:35 PM	**Highlights of the USDA-ARS Soil and Air National Program's Research into Agricultural Microbiomes; The Big Picture and Partnering Opportunities.** David B Knaebel*
71-2	2:00 PM	**The Role USDA-Nal Ag Data Commons Plays in the USDA-Ars's Data Ecosystem; Reality and Opportunities.** Cynthia Parr*
71-3	2:25 PM	**Myphylodb an Open-Source Software Package Aimed at Developing a User-Friendly Web-Interface for Accessing and Analyzing Microbial Ecology Data.** Daniel Manter*
71-4	2:50 PM	**Nodule Microbiomes of 30 Genotypes of Crimson Clover Grown in a Homogeneous Field Soil** Jude E Maul*
	3:15 PM	**Discussion**
	3:25 PM	**Adjourn**

SESSION NO. 116—1:30 PM–3:25 PM

Henry B. Gonzalez Convention Center, 216B, 2nd Level

Applied Soybean Research Oral II (includes student competition)

Sponsored by Bayer CropScience

ASA Section: Agronomic Production Systems

Lead Community: Applied Soybean Research Community

Moderator: Josh Copes

	1:30 PM	**Introductory Remarks**
116-1	1:35 PM	**Late Nitrogen and Sulfur Fertilization in Soybean: Impacts on Seed Yield and Quality** Luiz H. Moro Rosso*, Walter D. Carciochi, Seth L. Naeve and Ignacio A. Ciampitti
116-2	1:50 PM	**Yield of Intensively Managed Double Crop Soybean in Kentucky** Katherine S. Rod* and Carrie A. Knott
116-3	2:05 PM	**Within Field Variability in Optimal Soybean Seeding Density and Implications for Variable Rate Planting in Minnesota** Leanna Leverich*, Yuxin Miao and Seth L. Naeve

116-4	2:20 PM	**Impact of Cover Crops on Disease and Insect Pressure and Yield in Continuous Soybean Production Systems.** Keeley Overmyer*, Anne Dorrance, Laura E. Lindsey and Kelley Tilmon
116-5	2:35 PM	**Factors Affecting Soybean Seed Quality** Ana Priscila Campos*, Josh Copes, Owen Clark, Melanie Netterville and Syam K. Dodla
116-6	2:50 PM	**Disease and Insect Management in Double Cropping Soybean Following Winter Malting Barley** Holly Nowlin*
116-7	3:05 PM	**Biological Nitrogen Fixation Does Not Fill the N Gap in High Yield Soybean** Nicolas Cafaro La Menza* and Patricio Grassini
	3:20 PM	**Concluding Remarks**
	3:25 PM	**Adjourn**

SESSION NO. 117—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 007B, River Level

Special Session Symposium--Managing Limited Water Resources in a Changing Climate

Special Sessions

Section or Division Cosponsor:
C03 Crop Ecology, Management and Quality

	1:30 PM	**Introductory Remarks**
117-1	1:35 PM	**High-Resolution Climate Projections for Agriculture and Water Management** Katharine Hayhoe*, Anne Stoner and Charles P. West
117-2	1:50 PM	**Assessment of Regional Biases of Estimations of Vapor Pressure Deficit and Its Influence on the Maize Yield in the U.S. Great Plains** Xiaomao Lin*, Yongjun Zhang and Zachary Zambreski
117-3	2:05 PM	**Irrigation Technologies with Potential to Improve Water Use Efficiency** Charles P. West* and Donna M. McCallister
117-4	2:20 PM	**Modeling Crop Management Options for Extending Groundwater Resources** Gary W. Marek*, Yong Chen, Thomas H. Marek, Jerry E. Moorhead, David K. Brauer and Raghavan Srinivasan
117-5	2:35 PM	**Precipitation Use Efficiency of Dryland Cropping Systems** Alan J. Schlegel*, R.Louis Baumhardt and Merle F. Vigil
117-6	2:50 PM	**Do Cover Crops Help or Hurt with Water Conservation Goals?** Katie L. Lewis*, Joseph A. Burke, Will Keeling, Terry Wheeler and Wayne Keeling
117-7	3:05 PM	**What Role Can Soil Stewardship Play in Improving Water Use Efficiency and Help with Climate Change Mitigation?** Charles W. Rice*, Marcos Sarto, Amanda Cano, Veronica Acosta-Martinez and Meagan E. Schipanski
	3:20 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 118—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 1, 3rd Level

SASES Crops Judging Showcase Contest

Undergraduate (SASES) Sessions

SESSION NO. 119—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

Symposium--Change Is Hard: Obstacles to Implementation of Recommendations to Farmers, Crop Advisers, and Students

ASA Section: Education and Extension

Section or Division Cosponsor:
C03 Crop Ecology, Management and Quality,
ASA Section: Agronomic Production Systems

Moderator: David Holshouser

119-1	1:30 PM	**Change Is Hard: Obstacles to Implementation of Recommendations to Farmers, Crop Advisers, and Students** David L. Holshouser*
119-2	1:35 PM	**Change Is Hard but Not Changing Can be Devastating** Paul Lasley*
119-3	2:10 PM	**How Commercial Producers Fundamental Attitudes Impact Their Buying Decisions** Michael Gunderson*
119-4	2:45 PM	**In Search of Reliable Information to Make Critical Decisions in the Information Age** James Todd*
	3:20 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 120—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

Symposium--Modernization of Soil Testing Recommendations: Current Efforts

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Paul Fixen

	1:30 PM	**Introductory Remarks**
120-1	1:35 PM	**Bfdc – an Australian Soil Test Calibration Database Success** Paul E. Fixen*, Rob Norton, Ken Peverill and Graeme Watmuff
120-2	2:00 PM	**How Brazil Standardized and Coordinated Soil Testing** Luke Gatiboni*, Leandro S Silva and Heitor Cantarella
120-3	2:25 PM	**Developing a National Soil Testing Database - Data Needs and Digital Structure** Deanna L. Osmond*
120-4	2:45 PM	**Working As a Team to Develop a National Soil Testing Database** Sarah E Lyons*
	3:05 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 121—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 212B, 2nd Level

Symposium--the LTAR Network: Collaborative Science to Enhance Agricultural Sustainability II

SSSA Division: Soil and Water Management and Conservation

Moderator: Arlene Adviento-Borbe, Lumarie Pérez-Guzmán

	1:30 PM	**Introductory Remarks**
121-1	1:35 PM	**Developing Nutrient Budgets for the Long-Term Agroecosystem Research (LTAR) Network** David R. Huggins*
121-2	1:50 PM	**Manuresheds: Tools to Recycle Nutrients for the Sustainable Intensification of Agriculture** Sheri Spiegal*, Peter J. A. Kleinman, Dinku Endale, Ray B. Bryant, John M. Baker, Shabtai Bittman, Dawn Browning, Jennifer Carter, Michel Cavigelli, Curtis J. Dell, Emily W. Duncan, K. Colton Flynn, Sarah Goslee, Prasanna H. GOWDA, Robert J. Meinen, Cibin J. Raj and Qichun Yang
121-3	2:05 PM	**Hydrologic Characterization of the Ltar Network** Claire Baffaut*, Erin Brooks, Fred Pierson, Eleonora Demaria, David Goodrich, Emile Elias, David Hoover, Mark A. Liebig, Nicanor Saliendra, Daniel N. Moriasi, Daren Harmel, Douglas R Smith, Jane Okalebo, Tom Moorman, Lindsey Yasarer, Stephen Hamilton, David D. Bosch, Kevin King, Amartya Saha, Anthony R. Buda, Greg McCarty, Peter J. A. Kleinman, John M. Baker, Gerald N. Flerchinger, Glenn Moglen and Eric Russell
121-4	2:20 PM	**Dissolved Organic Matter in Agricultural Watersheds: Spatial and Temporal Variability across the Ltar Network** Oliva Pisani*, Joel Biederman, David D. Bosch, Elizabeth Boughton, Raoul Boughton, Erin Brooks, Ray B. Bryant, Alisa Coffin, Kevin Cole, Dinku M Endale, David Goodrich, Cathleen Hapeman, Mark Kautz, Kevin King, Robert Lerch, Richard Lizotte Jr., Greg McCarty, Thomas B. Moorman, Daniel N. Moriasi, Erin Murray, Vivienne Sclater, Mark S Seyfried, Timothy Strickland, Alan Verser, Paul M. White Jr. and Henry Wilson
121-5	2:35 PM	**Overview to the USDA Watershed Lag Time Project** Gregory W. McCarty*, Cathleen Hapeman, Clifford P. Rice, Glenn Moglen, Rebecca Plummer, Peter Downey and Dan Arthur
121-6	2:50 PM	**Multi-Scale Wind Erosion Monitoring and Assessment Supported By a National Wind Erosion Research Network** Nicholas Webb*, Brandon Edwards, Justin Van Zee, Ericha Courtright, Michael Duniway, Beth Newingham, Fred Pierson, John Tatarko, David Toledo and Scott Van Pelt
121-7	3:05 PM	**A Long-Term Agroecosystem Research Network Approach to Trade-Offs and Synergies Among Ecosystem Services** Sheri Spiegal and Hilary Swain*
	3:20 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 122—1:35 PM–3:30 PM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

Poster and 5 Minute Rapid--Soil Biology and Biochemistry Oral (includes Society-wide student competition selection)

SSSA Division: Soil Biology and Biochemistry

Moderator: Kristin Trippe

	1:35 PM	**Introductory Remarks**
122-1	1:40 PM	**A Simple Procedure for Real-Time Soil Microbial Biomass Carbon Analysis** Yuch Hsieh*, George Anderson, Robert O. Miller and Djanan Nemours
122-2	1:45 PM	**Engineering a Gas-Producing Biosensor to Enable Non-Disruptive Monitoring of Nitrate Bioavailability in Soils and Marine Sediments** Emily M Fulk*, Ilenne Del Valle, Xiaodong Gao, Jonathan J Silberg and Caroline A Masiello
122-3	1:50 PM	**Designing Artificial Soils to Analyze the Effects of Matrix Properties on Microbial Behaviors** Ilenne Del Valle*, Xiaodong Gao, Caroline A Masiello and Jonathan J Silberg
122-4	1:55 PM	**Viral Population Dynamics Varies with Depth in a Southeastern Ultisol** Xiaolong Liang*, Jie Zhuang, Jennifer M. DeBruyn, Steven Wilhelm, Margaret E Staton, Andrew Conrad Sherfy and Mark Radosevich
122-5	2:00 PM	**Soil Structure and Texture Control of Mitomycin C-Induced Viral Lysis** Aubrey Fine*, Sean M. Schaeffer and Mark Radosevich
122-6	2:05 PM	**Phospholipid Fatty Acids: Interpretations for Soil Health in the Semi-Arid Palouse Region of the Inland Pacific Northwest** Katherine Naasko*, Haiying Tao, David R. Huggins, William L Pan, John Reganold, Tarah S. Sullivan and Skye Wills
122-7	2:10 PM	**Crop Rotation History Shapes Soil Recruitment Pools of Maize Under Nitrogen Limitation** Ashley Stengel*, Morgan McPherson, Josh Herr, Megan Franklin, Elizabeth S. Jeske, Virginia L. Jin and Rhae A. Drijber
122-9	2:15 PM	**Long-Term Impacts of Manure and Inorganic Fertilizer Application on Microbial Community and Diversity in South Dakota** Asmita Gautam*, Udayakumar Sekaran, Jose G. Guzman, Peter Kovacs, Sandeep Kumar and Peter J. Sexton
122-10	2:20 PM	**Earthworm Assemblages and Soil Nematode Community Structure in Response to Long-Term Tillage Systems in Southern Illinois** Amanda M Weidhuner*, Stephen Crittenden, Ronald F. Krausz and Amir Sadeghpour
	2:25 PM	**Question and Answers**
122-11	2:35 PM	**Effect of Different Biochars on Plant Growth, Soil Microbes and Enzyme Activity** Shagufta Gaffar*
122-12	2:40 PM	**Evaluating Soil and Plant Amendments for Improving Symbiotic AMF Interactions in Acidic Soils** Shweta Priya*, Terry J. Gentry, Curtis Adams, Javid McLawrence, Cara Case, Jeff A Brady and Anil Somenahally
122-13	2:45 PM	**Identification and Solubilization Capacities of Silicate-Solubilizing Bacteria in Louisiana Soils** Jayvee Cruz*, Brenda Tubana, Roberto Farias, rosalie calderon, Jiraporn Bamrungrai, Marilyn Dalen, Daniel Forestieri, Wooiklee Paye, Jose Rodolfo Mite, Lisa M. Fultz, Jong Hyun Ham, Hector Mendoza and Diego Mayorga

122-14	2:50 PM	**Nitrogen-Fixing Bacteria: Probiotic for Boreal Forest Trees?** Akshit Puri*, Kiran Preet Padda and Chris P Chanway
122-15	2:55 PM	**CuO Nanoparticle Dissolution and Toxicity to Soil Enzyme Activity and Microbial Communities' Composition** Kaushik Adhikari* and Hao Chen
122-16	3:00 PM	**Tillage Management and Cropping Influence on Microbial Activity and Carbon Cycling Dynamics** Nicole Shigley*, Julie A Howe and A. Peyton Smith
122-17	3:05 PM	**The Impact of Anaerobic Digestion of Dairy Manure Fertilizers on Microbial Carbon and Nitrogen Cycling in Soil** Ashley Waggoner*, Manuel Peralta and Anne E. Taylor
122-18	3:10 PM	**Effects a One-Time Compost Application on Carbon Dynamics in Dryland Organic Wheat Systems in the Intermountain West, USA** Idowu Atoloye*, Jennifer R Reeve, Astrid R. Jacobson and Earl Creech
122-19	3:15 PM	**Nitrogen Use Efficiency and Soil Bioavailable Nitrogen in Corn Silage Production in a Semi-Arid Environment** Phearen Miller*, Avneet Kakkar, Yang Ouyang and Jeanette M. Norton
	3:20 PM	**Questions and Answer**
	3:30 PM	**Adjourn**

SESSION NO. 123—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

Symposium--"Across the Ladder": Recent Advancements in Assessment of Reducing Soil Conditions and Hydric Soils Identification

SSSA Division: Wetland Soils

Moderator: Chelsea Duball, Karen Vaughan

	1:30 PM	**Introductory Remarks**
123-1	1:35 PM	**Saturated but Not Yet Suffocated: Seasonal Oxidation-Reduction Dynamics in Southern Piedmont Floodplains** Anna Wade* and Daniel Richter
123-2	1:50 PM	**Spatial Variability of Manganese Oxide in Two Soilscapes: Upland-Lowland, and Riparian Buffer-Wetland Boundary-Wetland** Richard W. Griffin*, Benjamin A. Onweni, Robert J.F. Thomas, Edward K. Timms, Javon D. Polk and Annette A. James
123-3	2:05 PM	**Iron Monosulfide Concentrations As Evidence of Anaerobic Conditions** Karen L. Vaughan*, Chelsea Duball, Martin C. Rabenhorst and Jacob F. Berkowitz
123-4	2:20 PM	**Reducing Confusion in Hydric Soil Studies – Interpreting and Presenting Redox Data** Jacob F. Berkowitz*
123-5	2:35 PM	**What We Have Learned about Soil Redox Processes Using IRIS** Martin C. Rabenhorst*
123-6	4:00 PM	**A Novel Sensor for Quantifying Denitrification Activity in Soils** Mark Stolt*
123-7	4:00 PM	**Coupling Watershed Modeling with Wetland Soil Measurements Improves Identification of Target Locations for P Reduction** Jacob F. Berkowitz*, Christine M. VanZomeren, Derek Schlea and Chelsie Bowes
123-8	4:00 PM	**Greenhouse Gases Emission (CH4, N2O, CO2) Associated with Diversity of Microbes in Different Land-Uses of Tropical Peatland.** Fitriah S.N Azizan* and Kosuke Noborio
123-9	4:00 PM	**Biogeochemical Properties of Eroding Wetland Soil Organic Matter** Yadav Sapkota* and John R. White
123-10	4:00 PM	**Quantification of Iron Monosulfides to Address Problematic Soils and Improve the Delineation of Wetlands in the Semi-Arid Western U.S.** Chelsea Duball* and Karen L. Vaughan
123-11	4:00 PM	**Soil Biogeochemistry in Playa Wetlands in Response to Changing Land Use** Rachel K. Owen*, Keith W. Goyne, Kristen Sloan Veum and Elisabeth B. Webb
	3:20 PM	**Discussion**
	3:25 PM	**Concluding Remarks**
	3:30 PM	**Adjourn**

SESSION NO. 124—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

Symposium--Greenhouse Gas Emissions from Managed Ecosystems: Mechanisms, Measurements, and Modeling

ASA Section: Environmental Quality

Lead Community:
Soil Carbon and Greenhouse Gas Emissions Community

Section or Division Cosponsor:
SSSA Division: Soil and Water Management and Conservation

Moderator: Virginia Jin

	1:30 PM	**Introductory Remarks**
124-1	1:35 PM	**Temporal Variability of Nitrous Oxide Emissions in Managed Ecosystems: Mechanisms and Measurements** Michel Cavigelli* and Timothy Parkin
124-2	2:05 PM	**Improved Measurement, Modeling and Mitigation of Soil Nitrous Oxide Emissions in Cropping Systems of the Upper Midwest USA** Rodney T. Venterea*, Timothy J. Clough, Jeffrey A. Coulter, Timothy Parkin, Søren O Petersen, Carl J Rosen, Florence Sessoms and Emerson Souza
124-3	2:35 PM	**Predicting N_2O Emissions from Manure-Fertilized Crops Using N Balance: A Meta-Analysis** Alison J Eagle*, Eileen L McLellan, Eric M Brawner and Kenneth G Cassman
124-4	3:05 PM	**Modeling CO2 and H2o from a Cool-Season Dominated Native Prairie in the Climate Transition Zone of the U.S.** Song Cui*, Qiang Wu, Douglas Campbell, Nithya Rajan and Shyam Nair
	3:35 PM	**Adjourn**

SESSION NO. 125—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 008AB, River Level

Symposium--Predictive Agriculture Foundations II: Advances in Predictive Breeding

C01 Crop Breeding and Genetics

Section or Division Cosponsor:
C02 Crop Physiology and Metabolism,
ASA Section: Climatology and Modeling,
C03 Crop Ecology, Management and Quality

Moderator: Carlos Messina

	1:30 PM	**Introductory Remarks**
125-1	1:35 PM	**Predicting Pathways to Improved Crop Productivity: Integrating Genetic Gain and Gap Analysis** Mark Cooper*, Carla Gho, Tom Tang, Tim Hart and Carlos D. Messina
125-2	2:05 PM	**Prediction of GxE: Statistics or Crop Physiology?** Fred van Eeuwijk* and Scott C. Chapman
125-3	2:35 PM	**Graph Modeling and Machine Learning Applications for Integrated Parent, Cross and Progeny Selection** Elhan S. Ersoz* and Nicolas Federico Martin
125-4	2:55 PM	**Predictive Breeding for Maize: Making Use of Molecular Phenotypes, Machine Learning, and Physiological Crop Models** Jacob Washburn*
125-5	3:15 PM	**Crop Science: Foundation for Prediction in Genotype-Environment Systems in Agriculture** Carlos D. Messina*, Mark Cooper, Matthew P. Reynolds and Graeme L. Hammer
	3:35 PM	**Adjourn**

SESSION NO. 126—1:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 210B, 2nd Level

Topics in Soil Chemistry Oral I (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Biswanath Dari, Chongyang Li, Dani Gelardi

	1:30 PM	**Introductory Remarks**
126-1	1:30 PM	**Identification & Modeling of Cation Adsorption on Montmorillonite** Cristian P. Schulthess* and Yayu W. Li
126-2	1:45 PM	**Predicting Langmuir Model Parameters Representing for Heterogonous Soil Types Described By Different Compositions** Mark A. Chappell*, Christian McGrath, Lesley Miller, Matthew A Middleton, Christine R Miller, Cynthia L. Price and Joshua J. LeMonte
126-3	2:00 PM	**Mobilization and Release of Arsenic from an Abandoned Arsenic-Contaminated Gold Mine Spoil Under Varied Soil Redox Conditions** Albert Kobina Mensah*, Bernd Marschner, Jianxu Wang, Sabry M. Shaheen and Jörg Rinklebe
126-4	2:15 PM	**A Preliminary Spectroscopic Investigation to Improve Mechanistic Insights on the Fate of Extracellular DNA in the Environment** Sudipta Rakshit* and Ali Taheri
	2:30 PM	**Break**
126-5	2:45 PM	**Kinetics and Chemistry of Carbon Decomposition during the CO_2 Flush** Audrey Laffely, Susan Erich* and Tsutomu Ohno
126-6	3:00 PM	**Phytostabilization of a Contaminated Shooting Range Soil Using Biofuel Crop and Soil Amendments** Zafer S Alasmary*, Ganga M. Hettiarachchi, Kraig L Roozeboom, Lawrence C Davis and Larry E Erickson
126-7	3:15 PM	**Contrasts and Convergence in Mechanisms of Organo-Mineral and Organo-Organic Interactions: Insights from Nanometer-Scale Cryogenic Imaging and Spectroscopy** Angela R. Possinger*, Michael J. Zachman, Akio Enders, Barnaby D.A. Levin, David A. Muller, Lena F. Kourkoutis and Johannes Lehmann
126-8	3:30 PM	**In-Situ Measurements of Dynamic Trace Element Distributions during Miscible Displacement Studies Using a Portable X-Ray Fluorescence Device** Josh Padilla*, Wenguang Sun, Tamer A. Elbana and Magdi Selim
	3:45 PM	**Adjourn**

SESSION NO. 127—1:35 PM–3:45 PM

Henry B. Gonzalez Convention Center, 216A, 2nd Level

Soils and Environmental Quality General Oral II (includes student competition)

SSSA Division: Soils and Environmental Quality

Moderator: Katherine Tully

	1:35 PM	**Introductory Remarks**
127-1	1:40 PM	**Geospatial Analysis and Bioavailability of Exceeded Metal(loid)s Contaminants in Agricultural Fields across Animas Watershed Exposed to Metal Contaminants from Abandoned Mine Sites** Gaurav Jha*, April L. Ulery, Kevin A Lombard and David C. Weindorf
127-2	1:45 PM	**Transport and Retention of Molybdenum(VI) on Iron Oxide-Coated Sand : A Modified Multi-Reaction Model** Wenguang Sun* and Magdi Selim
127-3	1:50 PM	**Impacts of Cement Dust Emissions on Predicting Soil CO_2 Fluxes in Gumushane, Turkey** Serdar Bilen*, Ekrem Ozlu, Murat Bilen, Kenan Barik and Mudahir Ozgul
127-4	1:55 PM	**Nanoplastic: Isolation from Soil and Plant Uptake** Stephen Taylor*, Andy Bary, Carolyn Pearce, Karen A. Sanguinet and Markus Flury
	2:00 PM	**Question and Answer**
	2:05 PM	**Break**
127-5	2:15 PM	**Relating a Soil Health Tool Phosphorus Tests with Phosphorus Loss with Surface Runoff** John D. Jones* and Antonio P. Mallarino
127-6	2:30 PM	**Quantifying Legacy and Incidental Runoff Phosphorus Losses** William R. Osterholz* and Kevin King
127-7	2:45 PM	**Saltwater Intrusion Alters Nutrient Cycling in Coastal Ecosystems** Danielle Weissman* and Katherine Tully
127-8	3:00 PM	**Modeling Phosphorus Losses and Distribution in Different Land Uses over Time** Maryam Foroughi*, John Mallard and Daniel Markewitz
127-9	3:15 PM	**Abandon, Restore, Adapt: Farming in the Face of Sea Level Rise and Saltwater Intrusion** Elizabeth de la Reguera*, Keryn Gedan, Margaret Palmer and Katherine Tully

127-10	3:30 PM	**Nitrogen Mineralization Following Soybean Production: An Important Source of Tile Nitrate Loads** Lowell E. Gentry*, John M. Green, Corey A. Mitchell, Michelle Rolf, Luis Andino, Dan Schaefer and Emerson Nafziger
	3:45 PM	**Adjourn**

SESSION NO. 128—1:30 PM–3:50 PM

Henry B. Gonzalez Convention Center, 212A, 2nd Level

Soil Chemistry in the Face of Climate Change: Soils in the New Arctic Oral (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Yu Yang

	1:30 PM	**Introductory Remarks**
128-1	1:35 PM	**Geochemical Controls on Soil Organic Carbon Degradation in Arctic Tundra Under Warming** Baohua Gu*
128-2	1:50 PM	**Soil pH Controls on Anaerobic Microbial Activity and Organic Carbon Transformations in Arctic Polygon Tundra** David Graham*, Jianqiu Zheng, Baohua Gu and Stan Wullschleger
128-3	2:05 PM	**Soil Carbon Dynamics in Arctic Soils Under a Changing Climate** John M. Galbraith*
128-4	2:20 PM	**Comparative Morphology of Cryoturbated Soils in Alaska: Implications for Carbon Storage** Nicolas A. Jelinski*, Julie D Jastrow, Roser Matamala, Chien-Lu Ping, Michael Sousa, Autumn Acree, David C. Weindorf and John M. Galbraith
	2:35 PM	**Break**
128-5	2:50 PM	**Quantifying the Influence of Soil, Snowpack, Topography and Vegetation Properties on Soil Heat, Water and Carbon Fluxes across an Arctic Watershed in a Discontinuous Permafrost Environment** Baptiste Dafflon*, Sebastian Uhlemann, Ian Shirley, Hunter Akins, John Peterson, Craig Ulrich, Sebastien Biraud and Susan Hubbard
128-6	3:05 PM	**Impact of Freeze-Thaw Cycles on Porosity in Permafrost-Affected Soils.** Erin Rooney, Maria Ines Dragila, Adrian C. Gallo, Jeff A. Hatten, Odeta Qafoku, Loren Reno, Michael D. Sanclements, Tamas Varga, Alexander Buchko and Rebecca Lybrand*
128-7	3:20 PM	**The Impact of Warming Temperatures on Energetic Compounds in Subarctic Soils** Joshua J. LeMonte*, Mark A. Chappell, Cynthia L. Price, Thomas A. Douglas and Karl J. Indest
128-8	3:35 PM	**Improving Representation of Arctic Soil Biogeochemistry in Large-Scale Models** Benjamin N Sulman*, Teri O'Meara, Elizabeth M Herndon, Baohua Gu, David Graham and Peter E Thornton
	3:50 PM	**Adjourn**

SESSION NO. 129—1:30 PM–3:50 PM

Henry B. Gonzalez Convention Center, 225A, 2nd Level

Use and Abuse of Empirical and Physical Models in Soil Physics, Hydrology and Geo-Engineering from Pore to Landscape Scales Oral

SSSA Division: Soil Physics and Hydrology

Moderator: Tamir Kamai, Ronald Breitmeyer, Ryan Stewart

	1:30 PM	**Introductory Remarks**
129-1	1:35 PM	**Evaluating the Efficiency of Drywell for Enhanced Aquifer Recharge** Salini Sasidharan*, Scott A. Bradford, Jirka Simunek and Stephen Kraemer
129-2	1:50 PM	**Limitations in Sediment Detachment and Transport Processes Associated with Soil Pipeflow** Glenn V. Wilson*, John L. Nieber, Garey A. Fox, Roger Kuhnle and Robert R. Wells
129-3	2:05 PM	**Analytical Models Linking Satellite Retrievals of Surface Soil Moisture and Water Fluxes** Morteza Sadeghi*, Ardeshir Ebtehaj, Scott B. Jones and Markus Tuller
129-4	2:20 PM	**Lessons Learned from Using a Physically-Based Model for Predicting the Effects of Wildfire on Soil Hydrology and Erosion at Large Watershed Scale** Carlos A. Bonilla*, Virginia I González, Athena B Carkovic and Gabriel P Lobo
	2:35 PM	**Break**
129-5	2:50 PM	**Forced and Natural Gas Movement in Dry Soil: Barrel Experiments and Flow Models** Shmulik Friedman*, Ilan Ben-Noah, Ido Nitzan and Gregory Communar
129-6	3:05 PM	**Simulated Impacts of Soil Management Practices on Plant Available Soil Water** Sayantan Samanta*, Srinivasulu Ale, Cristine L. S. Morgan, Dianna K. Bagnall, Richard T Woodward, William Alex McIntosh and Julie A Howe
129-7	3:20 PM	**Can We Improve Agricultural (Environmental) Management By Using Novel Numerical Modeling Approaches?** Vilim Filipović*, Horst H. Gerke, David A. Robinson, Jirka Simunek, Keith L. Bristow and Brent E. Clothier
	3:35 PM	**Discussion**
	3:50 PM	**Adjourn**

SESSION NO. 130—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 007D, River Level

Crop Physiology and Metabolism Oral II

C02 Crop Physiology and Metabolism

Moderator: Bablu Sharma

	1:30 PM	**Introductory Remarks**
130-1	1:35 PM	**Characterizing the Variability of Cold Resiliency in Grain Sorghum** Yves Y Emendack*, Jacob Sanchez, Chad Hayes, Gloria B. Burow, Halee Hughes, Haydee Laza, John J. Burke, Junping Chen, Zhanguo Xin, Kelly Caroline and Guadalupe Martinez
130-2	1:50 PM	**Chilling Tolerance during Early Seedling Stage in Grain Sorghum** Raju Bheemanahalli*, Troy Ostmeyer, Ramasamy Perumal and S.V. Krishna Jagadish

130-3	2:05 PM	**Leaf Carbon Assimilation and Dark Respiration Responses to Heat Stress on Quinoa** Felipe H Barrios-Masias*, Ashley Eustis and Kevin Murphy
130-4	2:20 PM	**Potential and Actual Yield: Leaf Size and Heat Impacts on Seed Number and Size** Rosalind Bueckert*, Evelyn Osorio, Endale Tafesse and Arthur Davis
130-5	2:35 PM	**Lipid Metabolic Changes Contribute to Heat Tolerance in Soybean** Sruthi Narayanan Kutty*, Sachin Rustgi, Zolian Sang Zoong Lwe and Ruth Welti
	2:50 PM	**Break**
130-6	3:00 PM	**High Night Temperatures Affect Grain-Quality Dynamics and Starch Metabolism in Winter Wheat Genotypes** Amaranatha Vennapusa*, Impa M Somayanda, Raju Bheemanahalli and S.V. Krishna Jagadish
130-7	3:15 PM	**Physiological Characterization of Wild Emmer Wheat (Triticum dicoccoides) for Heat Stress Resilience** Carlos Bustamante*, Impa M Somayanda and S.V. Krishna Jagadish
130-8	3:30 PM	**Physiological Characterization of Maize Inbred Lines Under Heat Stress Conditions** Haydee E Laza*, Paxton Payton, James R. Mahan, Yves Y Emendack and Junping Chen
130-9	3:45 PM	**Heat Stress Affects Pod Set, Pod Filling and Seed Quality in Chamber and Field Grown Canola** Meghnath Pokharel*, Michael Stamm and SV Krishna Jagadish
	4:00 PM	**Adjourn**

SESSION NO. 131—1:30 PM–4:00 PM

Hilton Palacio del Rio, Salon del Rey A, 2nd Floor

Turf Ecology and Management Oral I: Physiology, Irrigation, and Abiotic Stress (includes student competition)

C05 Turfgrass Science

Moderator: Chrissie Segars, Barry Stewart

	1:30 PM	**Introductory Remarks**
131-1	1:35 PM	**Water Use and Drought Tolerance of 35 Cool-Season Turfgrass Cultivars** Josh Lambright* and Yaling Qian
131-2	1:50 PM	**Harvest Aids for Improved Bermudagrass Sod Shelf-Life and Transplantation Success** Nikolay Minaev*, James D McCurdy, Maria Tomaso-Peterson, Barry R. Stewart, Daniel Chesser and Wes Lowe
131-3	2:05 PM	**Screening Bermudagrasses for Freeze Tolerance Under Controlled Environment Conditions** Lakshmy Gopinath*, Justin Quetone Moss, Yanqi Wu and Mark Payton
131-4	2:20 PM	**Hormone Regulation of Tiller and Stolon Regrowth Following Drought Stress in Creeping Bentgrass** Cathryn Chapman* and Bingru Huang
131-5	2:35 PM	**Metabolic Regulation of Heat-Induced Leaf Senescence in Creeping Bentgrass By Chemical Priming** Stephanie Rossi* and Bingru Huang
	2:50 PM	**Break**
131-6	3:00 PM	**Irrigation Needs of Drought Susceptible and Tolerant Tall Fescue and Kentucky Bluegrass Cultivars at Two Mowing Heights** Jada Powlen*, Cale Bigelow, Aaron J. Patton, Yiwei Jiang and Melodee Fraser
131-7	3:15 PM	**Identifying Turf Type Bahiagrass Genotypes with Improved Drought Response Characteristics.** Pablo Agustin Boeri*, J. Bryan Unruh, Kevin E. Kenworthy, Laurie E. Trenholm and Esteban F. Rios
131-8	3:30 PM	**Can Smart Irrigation Controllers Improve Water Use Efficiency in Urban Landscapes?** Shane R Evans*, Kelly L. Kopp, Paul G. Johnson and Bryan G. Hopkins
131-9	3:45 PM	**Drought Tolerance in Seashore Paspalum Ecotypes Collected from Different Climatic Zones** Krishna Katuwal*, Viktor Tishchenko and David Jespersen
	4:00 PM	**Adjourn**

SESSION NO. 132—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 007A, River Level

Forage and Grazinglands Oral I: Warm-Season Forages

C06 Forage and Grazinglands

Moderator: Cheryl Mackowiak

	1:30 PM	**Introductory Remarks**
132-1	1:35 PM	**Developing Forage Cowpeas for Cover Crops, Wildlife Stewardship and Livestock Production Systems.** Gerald R. Smith* and Francis M. Rouquette Jr.
132-2	1:50 PM	**Finding Nutritive Value of Less Conventionally Utilized Legume Forage in Lower Southern State** Kun Jun Han*, Sichul Kim, Willam Pitman and Wink Alison
132-3	2:05 PM	**Nitrogen Fertilization Affects Nitrogen Fixation Responses of Two Rhizoma Peanut Genotypes during Establishment** Parmeshwor Aryal*, Lynn E. Sollenberger, Jose C.B. Dubeux Jr. and Diane L. Rowland
132-4	2:20 PM	**Forage Brassicas As an Alternative Forage for Fall Grazing Systems** Eric Billman*, Sandra Leanne Dillard and Kathy Soder
132-5	2:35 PM	**Forage Bridges to Extend the Grazing Season of Beef Cowherds to Reduce Feed Inputs in the Southern Plains** James K. Rogers*, Scott G. Robertson, Gregg R Sweeten and Ronald D. Trett
	2:50 PM	**Break**
132-6	3:00 PM	**Forage Sorghum, Pearl Millet, and Corn Physiology, Nutrient Content, and Yield Under Deficit Irrigation** Bishwoyog Bhattarai*, Sukhbir Singh, Charles P. West, Calvin L. Trostle and Glen Lorin Ritchie
132-7	3:15 PM	**Understanding Silage Corn Vertical Biomass Distribution and Quality Relationships for Developing Sustainable Production System** Sultan Begna*, Sangamesh Angadi, Rajan Ghimire and Abdel O. Mesbah
132-8	3:30 PM	**Interseeding Annual Warm-Season Grasses in Pasturelands – Forage Production** John A. Guretzky*, Jerry Volesky, Mitchell Stephenson, Keith R. Harmoney and Joseph L. Moyer
132-9	3:45 PM	**Parameterization of the Cropgro Perennial Forage Model for Simulating Growth of Tanzânia and Mombaça Guineagrass** Henrique B Brunetti, Patricia M. Santos, Kenneth J. Boote* and Jose Ricardo Pezzopane
	4:00 PM	**Adjourn**

SESSION NO. 133—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 213B, 2nd Level

Forest, Range and Wildland Soils General Oral

SSSA Division: Forest, Range and Wildland Soils

Moderator: Charles Rhoades

	1:30 PM	**Introductory Remarks**
133-1	1:35 PM	**Evaluating Nutrient Balance in Response to Acidification Treatment** Mary Beth Adams* and Brenden McNeil
133-2	1:50 PM	**Has Replenishment of Calcium Begun in Adirondack Forest Soils?** Gregory Lawrence*, Jay Siemion, Donald Bonville, Michael R. Antidormi and Michael McHale
133-3	2:05 PM	**Modulation of Climate Conditions on Impacts of Dust Inputs on Phosphorus Transformation during Ecosystems Development** Than Dam*, Stephen C. Hart and Mengqiang Zhu
133-4	2:20 PM	**Dissolved Organic Matter Fluxes and Their Contribution to Lateral Weathering** Stephanie Duston*, Brian D. Strahm, Kevin J. McGuire, Scott W. Bailey, Donald S. Ross, Madeline Schreiber, Amanda Pennino, Joshua Benton and Jenny Bower
133-5	2:35 PM	**Controls on Soil Respiration Rates at Sites throughout North America** Edward Ayres*
	2:50 PM	**Break**
133-6	3:00 PM	**Tree Species and Nitrogen Deposition Influence Stable Aggregate Carbon Dynamics in Forest Soils** Charlene L. Kelly*, Mary Beth Adams and Jacob Kemner
133-7	3:15 PM	**Soil Bulk Density Monitoring Program for Forest Harvesting Impacts in Saskatchewan** Beyhan Y. Amichev, Landon Sealey and Ken C.J. van Rees*
133-8	3:30 PM	**Wood Decomposition in Forest Soils: The Role of Subterranean Termites.** Martin F. Jurgensen*, Deborah S. Page-Dumroese, Chris Miller, Carl Trettin, John M. Kabrick and Brian Forschler
133-9	3:45 PM	**Turkish Fir (*Abies* x *bournmuelleriana*) Does Not Live up to Expectations As a Potential Substitute for Fraser Fir (*Abies fraseri*) Christmas Trees in NY** Russell Briggs* and Lawrence Abrahamson
	4:00 PM	**Adjourn**

SESSION NO. 134—1:45 PM–4:00 PM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

Applications of in-Situ, Proximal, and Remote Sensing for Soil Moisture Information in Agriculture and Hydrology Oral II

SSSA Division: Soil Physics and Hydrology

Moderator: Emmanuel Ojo, Andres Patrignani, Jingyi Huang

	1:45 PM	**Introductory Remarks**
134-1	1:50 PM	**Fusion of Real-Time Soil Water Contents with ET Modeling for Improved Irrigation Scheduling Decisions** Robert C. Schwartz*, Alfonso Dominguez and Jourdan M. Bell
134-2	2:05 PM	**Improving Irrigation Recommendations By Combining High Resolution Temporal Soil Moisture with Satellite Synthetic Aperture Radar** Colin S. Campbell*, Ryan Smith, Ryan Christensen, Neil C. Hansen and Bryan G. Hopkins
134-3	2:20 PM	**Multisensor Multiscale Big Data Fusion of Soil Moisture Observations across Scales** Dhruva Kathuria*, Binayak P. Mohanty and Matthias Katzfuss
134-4	2:35 PM	**Relationship between GPS Signal and Soil Water Content** Natsumi Naganuma*, Shinsuke Aoki, Tetsushi Ikegami and Kosuke Noborio
134-5	2:50 PM	**Soil Water As Natural Capital** Tyson E. Ochsner*, Briana M. Wyatt and Erik S. Krueger
	3:05 PM	**Break**
134-6	3:15 PM	**A New Soil Physical Property Database for the Kansas Mesonet** Nathaniel Parker* and Andres Patrignani
134-7	3:30 PM	**In-Situ Soil Moisture Data Improve Seasonal Streamflow Forecast Accuracy in Rainfall-Dominated Watersheds** Briana M. Wyatt*, Tyson E. Ochsner, Erik S. Krueger and Eric T. Jones
	3:45 PM	**Discussion**
	4:00 PM	**Adjourn**

SESSION NO. 135—1:30 PM–4:05 PM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

Soil Health II: Data-Driven Integrated Approaches Towards Sustainable Agriculture Oral

ASA Section: Land Management and Conservation

Lead Community: Soil Health Community

Section or Division Cosponsor:
ASA Section: Land Management and Conservation,
SSSA Division: Forest, Range and Wildland Soils

Moderator: Caley Gasch

	1:30 PM	**Introductory Remarks**
135-1	1:35 PM	**I Do Not Think It Means What You Think It Means: Describing Different Conceptualizations of Soil Health** Jordon Wade*, Margaret Beetstra and Steve Culman
135-2	1:50 PM	**An Information Ecology for Sustainable Agriculture** Ankita Raturi*, Steven B Mirsky and Chris Reberg-Horton
135-3	2:05 PM	**Making the Business Case for Conservation Practice Adoption in Midwest Row Crop Agriculture** Laura F. Gentry*, Gary Schnitkey and Sarah Sellars
135-4	2:20 PM	**Landpks: Mobile App for Participatory Soil Health Research, Innovation and Monitoring** Jeffrey E. Herrick*, Tilahun Amede, Brandon Bestelmeyer, Michaela Buenemann, Adane Buni, Lulseged Desta, Chad Ellis, Jerry Glover, Jeff Goodwin, David Hoover, Jason W Karl, Jonathan J. Maynard, Sarah McCord, Bianca Moebius-Clune, Vicki L. Morrone, Jason C Neff, George Peacock, Shawn Salley, Cathy A. Seybold, Keith D. Shepherd, Terri Schulz, Sieg Snapp, Zachary P. Stewart, Evan Thomas, Karen Prentice, Gordon Toevs, Bob Unnasch and Skye Wills

135-5	2:35 PM	**Incorporating Soil Biological Indicators into Soil Survey: Microbial Community Structure and Enzymatic Activity** Skye Wills*, Kristen Sloan Veum, Caitlin Caudle, Deanna L. Osmond, Joshua L. Heitman, Savanna Crossman, Laura Starr, Peter J. Tomlinson, DeAnn R. Presley, Isaac Madsen, Katherine Naasko, Haiying Tao, William L Pan, Katie L. Lewis, Paul B. DeLaune, Laura Adams, Francisco J. Arriaga, Garrett C. Liles, Sharon Perrone, Julie M. Grossman, Regina O'Kelley, David D. Myrold, Carmen M. Ugarte and Michael P. Robotham
	2:50 PM	**Break**
135-6	3:00 PM	**Using Long-Term Research Sites to Evaluate Soil Health Indicators on a Continental Scale** C. Wayne Honeycutt*, Cristine L. S. Morgan, Paul W. Tracy, Gregory Mac Bean, Shannon Cappellazzi, Michael Cope, Kelsey L. Hoegenauer, Daniel Liptzin, Charlotte Norris and Elizabeth Rieke
135-7	3:15 PM	**Modeling Relationships Among Indicators, Management, Environment and Yield for Soil Health Planning** Bradley Crookston* and Matt A. Yost
135-8	3:30 PM	**Mapping Adoption of Conservation Practices and Associated Soil Health Outcomes across the Corn Belt** Stephen C Hagen, William A Salas*, Ian R Cooke, Justin R Fisk, Peter Ingraham, David I Gustafson and Pipa Elias
135-9	3:45 PM	**CART: Leveraging Geospatial Data and Decision Support for More Efficient NRCS Conservation Planning** Michael P. Robotham*, Jason Nemecek and Aaron Lauster
	4:00 PM	**Concluding Remarks**
	4:05 PM	**Adjourn**

SESSION NO. 136—1:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

Soil Fertility, Plant Nutrition, and Soil/Plant Analysis Ph.D. Oral (includes student competition)

Sponsored by
Koch Agronomic Services, Nutiren, Wilbur-Ellis and J.R. Simplot

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis, SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Gurbir Singh, Bhupinder Farmaha

	1:30 PM	**Introductory Remarks**
136-1	1:35 PM	**Field Correlations of Soil-Test Potassium Methods Using Different Soil Sampling Dates for Corn and Soybean in Iowa** Ryan R. Oltmans* and Antonio P. Mallarino
136-2	1:50 PM	**Monitoring the Effect of Different Nitrogen Sources on Soil and Leaf Tissue Nitrogen Content, Sugarcane Yield and Quality Parameters in Louisiana Production System.** Daniel Forestieri*, Brenda Tubana, Marilyn Dalen, Jose Rodolfo Mite, Wooiklee Paye, Joseph Garreth, Samuel Kwakye and Murilo de Santana Martins
136-3	2:05 PM	**Nitrogen Management in Furrow Irrigated Rice Production** Justin L Chlapecka*, Jarrod T. Hardke, Trenton L. Roberts, Donna L. Frizzell, Eddie Castaneda, Trent Frizzell, Ken Hale and Mary Jane Lytle
136-4	2:20 PM	**Intra-Row Spacing, Compost and NPK 20-7-3 Fertilizers Influenced Performance of Popcorn (*Zea mays* Everta.) in Semi-Arid Region of South Africa** Oyeyemi Adigun Dada*, Funso Raphael Kutu and Sydney Mavengahama
136-5	2:35 PM	**Sustainable Nutrient Management for Tropical Fruit Production** Ariel Freidenreich* and Krishnaswamy N. Jayachandran
	2:50 PM	**Break**
136-6	3:00 PM	**Influence of Pre-Plant Nitrogen and Phosphorus Applications on Winter Wheat (Triticum aestivum) Grain Yield** Elizabeth Eickhoff*, Jagmandeep Singh Dhillon, Bruno Morandin Figueiredo, Gwen Wehmeyer, Tyler Lynch, Jonathan Carpenter and William R. Raun
136-7	3:15 PM	**Coal Combustion Residue with High C Content Improved Crop Yields in Western Nebraska** Dinesh Panday* and Bijesh Maharjan
136-8	3:30 PM	**Recapture and Reuse of Phosphorus from Sparingly Available Forms in Meat and Bone Meal Using Penicillium Bilaiae and Mycorrhizae** Bhupinder Jatana*, Christopher Kitchens, Christopher L. Ray and Nishanth Tharayil
136-9	3:45 PM	**Comparative Analysis of Pea (*Pisum sativum* L.) Seed Ionome Profile of Global Collection and Their Contribution to Daily Value Nutrition** Gokhan Hacisalihoglu* and A. Mark Settles
136-10	4:00 PM	**Recovery of Nitrogen-15 Fertilizer By Corn on Upper Midwest Soils** Jared A. Spackman*, Fabian G. Fernandez and Gabriel Dias Paiao
136-11	4:15 PM	**Tillage and Soil Drainage Influence Nitrogen Management in Upper Midwest Conditions** Gabriel Dias Paiao*, Fabian G. Fernandez and Seth L. Naeve
	4:30 PM	**Adjourn**

SESSION NO. 137—1:30 PM–4:45 PM

Henry B. Gonzalez Convention Center, 221C, 2nd Level

Soil Fertility and Plant Nutrition M.S. Student Oral (includes student competition)

Sponsored by
Koch Agronomic Services, Nutiren, Wilbur-Ellis and J.R. Simplot

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Nathan Nelson, Julie Howe

	1:30 PM	**Introductory Remarks**
137-1	1:35 PM	**The Effect of Pre-Plant Fertilizer Management on Yield, Nitrogen Uptake and Disease Incidence in Four Strawberry Cultivars** Kamille Garcia-Brucher* and Charlotte Decock
137-2	1:50 PM	**Soil and Foliar Applied Potassium for Upland Cotton Production** Will Howard Wendland*, Audrey V. Gamble and Elizabeth A. Guertal
137-3	2:05 PM	**Soft White Winter Wheat Response to Multiple-Input Management Systems** Seth Purucker* and Kurt Steinke
137-4	2:20 PM	**Interseeding Cover Crops Under Sugarbeet Production** Sailesh Sigdel*, Marisol T. Berti, Sergio Leiva and Amitava Chatterjee

137-5	2:35 PM	**Recalcitrant Carbon As a Source of Iron for Soybean As Influenced By Variety and Soil pH.** Andrea Elvir Flores* and Jac J. Varco
137-6	2:50 PM	**Monoculture to Biculture: Cover Cropping Effects on Biomass, Nitrogen Dynamics, and Yield in a Strip-Tilled Corn Production System** Eduardo Samuel Garay* and Jac J. Varco
	3:05 PM	**Break**
137-7	3:15 PM	**Do Side-Dress Nitrogen Rates Influence Pre-Tassel Nitrogen Uptake in Corn?** Robyn Mulloy*, Trenton L. Roberts, Jason Kelley, Kyle Hoegenauer, Caio dos Santos, Bradley Hurst, Drew Dillion and Dustin Bolton
137-8	3:30 PM	**Impact of 4R Nutrient Management on Crop Production and Nutrient Loss in a Corn Soybean Rotation** Savannah Burnett* and Kelly A. Nelson
137-9	3:45 PM	**Nitrate in Tile-Drain Water Relative to Time and Source of Nitrogen Application** Sonia Thais Menegaz* and Fabian G. Fernandez
137-10	4:00 PM	**Delineation of Continuous, Critical Leaf Potassium Concentrations during Reproductive Growth for Monitoring Rice Potassium Status** Chandler Gruener*, Nathan A. Slaton, Jarrod T. Hardke, Trenton L. Roberts, Alden Smartt and Maxwell Coffin
137-11	4:15 PM	**Effects of Late Season Nitrogen Application on Milling, Lodging, and Yield in Hybrid Rice** Dustin Bolton*, Trenton L. Roberts, Jarrod T. Hardke, Kyle Hoegenauer, Bradley Hurst, Drew Dillion and Robyn Mulloy
137-12	4:30 PM	**Starter Nitrogen Source and Preflood Rate Effects on Rice Grown on Clayey Soils** Linda Martin*, Nathan A. Slaton, Bobby R. Golden, Aldean Smartt, Chandler Gruener and Maxwell Coffin
	4:45 PM	**Adjourn**

SESSION NO. 138—1:45 PM–3:30 PM

Henry B. Gonzalez Convention Center, 006B, River Level

Symposium--Advances in UAV-Based Remote Sensing for Irrigation Management

Sponsored by Apogee Instruments

ASA Section: Climatology and Modeling

Lead Community:
Biophysical Measurements and Sensors Community

	1:45 PM	**Introductory Remarks**
138-1	1:50 PM	**Improving the Precision of Irrigation Using High-Resolution Thermal Imagery** Victoria Gonzalez-Dugo* and Pablo Zarco-Tejada
138-2	2:15 PM	**Bridging the Gap between Satellite and Ground-Based Temperature Observations with UAV Data over Yuma, Arizona Vegetable Crops** Andrew French* and Charlie A Sanchez
138-3	2:40 PM	**Using Unmanned Aerial Vehicles to Estimate Evapotranspiration in Cotton** Haly L. Neely*, Gregory S. Rouze, Cristine L. S. Morgan and William Kustas
138-4	3:05 PM	**Crop Growth and Water Stress Models Developed By Remote Sensing Technology Using UAV** Wenting Han* and Huihui Zhang
	3:30 PM	**Adjourn**

SESSION NO. 139—1:45 PM–3:50 PM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

Symposium—Innovative Practices to Sustainably Manage Water and Improve Crop Production

ASA Section: Agronomic Production Systems

Lead Community:
Crop Irrigation Strategies and Management Community

Moderator: Robert Schwartz

	1:45 PM	**Introductory Remarks**
139-1	1:50 PM	**Irrigation: Plant Considerations** Thomas R. Sinclair*
139-2	2:20 PM	**Smartirrigation – a Pathway to Sustainable Intensification** George Vellidis* and Vasileios Liakos
139-3	2:50 PM	**Real-Time Irrigation: Benefits of Irrigation for Both Production and Cost By Identifying Soil Limitations in Almond, Strawberry and Cranberry.** Jean Caron*
139-4	3:20 PM	**Benchmarking Irrigation Water Use in Producer Fields in the US Central Great Plains** Patricio Grassini*, Katherine E B Gibson and Justin Gibson
	3:50 PM	**Adjourn**

SESSION NO. 140—2:00 PM–3:25 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

Animal Agriculture and the Environment Oral

ASA Section: Environmental Quality

Lead Community:
Animal Agriculture and the Environment Community

	2:00 PM	**Introductory Remarks**
140-1	2:05 PM	**Recovery of Ammonia and High-Grade Phosphate Minerals from Livestock and Municipal Wastewater** Matias B. Vanotti*
140-2	2:20 PM	**Combining Field Phosphorus (P) Runoff Risk Assessments with Whole-Farm P Balances to Guide Manure Management Decisions** Quirine M. Ketterings*, Mart B.H. Ros and Karl J. Czymmek
140-3	2:35 PM	**Slow-Release and Environmentally-Friendly Compost Production with Magnesium and Poultry Waste for Improving Soil Health and Sustainable Crop Production** Girish K. Panicker* and Charles A. Weiss, Jr
140-4	2:50 PM	**The Impact of Dry Surface Layer Depth on Nitrous Oxide Flux from Feedyard Pens Surfaces** Kenneth D. Casey*, David B. Parker and Heidi M. Waldrip
140-5	3:05 PM	**New York Nitrogen and Phosphorus State, County, and Farm Level Balances** Rinske Tacoma-Fogal*, Mart B.H. Ros, Sheryl Swink, Karl J. Czymmek and Quirine M. Ketterings
	3:20 PM	**Adjourn**

SESSION NO. 141—2:00 PM–3:50 PM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Quantifying 4R Nutrient Stewardship Metrics Oral

ASA Section: Environmental Quality

Lead Community: Nutrients and Environmental Quality Community

Moderator: Sally Flis

	2:00 PM	**Introductory Remarks**
141-1	2:05 PM	**Reducing the Impacts of Agricultural Nutrients on Water Quality across a Changing Landscape** Heidi M. Peterson*, Mark Williams, Jane Frankenberger, Kevin King, Joshua M. McGrath, Lara B. Moody, Marc Ribaudo and Jeffrey S. Strock
141-2	2:20 PM	**Adoption of N Management Practices By Permanent Crop Growers in the San Joaquin Valley, California** Sat Darshan S Khalsa*, Jessica M Rudnick, Mark N Lubell and Patrick H Brown
141-3	2:35 PM	**Using Sustainability Metrics to Identify Opportunities for Improved Phosphorus Management** D. Keith Reid*
141-4	2:50 PM	**Identifying P Hotspots in the Red River Valley of the North** Heidi Reitmeier* and Lindsay Pease
141-5	3:05 PM	**Sub-Field Variability of Soil Phosphorus and Micro-Topography Influence Dissolved Reactive Phosphorus Losses in Tile Drainage** Luis Andino*, Lowell E. Gentry and Jennifer Fraterrigo
141-6	3:20 PM	**Is NUE a Useful Sustainability Metric?** Carrie A.M. Laboski*, Chris Bandura, James J. Camberato, Paul R. Carter, Richard B Ferguson, Fabian G. Fernandez, David W. Franzen, Newell R Kitchen, Emerson Nafziger, John E. Sawyer and John Shanahan
141-7	3:35 PM	**Upscaling Epic Model Water Quality Simulations from Field Measurements to the Watershed Scale Under Different Crop Rotations in the Bonanza Valley Region of Minnesota** Muhammad Tahir* and David J. Mulla
	3:50 PM	**Adjourn**

SESSION NO. 142—2:00 PM–4:00 PM

Hilton Palacio del Rio, El Mirador West, 22nd Floor

Special Session Symposium--Retirement: It Makes You Stop and Think

Special Sessions

Moderator: Carolyn Olson

	2:00 PM	**Introductory Remarks**
142-1	2:05 PM	**A Perspective on Retirement after a Career in International Agriculture** John Ryan*
142-2	2:20 PM	**Mistakes from Which I Have Learned** Harold E. Balbach*
142-3	2:35 PM	**Insurance Companies Value Your Expertise** James S. Schepers*
142-4	2:50 PM	**Opportunities for Using Professional Skills Internationally As a Volunteer after Retirement** Joel Ransom*
142-5	3:05 PM	**"Retired": What's Next for an Agronomist?** Paul R. Carter*
	3:20 PM	**Discussion**
	4:00 PM	**Adjourn**

SESSION NO. 143—2:00 PM–4:00 PM

Henry B. Gonzalez Convention Center, 301B, 3rd Level

Hackathon: Engaging Students for Familiarization to Machine Learning Oral (includes student competition)

ASA Section: Biometry and Statistical Computing

Lead Community:
Statistical Education/Training for Researchers Community

2:00 PM	**Introductory Remarks**
2:05 PM	**Introduction to the problem set**
2:20 PM	**Instructions to make a kaggle submission**
2:50 PM	**Break**
3:05 PM	**Evaluation of the responses**
3:35 PM	**Winners announcement**
3:50 PM	**Concluding Remarks**
4:00 PM	**Adjourn**

SESSION NO. 144—2:00 PM–4:00 PM

Henry B. Gonzalez Convention Center, 210A, 2nd Level

Bringing Soil Chemists to Congress Panel: Can You Advocate for Research?

SSSA Division: Soil Chemistry

Moderator: Elizabeth Gillispie, Julie McClure, Karl Anderson

2:00 PM	**Introductory Remarks**
2:05 PM	**Panel Discussion**
4:00 PM	**Adjourn**

SESSION NO. 145—2:15 PM–4:00 PM

Henry B. Gonzalez Convention Center, 213A, 2nd Level

Symposium--Soil is Art, Art with Soil

SSSA Division: Soil Education and Outreach

Moderator: Clay Robinson

	2:15 PM	**Introductory Remarks**
145-1	2:20 PM	**Soil Art: An Overview** Clay A. Robinson*
145-2	2:30 PM	**History of Soil Art** Jay Stratton Noller*
145-7	2:45 PM	**Connecting to the Intrinsic Value of Soil Through Watercolor** Yamina Pressler*
145-6	3:00 PM	**Soil Art Outreach in Brasil** Adriana de Fátima Meira Vital*
145-5	3:15 PM	**Collaborative Soil Art** Kirsten Kurtz*
145-4	3:30 PM	**Pottery** Irfan Ainuddin*
145-3	3:45 PM	**Monoliths - a Bridge between the Physical and Abstract.** Clay A. Robinson and Garrett C. Liles*
	4:00 PM	**Adjourn**

SESSION NO. 146—2:05 PM–4:00 PM

Henry B. Gonzalez Convention Center, 006A, River Level

Symposium--Improving the Nutritional Value of Our Food Crops from Seeds and Soils to Society

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

Moderator: Kevin Murphy

	2:05 PM	**Introductory Remarks**
146-1	2:10 PM	**Growing Nutritious Foods – It Begins with Healthy Soils** Michael A. Grusak*
146-2	2:35 PM	**Connecting Crop Improvement to Human Health** Davina Rhodes*
146-3	3:00 PM	**Aligning Agricultural Production with National Public Health Goals: Challenges and Opportunities from a Food Systems Perspective** Zach Conrad*
146-4	3:30 PM	**Reimagining the Global Food System** Jessica Fanzo*
	4:00 PM	**Adjourn**

SESSION NO. 147—2:30 PM–4:05 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Agronomic Production Systems Specialty Crops Oral

ASA Section: Agronomic Production Systems

Moderator: Angela Post

	2:30 PM	**Introductory Remarks**
147-1	2:35 PM	**Responses of Potato Foliar Chemical Compositions to Nitrogen Fertilization: An Important Supplement to Integrated Pest Management for Controlling Colorado Potato Beetle** Guoqi Wen*, Mohamed Khelifi, Athyna N. Cambouris, Noura Ziadi and Annick Bertrand
147-2	2:50 PM	**Control of Insect Pests of Okra (*ABELMOSCHUS ESCULENTUS* (L.) Moench) Using Plant Extracts in Umudike, Nigeria** Elechi Franca Asawalam*
147-3	3:05 PM	**The Effect of Nitrogen Rate on Industrial Hemp Cannabidiol Production** Angela Post, Ezekial Overbaugh, Benjamin Grandon, Keith Edmisten and Ryan Heiniger*
147-4	3:20 PM	**Evaluation of African Marigold (*Tagetes erecta*) for the Control of Nematodes in Tomatoes (*Lycopersicum esculentum* L.) Plant.** Martin Onuh*
147-5	3:35 PM	**Can Inherently Antioxidant in Yellow-Fleshed Cassava Varieties Treated with Fertilizer and Harvested at Different Age Influence Root Rot Incidence, Root Yield and Yield Attributes?** Sunday Ojo Adigbo*, Coker Olawunmi Adedayo, Patience U. Odueme, Joy N Odedina, Clement G Afolabi, Tope A Coker and Thomas O Fabunmi
147-6	3:50 PM	**Domestication of Stevia - an Alternative Sweeter for Production in the Southeastern U.S.a.** Steven Samuels*, D'Amber Jones and Bipul Biswas
	4:05 PM	**Adjourn**

SESSION NO. 148—2:35 PM–2:50 PM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

ASA Community Planning Session --Gaining Access to Agronomic Inputs

ASA Section: Global Agronomy

Lead Community: Gaining Access to Agronomic Inputs Community

SESSION NO. 149—3:00 PM–4:00 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

Undergraduate and Graduate Student Mentoring Program

Undergraduate (SASES) Sessions

SESSION NO. 150—3:00 PM–7:00 PM

Hilton Palacio del Rio, Salon del Rey C, 2nd Floor

Special Session Symposium--Turfgrass to Turfgrass Science - Dedicated in Memory to Dr. James B. Beard (24 September 1935 to 14 May 2018)

Sponsored by Department of Plant Biology - Rutgers University, Desert Mountain Golf Club, DLF Pickseed, Robert (Bob) Shearman, Soil and Crop Sciences Department - Texas A&M University, and University of Nebraska Turfgrass Science Team

Special Sessions

Section or Division Cosponsor:
C03 Crop Ecology, Management and Quality

Moderator: David Baltensperger, Frank Rossi

	3:00 PM	**Introductory Remarks**
150-1	3:05 PM	**A Case for James B Beard: "The Father of Modern Turfgrass Science."** Robert C. Shearman*, Paul E. Rieke and Peter O. Cookingham
150-2	3:35 PM	**Historical Perspective: Turfgrass Physiology, Ecology and Management** Roch E. Gaussoin*
150-3	3:55 PM	**Historical Perspective: Turfgrass Water Use and Conservation** David Kopec*
	4:15 PM	**Break**
150-4	4:20 PM	**Turfgrass Science: A Future Perspective on Turfgrass Breeding and Related Research** Stacy A. Bonos*, Phillip L. Vines and William A. Meyer
150-5	4:30 PM	**Turfgrass Science: A Future Perspective on Managing Turfgrass** Joseph Young*
150-6	4:40 PM	**Turfgrass Science: An Industry Perspective on the Future of Turfgrass Research** Darrell J Michael*
	4:50 PM	**Discussion**
	5:00 PM	**Concluding Remarks**
	5:05 PM	**Reception**
	7:00 PM	**Adjourn**

SESSION NO. 151—3:20 PM–3:35 PM

Henry B. Gonzalez Convention Center, 006D, River Level

ASA Community Planning Session --Sensor-based Water Management

ASA Section: Climatology and Modeling

Lead Community: Sensor-based Water Management Community

SESSION NO. 152—3:25 PM–3:40 PM

Henry B. Gonzalez Convention Center, 216B, 2nd Level

ASA Community Planning Session --Applied Soybean Research

ASA Section: Agronomic Production Systems

Lead Community: Applied Soybean Research Community

SESSION NO. 153—3:25 PM–3:40 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

ASA Community Planning Session --Animal Agriculture and the Environment

ASA Section: Environmental Quality

Lead Community:
Animal Agriculture and the Environment Community

SESSION NO. 154—3:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

ASA Community Planning Session --Weedy and Invasive Plant Species

ASA Section: Agronomic Production Systems

Lead Community: Weedy and Invasive Plant Species Community

Moderator: Earl Creech

SESSION NO. 155—3:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 006B, River Level

ASA Community Planning Session --Biophysical Measurements and Sensors

ASA Section: Climatology and Modeling

Lead Community:
Biophysical Measurements and Sensors Community

SESSION NO. 156—3:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

ASA Community Planning Session --Advancing Agronomy via Public-Private Collaboration

ASA Section: Education and Extension

Lead Community:
Advancing Agronomy via Public-Private Collaboration Community

SESSION NO. 157—3:35 PM–3:50 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

ASA Community Planning Session --Soil Carbon and Greenhouse Gas Emissions

ASA Section: Environmental Quality

Lead Community:
Soil Carbon and Greenhouse Gas Emissions Community

SESSION NO. 158—3:45 PM–4:00 PM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

ASA Community Planning Session --Social Media in Education/Extension

ASA Section: Education and Extension

Lead Community: Social Media in Education/Extension Community

SESSION NO. 159—3:50 PM–4:05 PM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

ASA Community Planning Session --Crop Irrigation Strategies and Management

ASA Section: Agronomic Production Systems

Lead Community:
Crop Irrigation Strategies and Management Community

Moderator: Robert Schwartz

SESSION NO. 160—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

SASES Undergraduate Research Contest - Poster I (Crop Production and Management)

Undergraduate (SASES) Sessions

1000 **Interactions between Inter-Seeded Cover Crops and Grain Sorghum:Impact on Crop Growth and Potential Benefits to Minimizing Wind Damage** Levi Scott* and Josh Lofton

1001 **Evaluating Inter-Seeded Cover Crops in Grain Sorghum Production: Impact on Crop Growth and Potential Benefits to Minimizing Wind Damage.** Levi Scott*, Josh Lofton, Anna Zander and Chase Harris

1002 **Impact of Surface Moisture on Soccer Ball Performance on Hybrid Bermudagrass Athletic Fields** Conlan Burbrink*, John C. Sorochan and Kyley H. Dickson

1003 **Pasture Forage Quality As Affected By Season** Mark Kortbein*

1004 **Field Pea and Chickpea Emergence and Yield As Affected By Tillage** Ognjen Zivkovic*

1005 **Effects of Different Application Timings of Oneup on Hard Red Spring Wheat Quality and Yield in Southeast Idaho** Patricio Ortiz*, Jenae Dean, Mitch Wayment and Jared D. Williams

1006 **Timing Effects of Oneup Fertilizer on Tuber Quality and Yield in Southern Idaho** Mitch Wayment*, Rodney Nelson and Jared D. Williams

1007 **Comparison of Straight and Ball Tine Fingers for Green Bean Harvest** Sara Behling*

1008 **Spatial Trends on Corn Yield Responses to Plant Density: A Bayesian Approach** Josefina Lacasa*, Rai Schwalbert, Paul R. Carter, Mark Hinds, Mark Jeschke, Adam Gaspar, Dan Berning, Vara Prasad, Maria E. Otegui and Ignacio A. Ciampitti

1009 **Seeding Rate and Cutting Height Impacts on Forage and Grain Production in Dual-Use Wheat** Morgan McCulloch* and Reagan L. Noland

1010 **Impacts of Row Spacing and Seeding Rates on Growth and Yield on Hard Winter Wheat in the Great Plains** Guilherme Chudzik*, Amanda Easterly, Samuel Koeshall, Luana Simão, Matheus Torres Goncalves and Cody Creech

1011 **Effectiveness of Weed Control Methods for Fava Bean Production** Raul Saldivar*, Marco Fernandez, Ana Medic, Hossein Zakeri and Kyle Brasier

SESSION NO. 161—4:00 PM–6:00 PM

**Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level**

SASES Undergraduate Research Contest - Poster II (Crop Science)

Undergraduate (SASES) Sessions

1012 **Effectiveness of *Lespedeza* Species As a Bioactive Forage to Increase Rumen Undegradable Protein** Chrisee S. Wheeler*, Harley D. Naumann, Breyanna J. Morning and Tom H. Terrill

1013 **Studying the Relevance of Stomatal Characteristics on Drought Tolerance in Peanut** Seth Johnston*

1014 **Simulating Open Pollinated Maize Varieties in Texas** Jordan Rodriguez*, Sumin Kim, Jianzhong Su, Amber Williams and Jim Kiniry

1015 **Narrow Way of Thinking: Clarifying the Relationship between Narrow Leaf Morphology and Yield** Caylie Leclercq*

1016 **Alfalfa Stand Age Effects on Winterkill** Kyle Stephen Hilger* and Yoana Newman

1017 **Uptake and Transport of Boron in Peanut** Julie A Howe and Lisette Aeschlimann*

1018 **Main Factors Influencing Yellow Field Pea Protein in Nebraska** Milica Bogdanovic*

1019 **Breeding Value of Upland Cotton (Gossypium hirsutum, L.) Populations Designed for Drought Tolerance** Morgan Combs* and Steve Hague

1020 **Do Maize Transposable Elements Induce Gene Amplification?** Marjorie Hanneman*

1021 **Genome-Wide Association Study of Spectral Reflectance Indices in Winter Wheat** Jason Wigen*

1022 **Physiological Changes across Historical Sorghum Hybrids Released between 1963 and 2013** Paula Demarco*, Laura Mayor, Santiago Tamagno, Javier A. Fernandez, Vara Prasad, José Luis Rotundo, Carlos D. Messina and Ignacio A. Ciampitti

1023 **Freezing Tolerance Evaluation in Acclimated Winter Barley** Cole Jakupciak*

1024 **Genetic Identity and Diversity among Experimental and Commercial Cultivars of Vegetatively Propagated Turf Bermudagrass as Assessed with SSR Markers** Carly Godwin*, Yanqi Wu and Tilin Fang

1025 **Partitioning of $\delta^{15}n$ in Fava Bean Lines at Different Developmental Stages** Chloe Dugger*, Hossein Zakeri and Kyle Brasier

1026 **Drought Stress in Dry Beans** Dalton Johnson*

1027 **Effect of Source-Sink Manipulations during the Seed Lag Phase in Soybean** Paige Brown*, Montserrat Salmeron Cortasa and Tomokazu Kawashima

SESSION NO. 162—4:00 PM–6:00 PM

**Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level**

SASES Undergraduate Research Contest - Poster III (Environmental Science and Waste Management)

Undergraduate (SASES) Sessions

1028 **Developing a Procedure to Demonstrate Biodiesel Production Using Soybean Oil.** Vivica Miller*, Paula M. Gale, John Cole and Rachna Tewari

1029 **Efficacy of Using Carbon Dioxide (CO2) for Insect Control in a Controlled Environment.** Patricio Ortiz, Ross Spackman and Seth Bloomfield*

1030 **Minimal Water Requirements for Warm-Season Turfgrasses Under Simulated Golf Cart Traffic** Heath McDonald*, Charles Henry Fontanier and Levi Weaver

1031 **Determining the Impacts of Land Use Changes on Sediment Deposition Rates and Algal Communities in West Pine Lake, St. Croix County, Wisconsin** Paul Tietz* and Jill Coleman Wasik

1032 **Tracer Testing Highlights Design and Operational Differences in Denitrifying Woodchip Bioreactors** Fernando Zucher*, Ana Paula Sanchez, Ronnie Chacon and Laura Christianson

1033 **Assessment of Diurnal and Nocturnal Ichthyoplankton Drift in the Black River** Laura Ringeisen*

1034 **Implications of Glacial Ice Source Region on Farmland Value in Wisconsin** Aricka Roberson*, Holly A.S. Dolliver and Simon Jette Nantel

1035 **Organic and Inorganic Composition of Biosolids from Nine Wastewater Treatment Plants in Savannah, Georgia.** Kenneth S. Sajwan*, Liz Ortiz, Kiersten Green, Kia Smith, Jacoya Williams, Alan Johnson and Choi Rawon

1100 **Aquaponics Nutrition Studies with Pacu Grown with Lettuce and Tomato: Methodology** Jacob S. Blackwelder, Anna M. Bruce*, Warren H. Porter, Jordan M. Eves and Bryan G. Hopkins

1101 **Yield and Persistence of Isogenic Tall Fescue Populations with and without Endophytes across an Environmental Gradient** Carolina Vaquerano*, Felix Gutierrez, Michael A. Trammell, Carolyn Young and E. Charles Brummer

1102 **Correlation between Agricultural Land Value and Soil Properties** Brady Goettl*, Holly A.S. Dolliver and Simon Nantel

SESSION NO. 163—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

SASES Undergraduate Research Contest - Poster IV (Microbiology and Pest Control)

Undergraduate (SASES) Sessions

1103 **Extending Critical Time of Weed Removal in Dicamba-Tolerant Soybean with Residual Herbicides** Darko Jovanovic*

1104 **Efficient Marker for Stem Rust Resistance Gene SrTA1662 in Wheat** Abby Tucker*, Mary Guttieri and Robert L. Bowden

1105 **Does Seed Treatment of Soybean (*Glycine max*) Affect the Ability of *Bradyrhizobium Japonicum* Inoculant to Form Nodules?** Nathan Oliver*, Sara Lewis and Barbara A. Darroch

1106 **Soil Microbial Community Response to Long-Term Cover Crop Use in Dryland Systems of the Central Great Plains** Dariam Marte De Jesús*, Augustine K Obour, Lindsey C. Slaughter, Veronica Acosta-Martinez, John Holman and Monty Vandeveer

1107 **Analyzing the Weed-Soil Microbiome in Subtropical Organic Vegetable Farms** Orlando Garcia*, Habraham Lopez, Andrea Mota, Alexis Racelis and Pushpa Soti

1108 **The Effects of Various Application Timings of 2,4-D, Mcpa, and Dicamba on Winter Wheat.** Bryanna Stribel* and Misha Rose Manuchehri

1109 **Variation in δ^{15}n of Soil, Monocot, and Dicot References to Calculate Biological Nitrogen Fixation** Amanda Cox* and Hossein Zakeri

1110 **Sensitivity of *Macrophomina Phaseolina* to Three Classes of Fungicide** Ashton Armstrong*, Ty Smith, Madison L. Cartwright and Heather Kelly

1111 **Role of Bacterial Volatiles in Plant Defense Signaling and Disease Resistance** Shannon Lamb*

1112 **Soil Nitrification Rates and Their Impact on Millipede Survival** Allison Rick VandeVoort*, Matthew Brogden and Bruce Snyder

SESSION NO. 164—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

SASES Undergraduate Research Contest - Poster VI (Soils and Soil Quality)

Undergraduate (SASES) Sessions

1127 **Soil Carbon Dynamics As a Function of Soil Moisture in a Furrow Irrigated Orange Orchard** Alyssa Michelle Duro*, Claudia Christine E. Avila and Samantha C. Ying

1128 **Soil Organic Carbon and Particulate Organic Matter Associated with Topography Position in Cultivated Fields** Kaitlin Hatchett* and Iin P. Handayani

1129 **Water Extractable Nutrients in Smallholder Soils Exposed to Inorganic and Organic Soil Amendments** Qiuyi Fu*, Lauren Kyla R. Pitts, Benjamin Davies and Jacqueline Aitkenhead-Peterson

1130 **Soil Responses to Tillage Practices and Cover Crops** Carrie Ann Followell*, Iin P. Handayani and David L Ferguson

1131 **Topsoil Depth, Water Storage, and Chemistry in Two Adjacent Texan Soil Series** Lucas Miller*, Jacqueline Aitkenhead-Peterson, Baoxin Chang and Benjamin Wherley

1132 **Determining Plant Available Phosphorus of Granular Fertilizers in Basic Soils Using Adsorption Isotherms** Jenae Dean*, Rodney Nelson, Kaitlin Dabbs and Jared D. Williams

1133 **Determining Plant Available Phosphorus from Liquid Phosphorus Fertilizer Using Phosphorus Adsorption Isotherms** Kaitlin Dabbs*, Jenae Dean, Parley Jones and Jared D. Williams

1134 **Comparing in Situ Soil Water Characteristic Curves to Those Generated in the Lab** Alton Campbell*, Emily Campbell, Neil C. Hansen and Colin S. Campbell

1135 **Effect of Cover Crop Grazing on Soil Physical Properties** Sydney Williford*, Kipling S. Balkcom and Audrey V. Gamble

1136 **Cover Crop and Biofuel Crop Effects on Hydraulic Properties for Claypan Soils** Denton Cole Diggins*, Stephen H. Anderson, Salah M. Alagele and Ranjith P. Udawatta

1137 **The Influence of Tillage Practices on Soil Properties** Leanna Schneider*

1138 **Soil Dynamics of Newly Installed Urban Landscapes** Sarah Marsh*, Joseph A. Burke, Baoxin Chang, Jacqueline Aitkenhead-Peterson, Benjamin Wherley and Julie A Howe

1139 **Spectroscopic Detection of Resazurin and Resorufin to Indicate Dehydrogenase Activity in Soil** Megan Mitchell*, David S. Baston and Susan Edinger Marshall

1140 **Alaskan Spodosols of the Temperate Coastal Rainforest** Benjamin Pierce*

SESSION NO. 165—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

SASES Undergraduate Research Contest - Poster V (Nutrient Management, Precision Ag and Soil Amendments)

Undergraduate (SASES) Sessions

1113 **Boron Uptake Efficiency with a Homogeneous Potassium Granule As a Function of Root System Diameter** Emily A. Nolan*, Elisa A. Woolley, Tyler G. Searle, Tyler J. Hopkins, Jared D. Williams and Bryan G. Hopkins

1114 **Polymer Coated Urea Impact on Barley Protein and Yield** Savannah R. Fahning*, Tyler G. Searle, Anna M. Weigel, Rachel L. Buck and Bryan G. Hopkins

1115 **Polymer Coated Urea and Urea Blends on Potato** Eva T. Carlock*, Tyler J. Hopkins and Bryan G. Hopkins

1116 **Ecologically-Based Agricultural Management Affects Soil Nitrogen Dynamics** Madison Taylor Moses* and Denise M Finney

1117 **New Hydroponic System for Testing Mineral Nutrient Deficiencies and Its Application to Quinoa** David L. Cole, Samuel H. Stapley*, Rachel L. Buck and Bryan G. Hopkins

1118 **The Effect of Residue Type on Soil Fertility and Microbial Activity** Courtney Gardner*, Melissa Preston and Natasha Elizabeth Macnack

1119 **Quantifying Nitrogen Removal from Fava Bean Harvest** Saul Estrada*

1120 **Effects of Nitrogen and Sulfur Fertilizer on Grain Yield and Quality of Hard Winter Wheat in the Great Plains** Matheus Torres Goncalves*, Amanda Easterly, Bijesh Maharjan, Luana Machado Simão, Samuel Koeshall, Guilherme Chudzik and Cody Creech

1121 **Drought and Recovery Responses of Kentucky Bluegrass with Varying Nitrogen Fertility Status** Samantha Shumate*, Ethan Lowe, Neil C. Hansen and Bryan G. Hopkins

1122 **The Effects of Nitrogen and Sulfur Fertilizer Timing on the Yield and Protein Concentration of Winter Wheat Grain** Elizabeth Haymaker* and Brian Arnall

1123 **Fall Manure Application and Red Clover Inclusion Effects on Corn Yields** Stephen Schwartz*

1124 **Fertilizer Rates Effect on Alfalfa Production** Barrent Herman*

1125 **Identifying Soybean Health and Response to Increased Potassium Fertilization** Mitchell Oswald*

1126 **Huitlacoche Inoculation Trials and the Effect of Manure** Shyanne Rodning*

SESSION NO. 166—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Agronomic Production Systems Poster - Soybean and Other Crops

ASA Section: Agronomic Production Systems

1347 **Agronomic and Economic Considerations for Late-Planted Soybean in the North Central US** Emma Matcham*, Laura E. Lindsey and Spyridon Mourtzinis

1348 **Rotation Impact on on-Farm Rice Yield and Input-Use Efficiency in Southern Brazil** Giovana Ghisleni Ribas*, Isabela Bulegon Pilecco, Simone Puntel, Alencar junior Zanon, Nereu Augusto Streck, Michel Rocha da Silva, Thiago Schmitz Marques da Rocha, Ary Duarte Junior, Bruna San Martin Rolin Ribeiro, Gilmara Peripolli and Lorenzo Meus

1349 **Optimum Leaf Area Index to Reach Soybean Yield Potential in Subtropical Environment** Alencar Zanon*, Eduardo Lago Tagliapietra, Nereu Augusto streck, Thiago Schmitz Marques da Rocha, Gean Leonardo Richter, Michel Rocha da Silva, Giovana Ghisleni Ribas, Darlan Balest, Jose Eduardo wink, Bruna San Martin Rolin Riberio, Kelin Bexaira, Jossana Cera, Cleber Maus Alberto, Luis Loose and Juliano Dalcin Martins

1350 **Effects of POLY4 Polyhalite Fertilizer on Growth and Yield of Cotton on US Coastal Plain Soils** Brad Farber*, William Hunter Frame, Rachel Fields and Ross Mitchell

1351 **Influence of Foliar Fertilizers on Nutrient Distribution and Crop Yield for Soybean Production Systems in the Southern Great Plains.** Anna Zander*, Josh Lofton, Chase Harris and Sarah Kezar

1352 **Nutrient Contribution and Different Cover Crop Species in Row Crops Production Systems in Louisiana** Jose Rodolfo Mite*, Brenda Tubana, Lisa M. Fultz, Marilyn Sebial Dalen, Daniel Forestieri, Jayvee Cruz, Wooiklee Paye, Jiraporn Bamrungrai, Diego Mayorga and Hector Mendoza

1353 **Emergence Timing Impacts Wild Cane Culm Diameter** Brian H. Marsh*

SESSION NO. 167—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Bioenergy Systems Graduate Student Poster (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Bioenergy Systems Community

1354 **Biomass Production of Miscanthus Compared with Native Grass in South Dakota** Ehsan Al Ainizi*, Arvid Boe and David Wright

1355 **Application of Statistical Learning Methods on Examining Spatial Variability in Biomass Glucose and Xylose Content of Switchgrass, Native Prairie, and Corn at Field Scale** Sichao Wang* and Kurt D. Thelen

1356 **Seasonal Variation of Arbuscular Mycorrhizal Fungal Abundance in Switchgrass in Response to Management in a Conservation Agroecosystem** Temitope Omole*, Keerthi Mandyam, Ananda Nanjundaswamy and Girish K. Panicker

1357 **Nitrogen Use Efficiency of Bioenergy Sorghum** August Schetter*, Leo Hoffmann Jr., William L Rooney and Do-Kyoung Lee

1358 **Biomass Yield Variation in Energycane Genotypes As Affected By Ratoon** Pramod Pokhrel*, Nithya Rajan and John Jifon

1359 **Linking Energy and Biodiversity: Willow Buffers in an Agricultural Landscape** Colleen Zumpf*, Jarrad T Hampton-Marcell, Cristina Negri, John J. Quinn, Patty Campbell, Julian F. Cacho and DoKyoung Lee

1360 **Harvest Aid Effect on Pennycress Plant and Seed Moisture, Seed Yield, and Oil Content** Julija A. Cubins*, M. Scott Wells, Maninder K. Walia and Russ Gesch

1361 **Response of Glucosinolate, Oil, and Protein Content to Sulfur Availability in Oilseed *Brassica Carinata*** Theodor Stansly*, Ramdeo Seepaul, Sheeja George, Ian M Small and David L. Wright

1362 **The Effect of Previous Summer Crops on the Yield and Yield Components of *Brassica Carinata*** Joseph Enye Iboyi*, Michael J. Mulvaney, Ramon G Leon and Pratap Devkota

1363 **Thermotolerance Classification and Temperature Effects on *Brassica Carinata* Early-Season Growth and Development** Leelawattie Persaud*, Hunt Walne, Bisoondat Macoon, Ramdeo Seepaul and K. Raja Reddy

SESSION NO. 168—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Weedy & Invasive Plant Species Poster (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community:
Weedy and Invasive Plant Species Community

1364 **Evaluation of the Efficacy of Various Herbicides for the Control of Broadleaf (*Plantago major*) and Buckhorn (*Plantago lanceolata*) Plantain in Alfalfa** Leslie Beck*

1365 **Preemergent Herbicides for Watermelon Production on Bareground or a Cereal Rye Cover** Matthew Bertucci*, Amanda McWhirt, Alden Hotz and Lesley Smith

1366 **Allelopathic Potential of Wild Tomato Accessions Against Palmer Amaranth** Te-Ming Paul Tseng*, Carolina Moraes, Edicarlos Castro, Stefano Duarte, Bruna Martins, Brooklyn Schumaker, Nilda Burgos and Rick Snyder

1367 **The Impacts of a Cereal Rye Cover Crop Planting Date, Seeding Rate, and Herbicide Program on Management of Glyphosate-Resistant Horseweed in No-till Soybeans** Alyssa Lamb*, Alexander J. Lindsey, Mark Loux and Anthony Dobbels

1368 **Impacts of Weed Pressure on Limited Irrigated Corn** Kevin Heflin*, Jourdan M. Bell, Aislinn Walton, Brock C. Blaser, Qingwu Xue and Carla Naylor

1369 **A Risk Assessment Model and Population Genomics Tools for Monitoring Herbicide-Resistance Evolution in Weedy *Sorghum*** John L. Lindquist*, Melinda K. Yerka, Kody Holmes, Brigitte Tenhumberg, Don G Treptow, Amit J. Jhala, Brandi Sigmon and Rodrigo Werle

1370 **The Effects of Post-Emergence Applications of Mustard Seed Meal on Weeds, Disease and Chile Pepper Plant Health** Asmita Nagila*, Brian Schutte, Soum Sanogo and Omololu J. Idowu

1371 **Effect of Cover Crop Mixture and Herbicide Timing on Weed Control in Cotton** Anna Johnson*, Andrew Price and Audrey V. Gamble

1372 **Molecular Mechanism of Resistance in Multiple Herbicide Resistant Italian Ryegrass from Texas Blacklands** Nithya Subramanian*, Shilpa Singh and Muthukumar Bagavathiannan

1373 **Variations in Cd Tolerance and Distribution in Seedlings Among the Weedy Red Rice Species** Dong-Hong Wu, Chien-Hui Syu, Kai-Wei Juang and Pin-Jie Wang*

1374 **Controlling Riceworm in Cultivated Northern Wild Rice** Amanda Monson*, Jacques Duquette, Jennifer Ann Kimball, Timothy Baker and Ian MacRae

SESSION NO. 169—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

ET Measurement, Modeling, and Applications Poster (includes student competition)

ASA Section: Climatology and Modeling

Lead Community:
Evapotranspiration Measurement and Modeling Community

1375 **Using Unmanned Aerial Vehicles and Thermal Imaging to Evaluate Cotton Strains in Texas** Morgan Sanders*, Haly L. Neely, Steve Hague, Gregory S. Rouze, George Cody Bagnall and Nithya Rajan

1400 **Assessing Correlation between Evapotranspiration and Meteorological Variables across Florida** Mohammad Valipour* and Sandra M. Guzman

1401 **Evapotranspiration and Water Use Efficiency of Winter Canola Under Different Irrigation Strategies** Paramveer Singh*, Sangamesh Angadi, Kenneth J. Boote, Sultan Begna, Brian J. Schutte, Dawn VanLeeuwen and Michael Stamm

1402 **Evaluation of CSM-Cropgro-Canola Model for Simulating Growth and Yield of Winter Canola Under Different Irrigation Strategies** Paramveer Singh*, Kenneth J. Boote, Sangamesh Angadi, Sultan Begna, Brian J. Schutte and Michael Stamm

SESSION NO. 170—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Modelling Long Term Effects of Cropping Systems and Management on Soil-Crop-Interactions Poster (includes student competition)

ASA Section: Climatology and Modeling

Lead Community:
Model Applications in Field Research Community

1403 **Simulating Long-Term Interactions of Conservation Tillage System and Cover Crops Management to Improve Summer Forage Production** Reshmi Sarkar*, Brian K. Northup, Javid McLawrence, Anil Somenahally, Prasanna H. GOWDA and Charles R Long

1404 **Simulating Long-Term Maize and Soybean Yields Under Conventional and No-till Systems** Teerath Rai*, Sandeep Kumar, Thandiwe M. Nleya, Peter J. Sexton, Vakhtang Shelia and Gerrit Hoogenboom

1405 **Harvesting Fertilized Rye Cover Crop across the U.S. Midwest: Simulated Revenue, Net Energy, and Drainage Nitrogen Loss** Robert W. Malone*, Dan B. Jaynes, Liwang Ma, Thomas Richard, Gary Feyereisen, Stephanie M. Herbstritt, Thomas C. Kaspar, Douglas L. Karlen, Eileen J. Kladivko and Kelly R. Thorp

1406 **Applying a Crop Model Ensemble for Estimating Yield and Evapotranspiration of Crop Rotations Under Future Climate** Eva Pohanková*, Petr Hlavinka, Kurt C. Kersebaum, Jan Balek, Martin Dubrovský, Anne Gobin, Gerrit Hoogenboom, Marco Moriondo, Claas Nendel, Jorgen Eivind Olesen, Alfredo Rodriguez, Reimund Rötter, Margarita Ruiz-Ramos, Vakhtang Shelia, Tommaso Stella, Jozef Takáč and Miroslav Trnka

1407 **Modelling the Effects of Climate Change, Agricultural Inputs, Cropping Diversity, and Environment on Soil Nitrogen and Phosphorus: A Case Study in Saskatchewan, Canada** Taras E. Lychuk*, Alan P. Moulin, Reynald Lemke, Roberto C. Izaurralde, Eric Johnson, Owen O. Olfert and Stewart A Brandt

1408 **Perennializing a Simple Crop Model for Simulating Long-Term Crop-Soil Dynamics in Switchgrass Stands** Rafael A Martinez-Feria* and Bruno Basso

1409 **Influence of Switchgrass Cultivation on Microbial Biomass and Fatty Acid Methyl Ester Content in Soil** Kaylee Pebeck*, Beatrix J. Haggard, Shiping Deng and Lisa M. Fultz

SESSION NO. 171—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

The Internship Experience: My Summer As an Intern Poster (includes student competition).

Sponsored by Bayer CropScience

ASA Section: Education and Extension

Section or Division Cosponsor:
Undergraduate (SASES) Sessions

1410 **Promoting Undergraduate Students in Soil, Environmental, and Crop Sciences Careers through an Interdisciplinary Summer Internship Program (START NOW)** Maria Consuelo Donato*, Shad D. Nelson, David Sotomayor, Gustavo Martinez, Krishnaswamy N. Jayachandran and Jose Espiritu

1411 **Establishing Corn Irrigation Requirements for Western Kentucky** Hunter Adams*, Katherine Rod and Carrie A. Knott

1412 **Influence of Microbial Community Composition and Organic Matter Supply on Methane Production in Anoxic Lake Sediments** Alexandra Lugo-Arroyo* and Brittni Bertolet

1413 **Using UAS Acquired Data to Quantify the Effects of Tillage or No Tillage on Cotton and Sorghum Growth and Development** Pablo Ramos*, Virgilio Gomez, Nothabo Dube, Shad D. Nelson, Juan Landivar, Consuelo Donato and Randy Stanko

1414 **Male Flower Alteration in Wheat** Paul Skillin*

1415 **Measurement of *Salix* Spp. Fertilizer Response with Unmanned Aerial Systems** Jonathan Marc Berlingeri*, Eric S. Fabio and Lawrence B. Smart

1416 **Product Development Internship at Winfield United** Melissa Preston*

1417 **Rain Days, Field Days, and Everything in between** Hannah Weber*

1418 **Ashley Atkinson Presentation** Ashley Atkinson*

SESSION NO. 172—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Animal Agriculture and the Environment Poster (includes student competition)

ASA Section: Environmental Quality

Lead Community:
Animal Agriculture and the Environment Community

1431 **Nutrient Leaching Under Short-Term Manure Stockpiles** Rhonda L. Miller* and Jennifer Long

1432 **Alternative Forage-Based Diets Result in Large, Rapid Soil Surface Ammonia Emissions from Tall Fescue Plots after Receiving Ruminant Urine and Manure** Samuel Park*, Mary Cathleen Savin, Dirk Philipp, Ken Coffey, Valens Niyigena and Jianghchao Zhao

1433 **Influence of Manure Application Rate and Frequency on N, P and K Accumulation in Potato** April B. Leytem*, Amber D. Moore and Robert S. Dungan

1434 **Antibiotic Resistance Genes, Class 1 Integrons, and Incp-1/Incq-1 Plasmids in Irrigation Return Flows of a Watershed in Southern Idaho** Robert S. Dungan* and David Bjorneberg

SESSION NO. 173—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Nutrients and Environmental Quality General Poster I (includes student competition)

ASA Section: Environmental Quality

Lead Community:
Nutrients and Environmental Quality Community

1435 **Phosphorus Characterization of Alabama Soils Under Different Management Practices for Environmental Risk Assessment** Anjan Bhatta*, Rishi Prasad, Debolina Chakraborty, Joey N. Shaw, Eve Brantley and Jasmeet Lamba

1436 **Characterization of Nutrient Disorders of *Brassica Carinata*** Paul Cockson*, Gabby Barajas, Matthew Davis and Brian Whipker

1437 **Phosphorus Retention and Release in Forest-Meadow Systems of Lake Tahoe, California** Chinmay Deval*, Erin Brooks, Thomas Heron, Daniel G. Strawn, Mariana Dobre and Alex Crump

1438 **Phosphorus(P) Characterization in Poultry Litter of Various Ages and Composition** Poulomi Dey*, Rishi Prasad, Debolina Chakraborty, Audrey V. Gamble, Brendan Higgins and Yuchen Feng

1439 **Nitrogen, Calcium and Magnesium Management for Improving Performance of HLB-Affected Orange Trees (*Citrus sinensis*)** Eduardo Esteves*

1440 **Immediate Effects of Burning Sagebrush Vegetation on Soil Nutrients Dynamic and Fertile Island in Cold Desert Land of Northern Nevada** Christina T Igono*

1441 **Soybean Response to Recycled Nutrients from Wastewater** Niyi Sunday Omidire* and Kristofor R. Brye

1442 **Hydroclimatic Drivers of Organic P Bioavailability and Export from Central Indiana Agricultural Watersheds** Rebecca Pitcock* and Pierre-Andre Jacinthe

1443 **Engineered Magnetic Biochar with Hematite and Goethite for Efficient Activation of Persulfate** Hem Sharma*, Aneesh Chandel and Hao Chen

1444 **The Effects of Zinc Fertilization on the Uptake and Accumulation of Cadmium in Oryza sativa** Michael Tavarez*

1445 **Simulating Water and Nutrient Movement with Hydrus 1D** Dimitrios Pavlou*, Anna Orfanou, Miguel L. Cabrera, Glendon Harris, Gerrit Hoogenboom, R. Dewey Lee, Reagan L. Noland, Wesley M Porter, David E. Radcliffe and George Vellidis

1446 **Temporal Changes in Phosphorus Balance on Virginia Dairy Farms** Austin Pearce* and Rory O. Maguire

SESSION NO. 174—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Exploring G x E x M Synergies in World-Wide Wheat Production and the Opportunities for International Collaboration Poster (includes student competition)

ASA Section: Global Agronomy

Lead Community: Wheat Initiative Agronomists Community

1447 ***G x E Effects on Yield and Yield Components in Winter Wheat in Oklahoma*** Pratishtha Poudel* and Phillip Alderman

1448 **Involvement of Salicylic Acid in the Cold Priming-Induced Freezing Tolerance in Wheat Plants** Dong Jiang*, Weiling Wang and Xiao Wang

1449 **Identifying the Influence of Agronomic Management on N Uptake and Distribution Patterns in Spring Wheat** Amy Mangin*, Yvonne Lawley, Anita L. Brûlé-Babel, Don Flaten and Jochum J. Wiersma

1450 **Phenotypic Plasticity of Winter Wheat in Seed Rate and Variety in Great Plains** Caio Rapolla Rezende*, Leonardo Lago Molssato and Romulo Pisa Lollato

1451 **Exploring Long-Term Variety Performance Trials to Improve Genotype × Management × Environment Recommendations: A Case-Study for Winter Wheat** Lucas Berger Munaro*, Erick DeWolf, Scott Haley, Allan Fritz, Guorong Zhang, Lucas A. Haag, Alan J. Schlegel, Jeff Edwards, David Marburger, Phillip Alderman, Sally M. Jones-Diamondc, Jerry J. Johnson, Jane E. Lingenfelser, Sandra Helena Unêda-Trevisoli and Romulo Pisa Lollato

1452 **Evaluating Different Soil Mixes to Test a Panel of Wheat for Drought Tolerance** Chad Lammers*

SESSION NO. 175—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Legume Agronomy in Sub-Saharan Africa: Intercropping, Rotation, and N Fixation Maximization Poster (includes student competition)

ASA Section: Global Agronomy

Lead Community: Agronomy in Africa Community

1453 **Characterizing Maize Nitrogen Stress through Nitrogen Nutrition Index, Chlorophyll Meter and a Dynamic Crop Model.** Vijaya R. Joshi*, Jeffrey A. Coulter and Axel Garcia y Garcia

1454 **Nitrogen Fixation By Mungbean Genotypes in Different Soil Textures** Andre Diatta*, Wade E. Thomason and Ozzie Abaye

1455 **Lime Application Rates for Common Bean (Phaseolus vulgaris L.) Production, Their Yield and, Grain Iron and Zinc Responses in Central Uganda.** Rosemary Bulyaba*

SESSION NO. 176—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Cover Crop Poster I (includes student competition)

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

1456 **Integrating Emerging Technologies in Understanding Complex Agroecosystems: Evaluating Cover Crops Using Unmanned Aerial Systems in South Texas.** Matthew Kutugata*, Pushpa Soti and Alexis Racelis

1457 **Cover Crop Decomposition in No-till Corn Fields: Controlling Factors** Resham Thapa*, Steven B Mirsky, Katherine Tully, Miguel L. Cabrera, Harry H. Schomberg, Chris Reberg-Horton, Julia W. Gaskin, Dennis Timlin, Ethan Sweep, Brian Davis, Sarah Seehaver, Esleyther H. Henriquez Inoa and Aurelie Poncet

1458 **Cover Crop and Rotation Effects on Soybean Cropping Systems** Jacob Young* and William J. Wiebold

1459 **Cover Crop Termination Timing Influences on Soil Health and Cash Crop Development on Silt Loam Soils** Derek Dittlinger*, Steven Green and Joseph H. Massey

1460 **Evaluating Biological Nitrogen Fixation of Different Fababean (*Vicia faba L.*) Cultivars** Laura Boots-Haupt*, Ranjit Riar, Kyle Brasier and Hossein Zakeri

1461 **Impact of Cover Crops on Nutrient Leaching in Vadose Zone** Ashani M. Thilakarathne*, Karl W.J. Williard, Gurbir Singh, Jon E. Schoonover, Jackie F. Crim, Jennie Snyder and Christopher Blattel

1462 **Rye Cover Crop Residue in Greenhouse Gases Emission and Residue Mineralization in Corn Field** Deepak R. Joshi*, David Clay, Sharon A. Clay, Aaron L.M. Daigh, Janet Miller and Graig Reicks

1463 **Overall Positive Effects of Cover Crops on Soil Microbial Abundance, Activity, and Diversity: A Comprehensive Meta-Analysis** Nak Hyun Kim*, Celina Zabaloy, Kaiyu Guan and Maria B. Villamil

1464 **Spring Planted Cover Crops Influence Early Corn Growth and Development** Janet Miller*, Sharon A. Clay, Graig Reicks, David Clay, Deepak R. Joshi and Aaron Daigh

1465 **Understanding Cereal Rye Nitrogen Decomposition and Its Transition into Inorganic and Organic Soil Nitrogen Pools** Richard T. Roth* and Shalamar D. Armstrong

1466 **Summer Cover Crop Diversity Affects Cover Crop Biomass Production, Nutrient Cycling and Yields of Bell Pepper in Florida** John Allar* and Gabriel Maltais-Landry

1467 **Effect of Temperature and Residue Water Potential on C and N Mineralization from Surface-Applied Cover Crop Residues** Resham Thapa*, Steven B Mirsky, Katherine Tully, Miguel L. Cabrera, Harry H. Schomberg, Dennis Timlin and S. Chris Reberg-Horton

1468 **Cool-Season Annuals Effects on Soil Health in Warm-Season Pastures in the Mid-South USA** Paola Carolina Muela Negrete*, Lisa M. Fultz, Kathleen Bridges and Kritsanee Iamjud

1469 **Soil Biological, Chemical, and Physical Effects of Long Term Multispecies Cover Crop Mixes** Kristen D'Agati*, Perry R Miller, Cathy Zabinski and Clain A. Jones

1470 **Impact of Cover Crop Termination Timing and Method on Cotton Production Systems** Savana Davis*, Tyson Brant Raper, Avat Shekoofa and Scott Stewart

1471 **Cover Cropping for Sustainable Co-Production of Bioenergy, Food, Feed (BFF) and Enhancement of Ecosystem Services (ES)** Brodrick Deno*

1472 **Using Species and Genetic Diversity to Address Stand Establishment Issues in Red Clover (*Trifolium pratense*) As a Cover Crop** Brett Hilker*, Elizabeth A. Lee, Bill Deen and Francois Tardif

1473 **Cover Crop Effects on Insect Dynamics in Cropping Systems of the Southeastern U.S.** Joey Akins*, Alana Jacobson and Audrey V. Gamble

1474 **Using Remote Sensing Indices to Track Historical Cover Crop Adoption in Big Pine Watershed, Indiana.** Kanru Chen* and Shalamar D. Armstrong

1475 **Do Cover Crop and Soil-Mediated Legacy Influence Succeeding Wheat Production?** Sailesh Sigdel* and Amitava Chatterjee

1500 **Cover Crops Influence Soil Health, Nutrient Cycling, and Crop Yield in South Dakota** Debankur Sanyal*, Johnathon Wolthuizen, David Karki and Anthony G. Bly

SESSION NO. 177—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Crop Breeding and Genetics Poster I - Disease, Quality and Education (includes student competition)

C01 Crop Breeding and Genetics

1501 **Major Gene for Resistance to Root-Knot Nematode Sustains Yield Response Under High Nematode Pressure** Caio Canella Vieira*, Mariola Klepadlo, Amanda Howland, Tri Vuong, Grover Shannon, Zenglu Li, Henry T. Nguyen, Melissa Goellner Mitchum and Pengyin Chen

1502 **Evaluation of Incomplete Dominance in a Spinach Downy Mildew Resistance Locus** Dotun Olaoye*, Gehendra Bhattarai, Chunda Feng, Ainong Shi and Jim Correll

1503 **Mapping Resistance to Race 13 of Downy Mildew in Multiple Spinach Populations** Gehendra Bhattarai*, Ainong Shi, James C Correll and Beiquan Mou

1504 **The Influence of Light Intensity on Foliar Symptom Severity Caused By Sudden Death Syndrome of Soybean** James E. Kurle* and Grace Anderson

1505 **The Relative Importance of Resistance to Foliar Symptoms When Compared to Resistance to Root Rot in Determining Yield of Soybean Affected By Sudden Death Syndrome** James E. Kurle* and Grace Anderson

1506 **Pinpointing Resistance to Frogeye Leaf Spot in an Advanced Generation Soybean Population By QTL Detection** Kelsey McAllister, Yi-Chen Lee and Stella Kantartzi*

1507 **Effect of Overexpression of Differentially Methylated Loci on Soybean Cyst Nematode Resistance in *Glycine max*** Christopher Wyman*, Tarek Hewezi, Carl E. Sams, Denita Hadziabdic-Guerry and Vince Pantalone

1508 **Effectiveness of a Modified Cut-Stem Inoculation to Evaluate Stem Canker in Soybean** Marcos da Silva*

1509 **Fusarium Head Blight Resistance in F1 Hybrid Hard Red Spring Wheat** Justin Leier*, Andrew J Green, Andrew Friskop and Blaine Johnson

1510 **Genomic Selection of *Fusarium* Head Blight Resistance in Nebraska Winter Wheat** Fang Wang*, Vikas Belamkar, Stephen Wegulo and P. Stephen Baenziger

1511 **Genome-Wide Association Study of a Worldwide Collection of Wheat Genotypes Reveals Novel QTL for Leaf Rust Resistance** Suraj Sapkota*, Yuanfeng Hao, Jerry W Johnson, James Buck and Mohamed Mergoum

1512 **Optimizing Techniques for Evaluating Cercospora Leaf Spot in a Michigan Field Nursery** Holly Corder*, Linda Hanson and Thomas Goodwill

1513 **Genome Mapping of Sugarcane Aphid Resistance in Sorghum Line SC112-14** Joseph E. Knoll* and Hugo Edgardo Cuevas

1514 **Using Marker Assisted Selection to Develop Peanut Cultivars with Resistance to Late Leaf Spot** C. Corley Holbrook*, Ye Chu, Samuele Lamon, Albert K. Culbreath, David Bertioli, Soraya Leal-Bertioli, Ignacio J Godoy and Peggy Ozias-Akins

1515 **Mapping and Identification of QTL Associated with Soybean Seed Protein, Oil, and Yield in 5601T × U99-310255 Ril Population Using SNP Genotyping** Mia Cunicelli*, Carl E. Sams, Liesel Schneider, Dennis West and Vince Pantalone

1516 **Release of TN15-5007, a New High Yielding Soybean Cultivar with High Meal Protein** Vincent R. Pantalone*, Mia Cunicelli and Christopher Wyman

1517 **Quantitative Trait Loci Analysis in a Recombinant Inbred Line Soybean Population Involving Seed Protein, Oil and Linolenic Acid** Ronald Moore*, Carl E. Sams, Dennis West and Vincent R. Pantalone

1518 **Genome-Wide Association Mapping for Methionine Content Using a Mid-South Soybean Core Collection** William M Singer*, Dajun Yu, Haibo Huang, Chao Shang and Bo Zhang

1519 **Effects of Non-Lint Material on Heritability Estimates of Cotton Fiber Length Parameters** Joao Morais, Zach Hinds*, Brendan Kelly and Eric Hequet

1520 **Within Sample Variation in Fiber Length Distributions of Cotton (*Gossypium hirsutum*)** Zach Hinds*, Brendan Kelly and Eric Hequet

1521 **Does Seed Size Affect Ginning Rate and Ginning Energy Requirement in Upland Cotton (Gossypium hirsutum L.) ?** Efrem Bechere*

1522 **Evaluation of Morphological Traits of Pod Length, Pad Seed Number, Seed Weight, Seed Density and Seed Color in Cowpea (*Vigna unguiculata*)** Sora Imamura, Qirui Cui, Jossie Santamaria Archbold and Ainong Shi*

1523 **Biochemical and Transcript Analysis of Korean Wheat Cultivars during Cold Acclimation** Yong Weon Seo* and Woo Joo Jung

1524 **Identification of Differential Gene Expression Among Low Phytic Acid and High Grain Protein Lines in Winter Wheat** Betul Cetindere*, Scott Sattler and P. Stephen Baenziger

1525 **Investigating the Impact of Novel Reduced Height Alleles on Wheat Growth and End Use Quality** Emma Jobson*, John M Martin, Andrew C. Hogg and Michael J Giroux

1526 **Predicting Farinograph Stability of Wheat Flour with Mixograph and Glutomatic Tests.** Brooke Shumate*, Karl D. Glover, Padmanaban D. Krishnan and Linda Dykes

1527 **Genetics of the Presence of Purple Stripes at the Flower Standard Derived from 92BG-7 and PR1144-5 Common Beans** Diego M. Viteri* and Angela M. Linares

1528 **Combining Ability of Early Maturing Pro-Vitamin A Inbreds and Performance of Testcrosses Under Multiple Environments.** Baffour Badu-Apraku*, Femi Obisesan, Johnson Toyinbo and Olayinka Dabo

1529 **Use of in silico Digestion, Whole-Genome Sequencing and an Internal Reference Genome for Improved Efficiencies in Marker Detection for Virginia-Type Peanuts** Cassondra Newman*, Katelyn Fritz, Andrew Oakley, Amanda Hulse-Kemp, Ryan James Andres and Jeffrey C Dunne

1530 **Genomic Association Study of Protein Concentration in Milled Rice** Jasper B Alpuerto*, Stanley Omar P Samonte, Darlene L Sanchez, Leon C Holgate, Peyton A Croaker, Lloyd T Wilson, Leanna N Martin, Eric F Christensen, Rodante E. Tabien, Zongbu Yan and Chersty L Harper

1531 **Plant Breeding Coordinating Committee Survey of US Public Plant Breeding Capacity** Sarah Kostick*, Ksenija Gasic, Michael Kantar, David Francis, Michael Coe, Dorrie Main and Kate Evans

1532 **Results from Monsanto's Beachell-Borlaug International Scholars Program** Edward C. A. Runge* and David D. Baltensperger

1533 **Identifying Loci for Delayed Temperate Flowering: Improving Southern Maize (*Zea Mays* L.) for Midwestern Seed Production** Alper Adak*, Jose Ignacio Varela, Dustin Eilert, Nithya Subramanian, Seth C Murray, Jianming Yu and Natalia De Leon

1534 **Response in Grain Fructan Content to Yield Improvement in Great Plains Winter Wheat** Liza Van der Laan* and Brett F. Carver

1535 **Speed Breeding Success Is Genotype Dependent in Oats** Pablo Gonzalez Barrios*, Madhav Bhatta, Madalene Halley, Pablo Sandro and Lucia Gutierrez

1536 **Mapping of Traits Adaptive to the U.S. Southern and Central Great Plains in a 'TAM 204'/'Iba' Population** Jorge L. Valenzuela-Antelo*, Amir M.H. Ibrahim, Chenggen Chu, Xiaoxiao Liu, Mehmet Dogan, Jaqueline A. Avila, Brittany M Ehrlich, Kele Hui, Shichen Wang, Richard Metz, Charles Johnson, Qingwu Xue, Geraldine Opena, Bryan Simoneaux, Michael J. Thomson, Jason A. Baker, Shannon Baker, Jackie C. Rudd and Shuyu Liu

1537 **Mapping of Quantitative Trait Loci for Seed Size and Color in a Winter Wheat Population** Xiaoxiao Liu*, Chenggen Chu, Jorge L. Valenzuela Antelo, Mehmet Dogan, Jaqueline A. Avila, Brittany M. Ehrlich, Kele Hui, Jason A. Baker, Shannon Baker, Ravindra N. Devkota, Jackie C. Rudd, Amir M.H. Ibrahim and Shuyu Liu

1538 **Phenomic Prediction of Maize Grain Yield Using Near-Infrared Reflectance Spectroscopy** Holly M Lane*, Seth C Murray, Osval A. Montesinos-Lopez, Abelardo Montesinos-Lopez, Jose Crossa, David K Rooney, Ivan D Barrero-Farfan, Gerald N De La Fuente and Cristine L. S. Morgan

1539 **QTL Analysis of End-Use Quality in a Texas Wheat Line** Mehmet Dogan*, Jorge L. Valenzuela Antelo, Smit Dhakal, Chenggen Chu, Xiaoxiao Liu, Qingwu Xue, Amir M.H. Ibrahim, Jackie C. Rudd, Ravindra N. Devkota, Shannon Baker, Jason A. Baker, Shichen Wang, Paul St. Amand, Guihua Bai, Hongbin Zhang and Shuyu Liu

1540 **Genetic Diversity Among Tropical *Shrunken*-2 Maize Lines and Relationships with Inbred Lines of Known Heterotic Classification Using Microsatellite Markers** Joseph Enye Iboyi*, Ayodeji Abe and Victor Olawale Adetimirin

1541 **Effects upon on Cotton Lint Yield and Fiber Quality Due to Selection Pressure** Caitlyn Lakey*, Steve Hague and Haley Kennedy

1542 **Genome Wide Association Analysis and Prediction of FHB Resistance in Soft Winter Wheat** Dylan Larkin*

1543 **Analysis of Genetic Diversity for Days to Flowering in Rice (*Oryza sativa* L.) Using Mulitplex Amplicon Sequencing** Karina Morales*, Benjamin Rogers, Richard Metz, Marcel Brun, Shichen Wang, Charlie Johnson and Michael J. Thomson

1544 **Assessing the Grain Yield and Functionality of Grain Sorghum Hybrids with Increased Protein Digestibility and Waxy Endosperm** Mitchell Allen Kent* and William L Rooney

1545 **Mapping QTLs and Dissecting the Molecular Mechanisms of Reproductive Stage Salinity Tolerance in Rice** Sejuti Mondal*, Rakesh Kumar Singh, Endang M. Septiningsih and Michael J. Thomson

1546 **Role of ABA in Conferring Drought Tolerance in *Solanum Lycopersicoides*-Derived Germplasm** Puneet Kaur Mangat* and Rosalyn B. Shim

1547 **Mapping Bunch Growth Habit in Peanut.** Nino Brown* and William D. Branch

1548 **Tackling Emerging Disease Threats with Grower and Researcher Teams** Jodi A. Scheffler*

1549 **Proof of Concept: Gene Based Breeding Vs Field Based Breeding in Improving Fiber Quality Traits in Cotton.** Drutdaman Bhangu*, Wayne Smith and Hongbin Zhang

1550 **Breeding for High-Protein Rice** Herry S. Utomo* and Ida Wenefrida

1551 **New Breeds for Coastal Erosion Control** Herry S. Utomo*, Ida Wenefrida and Prasanta K. Subudhi

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SESSION NO. 178—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Crop Physiology and Metabolism Poster I

C02 Crop Physiology and Metabolism

1569 **Corn Leaf 15N As an Indicator of Denitrification** Kevin Kosola*, Todd Brown, William Wingbermuehle, Ganesh Kumar and Mike Hall

1570 **Combined Effect of Drought and Nitrogen Availability on the Physiological Response of Upland and Lowland Switchgrass Ecotypes** Fernando Torralbo* and Felix B. Fritschi

1571 **Accumulation of L-Dopa and Amino Acids in Faba Bean Under Different Nitrogen Source** Fatemeh Etemadi, Masoud Hashemi, Allen V Barker, Omidreza R Zandvakili* and hamid mashayekhi

1572 **Genome-Wide Association Mapping of Dark Green Color Index (DGCI) Using a Diverse Panel of Soybean Accessions** Avjinder Singh Kaler, Larry C. Purcell*, Hussein Abdel-Haleem, Felix B. Fritschi, Jason Gillman, Jeffery D. Ray and James R. Smith

1573 **Differing Lighting Regiments and Control for Flowering in *Cannabis sativa*** Paul Cockson*, Turner Smith and Brian Whipker

1574 **Drought-Related Traits and Genotypic Diversity in Peanuts** Leticia de Aguila Moreno*, Cristiane Pilon, C. Corley Holbrook, Ana Carolina da Costa Lara-Fioreze, Beatriz Fabreti da Silva and John Snider

1575 **Characterizing Physiological and Lipidomic Changes in Peanut Under Heat Stress** Zolian Sang Zoong Lwe*, Sruthi Narayanan Kutty and Dan Anco

1600 **Root Osmotic Adjustment and Antioxidant Mechanisms of Seashore Paspalum and Centipedegrass Exposed to Iso-Osmotic Salt and Drought Stresses** Krishna Katuwal*, Bo Xiao and David Jespersen

SESSION NO. 179—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

C-2 Graduate Student Poster (includes student competition)

C02 Crop Physiology and Metabolism

1552 **Identification and Confirmation of Loci Associated with Canopy Temperature in Soybean.** Sumandeep Bazzer*, Avjinder Singh Kaler, Jeffery D. Ray, Jason Gillman, James R. Smith, Felix B. Fritschi, Hussein Haleem, Andy Andy King and Larry C. Purcell

1553 **Exploring Triticum aestivum-Aegilops Speltoides Robertsonian Translocation Lines for Heat Tolerance** Carlos Bustamante*, Impa M Somayanda, Jesse Poland and S.V. Krishna Jagadish

1554 **High Night Temperature during Flowering and Pod Filling Affects Flowering Pattern, Yield and Seed Quality in Canola** Meghnath Pokharel*, Michael Stamm and SV Krishna Jagadish

1555 **Integrating Mobile Infrastructure and Cyber-Physical Technology to Impose High Night-Time Temperature Stress on Winter Wheat** Nathan Hein*, Dan Wagner, Raju Bheemanahalli Rangappa and SV Krishna Jagadish

1556 **Comparing Growth and Physiology of Three Warm-Season Legumes across an Irrigation Gradient** Gurjinder S. Baath*, Alexandre C. Rocateli, Vijaya Gopal Kakani, Prasanna H. GOWDA and Hardeep Singh

1557 **Physiological Traits As Components of Genotypic Variability of Peanuts Under Drought Conditions** Leticia de Aguila Moreno*, Cristiane Pilon, C. Corley Holbrook, Ana Carolina da Costa Lara-Fioreze, Beatriz Fabreti da Silva and John Snider

1558 **Evaluation of Fast Witling and Slow Wilting Soybeans Under Four Different Irrigation Levels** Francia Ravelombola*, Andrea Acuna-Galindo, Chengjun Wu, Derrick Harrison, Sandra Liliana Florez-Palacios, Maria de Oliveira, Marcos da Silva and Leandro Mozzoni

1559 **Assessing the Physiological Basis of Yield Response to Irrigation in Cotton** Alessandro Ermanis* and John Snider

1560 **Spatial and Temporal Distribution of Solar Radiation and Its Effect on Cotton Growth Under Different Rates of Irrigation** Irish Lorraine Pabuayon* and Glen Lorin Ritchie

1561 **Leaf Nitrogen Dynamics in Transgenic Maize during Grain Fill** Quincey Tuttle*, Jeffrey Schussler and Tony J. Vyn

1562 **Identification of Nitrogen and Sulfur Status Utilizing Spectral Data in Corn** Luan Pierre Pott, Luiz H. Moro Rosso*, Walter D. Carciochi, Fernando D. Hansel, Dorivar A. Ruiz Diaz and Ignacio A. Ciampitti

1563 **Influence of Nitrogen on Reproduction and Pathogenicity of *Rotylenchulus Reniformis* in Cotton.** Bhupinder Singh*, Daryl Chastain, John Snider, K. Raja Reddy, Larry Jason Krutz and Salliana Stetina

1564 **Rice Root Cross-Section Image Analysis with Deep Learning** Chaoxin Wang*, Xukun Li, Doina Caragea, Raju Bheemanahalli Rangappa and S.V. Krishna Jagadish

1565 **Identify Genotypic Differences in Rooting Depth and Relationship with Crop Growth and Yield Under Field Conditions** Sulaiman Ali* and Felix B. Fritschi

1566 **IMPACT of First True LEAF Physiology on Cotton Seedling VIGOR UNDER Different FIELD Conditions** Gurpreet Virk*, John Snider and Cristiane Pilon

1567 **Evaluation of Planting Date and Seeding Rate on Field Pea (*Pisum sativum* L.) Economically Optimal Plant Population (EOPP) and Grain Yield** Samuel Koeshall*, Cody Creech, Amanda Easterly, Rodrigo Werle and Strahinja Stepanovic

1568 **Increasing Overall Productivity By Inter Cropping Corn and Alfalfa.** Swetabh Patel*, Andrew W. Lenssen, Kenneth J. Moore and Marisol T. Berti

SESSION NO. 180—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

M.S. Grad Student Poster (includes student competition)

Sponsored by Corteva Agriscience

C03 Crop Ecology, Management and Quality

1601 **End-Use Quality of Spring Wheat in Response to Drought Stress at Different Growth Stages** Jingya Yang*, Xi Liang, Rui Yang, Howard Neibling, Juliet Marshall and Katherine O'Brien

1602 **Filling the Inoculant Gap for Guar: Testing the Efficacy of Existing USDA Rhizobia Entries for the Crop** Jennifer MacMillan*, Curtis Adams, Rajan Shrestha, Philip Hinson and Calvin L. Trostle

1603 **Optimizing Soybean Growth with High Yielding Management Practices** Nathan Slavens* and Shaun Casteel

1604 **Bouncing Back: Understanding Post-Wind Lodging Recovery and Its Impact on Corn Grain Yield** Kyle Nemergut*, Peter R. Thomison, Paul R. Carter, Allen B. Geyer and Alexander J. Lindsey

1605 **Identifying Planting Populations for Midwest Food-Grade Soybean Production** Thomas Siler* and Maninder Pal Singh

1606 **Yield Improvement and Associated Responses in Great Plains Winter Wheat** Liza Van der Laan*, Adrienne Blakey and Brett F. Carver

1607 **Exploring the Possibilities for Late Season N Application in Corn in South Dakota** Cody Gilliland*, Jason Clark and Peter Kovacs

1608 **Potassium Fertilizer Impacts on Nutrient Dynamics and Yield Formation in Maize Production with Conservation Tillage** Lauren E. Schwarck*, T. Scott Murrell and Tony J. Vyn

1609 **A New Biostimulant Increases Nitrogen Use Efficiency and Grain Yield in Maize** Logan Woodward* and Frederick E. Below

1610 **Assessment of Uniform Vs Non-Uniform Plant Stands of Varying Plant Populations for Non-Irrigated Cotton** Brad Davis*, Scott Tubbs, John Snider and Robert Kemerait

1611 **Water-Limited Corn Yields As Influenced By Tiller Biomass and Leaf Area at Varying Plant Densities** Rachel L. Veenstra*, Carlos D. Messina, Lucas A. Haag, Vara Prasad and Ignacio A. Ciampitti

1612 **Environmental Factors Affecting Winter Canola (*Brassica napus L.*) Survival in United States – a 16 Years Summary** Mario A. Secchi*, Leonardo M. Bastos, Yancy Wright, Chris Foster, Michael Stamm and Ignacio A. Ciampitti

1613 **Does Maize Need Pre-Plant N If Sub-Drip Fertigation Can be Used to Provide Season Long N?** Benjamin Wiegmann* and Frederick E. Below

1614 **Impact of Cotton Genetics and Nematicides on Reniform Nematode Populations and Yield** Jennifer Dudak*, Gaylon D. Morgan, Reagan L. Noland, Thomas Isakeit and Terry Wheeler

1615 **Winter and Summer Weeds Population Dynamics on *Brassica Carinata* Cropping Systems** Ruby Tiwari*, Pratap Devkota, Michael J. Mulvaney and Ramon G Leon

1616 **Impact of Storage and Planting Conditions on Emergence of Runner-Type Peanut** Caleb Weaver*, W. Scott Monfort, Cristiane Pilon, Timothy L. Grey and Ronald Scott Tubbs

1617 **Effect of Fungicide Programs and Harvest Date on Germination and Vigor of Saved Seed from Two Peanut Cultivars** Matthew Stuart*, W. Scott Monfort and Cristiane Pilon

1618 **Agronomics of Industrial Hemp (*Cannabis sativa* L.) for Grain and Fiber Production in Wisconsin.** Haleigh J. Ortmeier-Clarke*, Carrie A.M. Laboski, Nicholas J. Arneson, Jerome Clark, Carl Duley, Shawn P. Conley and Rodrigo Werle

SESSION NO. 181—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Turfgrass Pest Management Poster: Diseases, Insects, Weeds (includes student competition)

C05 Turfgrass Science

1619 **World of Turf – an Online Phenomenon** David Gilstrap*

1620 **Compost Topdressing Reduces Necrotic Ringspot Incidence, Decreases Thatch, and Improves Turf Quality in Kentucky Bluegrass Lawns** Yaling Qian*, Sarah Wilhelm and Josh Lambright

1621 **Effect of Nitrogen Source and Rate on Rhizoctonia Leaf and Sheath Spot Disease Development in Interspecific Hybrid Bermudagrass** Lukas Dant*, S. Bruce Martin, Lambert B. McCarty and James P. Kerns

1622 **Geographic Distribution of Spring Dead Spot Species in the Mid-Atlantic** Wendell J. Hutchens*, Caleb A. Henderson, Elizabeth Bush and David S. McCall

1623 **Effects of Nitrogen, Phosphorus, and Potassium Rates on Microdochium Patch** Brian W. McDonald*, Emily T Braithwaite, Alec Kowalewski and Clint Mattox

1624 **Quantifying Dollar Spot Severity Using Digital Image Analysis** Sang Kook Lee*, Pingyuan Zhang, Bruce B. Clarke and James A. Murphy

1625 **Dollar Spot Control As Affected By Fungicide Programming and Bentgrass Susceptibility** Pingyuan Zhang*, James A. Murphy and Bruce B. Clarke

1626 **In Vitro Sensitivity and Pathogenicity of Organisms Causing Take All Root Rot on Ultradwarf Bermudagrass Putting Greens** Cameron Stephens*, James P. Kerns and Travis W Gannon

1627 **Optimal Timing for Preventative Pythium Root Rot Management** Halle Hampy*

1628 **Quantification of *Clarireedia Jacksonii* in Field Turfgrass Samples in Response to Fungicide Applications Using Droplet Digital PCR.** Brian Loarca Schaefer* and Paul L Koch

1629 **Anthracnose Response to Potassium Under Two Nitrogen Levels** Kyle M. Genova*, Bruce B. Clarke and James A. Murphy

1630 **Influence of Mowing Timing on Azoxystrobin Fate and Implications for Brown Patch Management** Daniel Freund*

1631 **Gray Leaf Spot Disease of Hard Fescue (*Festuca brevipila*)** Phillip L. Vines*, Ryan Daddio, Ruying Wang, Jing Luo, Ning Zhang, Bruce B. Clarke, William A. Meyer and Stacy A. Bonos

1632 **Dog Urine Tolerance Among Turfgrass Species and Cultivars Treated with Lactic Acid As Surrogate** Deying Li*, Zhihui Chang, Cheng Wang and Gang Wang

1633 **Monitoring Annual Bluegrass Weevil Resistance to Bifenthrin in Virginia** Emeline Daly*, Adam Alford, Michael Dorosky, David S. McCall and Thomas Kuhar

1634 **Postemergence Crabgrass (Digitaria spp.) Control in Bermudagrass (Cynodon spp.) with Pinoxaden** Gerald M. Henry*, Kevin Tucker, James T Brosnan and Gregory K Breeden

1635 **Spray Volume and Application Rate of Trifloxysulfuron Affects Long-Term Dallisgrass Control** Gerald M. Henry*, Kevin Tucker, James T Brosnan and Gregory K Breeden

1636 **Pre- and Post-Emergent Herbicides for Control of Wild Poinsettia in Alabama Roadsides.** Adam P Boyd, David Y. Han* and Elizabeth A. Guertal

1637 **Object Based Image Analysis of High Resolution Multi-Spectral Imagery for Classifying and Quantifying Weeds in Turfgrass Areas** Daniel Hahn*

1638 **Late Winter and Early Spring Pre-Emergence Programs for Smooth Crabgrass Control** Brandon C. McNally*, Matthew T. Elmore and Daniel P. Tuck

1639 **Effects of Preemergence Herbicides on St. Augustinegrass (*Stenotaphrum secundatum*) Sod Grow-in** Amy L. Wilber*, James D McCurdy and Michael P. Richard

1640 **When Is *Poa Annua* Seed Most Germinable during Spring in the Transition Zone and Southern United States?** Devon Carroll*, James T Brosnan, Patrick E. McCullough, James D McCurdy, Aaron J. Patton, Edicarlos Castro and Wenwen Liu

1641 **Surveying Variability Among Annual Bluegrass (*Poa annua*) Phenotypes from Tennessee Golf Courses** Dallas Rose Taylor*, James T Brosnan, Javier J Vargas and Gregory K Breeden

1642 **Multi-State Survey and Preliminary Screening to Evaluate Herbicide Resistance Epidemic in Annual Bluegrass (*Poa annua* L.) in Managed Turfgrass Systems** Becky Grubbs*, Shawn D. Askew, Lambert B. McCarty, Matthew T. Elmore, James T Brosnan, James D McCurdy, Patrick E. McCullough, Bryan Unruh, Travis W Gannon, Aaron J. Patton, John E. Kaminski, Alec Kowalewski, J. Scott McElroy and Muthukumar Bagavathiannan

1643 **Effects of Pinoxaden Application Timing on Large Crabgrass (*Digitaria sanguinalis*) in Bermudagrass *(Cynodon dactylon)* turf** John Peppers*, J. Scott McElroy and Austin Brown

1644 **Versatility of Pinoxaden Herbicide for Weed Control and Turf Management in the Desert** Kai Umeda*

SESSION NO. 182—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Robert F. Barnes M.S. Poster (includes student competition)

C06 Forage and Grazinglands

1645 **Using Forage Brassicas for Raising Stockers or Replacement Heifers and Improving Soil Conditions in Georgia** Lauren Powell*, Dennis W. Hancock, Tayler Denman and J.D. Hale

1646 **Potential for Glyphosate Injury to Glyphosate-Resistant Alfalfa in Frost-Prone Environments** Chet Loveland*

1647 **Iron Bioaccumulation in *Lemna Minor* (Duckweed) and *Pleurotus Ostreatus* (Oyster Mushrooms)** Jason Fechner*

1648 **Forage Species Selection for Transitional Organic Production in Middle Tennessee** Jonathan Kubesch*, Renata La Guardia Nave, Gary E. Bates, Song Cui and David M. Butler

1649 **Evaluating the Economic Sustainability of Grazing Stocker Cattle on Marginally Productive Cropland** Elizabeth Widder*, Daren D. Redfearn, Robert B. Mitchell, Marty R. Schmer, Virginia L. Jin, Jay Parsons and Mary Drewnoski

1650 **Using Fractional Green Canopy Cover to Determine Glyphosate Injury on Bermudagrass (*Cynodon Dactylon* L. Pers.) Cultivars** Lucas Freires Abreu*, Alexandre C. Rocateli, Misha Rose Manuchehri, Brian Arnall and Joao Antonangelo

1651 **Canopy Characteristics and Nutritive Value of Grazed Stockpiled Limpograss (*Hemarthria altissima* Poir. cv. Floralta)** Luana M. Dantas Queiroz*, Jose C.B. Dubeux Jr., Nicolas DiLorenzo, Martin Ruiz-Moreno, Erick Rodrigo da Silva Santos, David M. Jaramillo, Liza Garcia Jimenez, Flavia van Cleef, Fabio Pinese, Rayanne Souza and Vanessa Zirondi Longhini

1652 **Soil Water Extraction Patterns and Water Use Efficiency of Forage Sorghum, Pearl Millet, and Corn Under Deficit Irrigation** Bishwoyog Bhattarai*, Sukhbir Singh, Charles P. West, Calvin L. Trostle and Glen Lorin Ritchie

1653 **The Effect of Summer Nitrogen Application or Intercropping Sunn Hemp on Subsequent Spring Forage Yield and Nutritive Value in Tall Fescue Pastures** Amanda Jo Talbot*, Joshua A Tooley, Harley D. Naumann and John A. Lory

1654 **Influence of Seeding Treatment on Establishment Success of Cover Crops** Katie L. Black*, M. Scott Wells, Gregg A. Johnson and Kent Caveder-Bares

1655 **Response of Alfalfa Varieties to Saline, Sub-Surface Drip Irrigation: Uniformity of Soil Salinity Imposed** Simarjeet Singh*, Sharon E. Benes, Daniel H. Putnam and Robert Hutmacher

1656 **Smart Irrigation System to Optimize Turfgrass Irrigation with Saline Water** James Weiss*

SESSION NO. 183—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Biomedical, Health-Beneficial and Nutritionally Enhanced Plants Poster

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

1657 **Beyond Yield: Incorporating Nutritional Quality Phenotyping to Quinoa (*Chenopodium quinoa*) Variety Trials Using Near-Infrared Spectroscopy and X-Ray Fluorescence.** Daniel Packer* and Evan Craine

1658 **Green Leafy Quinoa – a Prospective Nutrient-Rich Vegetable** Safiullah Md Pathan*, Frieda Eivazi, Grato Ndunguru, Abua Ikem and Kerry Clark

1659 **Human Health from Soil to Society: Barley β-Glucan, Glycemic Control, and Appetite** Julianne Kellogg*, Martine Perrigue and Kevin Murphy

1660 **Identifying Low Phytic Acid Mutants in a Durum Wheat (Triticum turgidum ssp. durum) Tilling Population** Emily F Klarquist*

1661 **The Effects of an Integrated Plant Nutrition System (IPNS) with Biostimulants on Cannabis Development.** Jose Franco Da Cunha Leme Filho*, Wade E. Thomason and Bee Chim

1662 **Factors Affecting Farmers' Decision to Adopt Specialty Potato Varieties: A Case Study of San Luis Valley Colorado Potato Growers** Sahar Toulabi*, Becca Jablonski, Dave G Holm, Michael Carolan and Adam L. Heuberger

1663 **Effect of Genotype x Environment x Management Interactions on Iron and Zinc Content of Two Barley Breeding Lines** Walker Orr*, Cedric Habiyaremye, Daniel Packer, Kurtis L. Schroeder, John Reganold and Kevin Murphy

SESSION NO. 184—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Fertility, Plant Nutrition, and Soil/Plant Analysis M.S. Poster (includes student competition)

Sponsored by
Koch Agronomic Services, Nutiren, Wilbur-Ellis and J.R. Simplot

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis, SSSA Division: Soil Fertility and Plant Nutrition

1141 **Nitrogen Management Approach for Malting Barley in North Carolina** Joshua Whelan*, Amy Johnson, Kristin Hicks, Deanna L. Osmond and Angela Post

1142 **Survey of C/N Ratios of Barley and Wheat Cultivars in Idaho** Garrett Thurgood*, Christopher W. Rogers, Biswanath Dari, Juliet Marshall, Olga S. Walsh and Kurtis L. Schroeder

1143 **The Effect of Cover Crops and Tillage on Soil Health Three Years After Implementation** Kaitlyn E. Markey*, Deanna L. Osmond, Joshua L. Heitman and Alex L. Woodley

1144 **Nitrogen Management in Dryland Winter Wheat across Nebraska Under Different Climatic Conditions** Deepak Ghimire* and Bijesh Maharjan

1145 **Optimizing Ammonia Acid Trap Chamber Design and Sampling Methods** Jonathan R Alexander*, Jared A. Spackman, Melissa Wilson, Rodney T. Venterea and Fabian G. Fernandez

1146 **Sulfur Source and Rate Application for Soybean Production on Sandy Loam Soils in the Mid-Atlantic** Keren Duerksen*, Mark S. Reiter and David L. Holshouser

1147 **Preplant and Split N Application Effect on Nitrogen Use Efficiency in South Dakota Maize** Rebecca Saucerman*, Peter Kovacs and Jason Clark

1148 **Efficacy of Commonly Used Extractants for Evaluating P Retention Capacity for Alabama Soils.** Anjan Bhatta*, Debolina Chakraborty and Rishi Prasad

1149 **Sulfur Rate and Application Timing for Maize Production on Sandy Loam Soils in the Mid-Atlantic Region USA** Caroline Lancaster*, Mark S. Reiter, Wade E. Thomason and William Hunter Frame

1150 **Rates, Efficiency and Recommendations: An Investigation into Winter Cover Crops and Their Role in Nitrogen Management for a Corn-Soybean Rotation** Brayden Burns*, Steven Green, Joseph H. Massey and Ahmed Hashem

1151 **Effect of Different Sources and Application Rates of Sulfur on Corn and Soybean Production Systems in Louisiana** Diego Mayorga*, Brenda Tubana, Marilyn Dalen, Jose Rodolfo Mite, Daniel Forestieri, Jayvee Cruz, Wooiklee Paye, Hector Mendoza and Jiraporn Bamrungrai

1152 **Dual Top-Dress Nitrogen Applications in Winter Wheat *(Triticum aestivum)*** Jonathan Carpenter*, Elizabeth Eickhoff, Jagmandeep Singh Dhillon, Gwen Wehmeyer, Tyler Lynch and William R. Raun

1153 **Impact of Soil Acidity on Cotton Production** Raedan Sharry*, Brian Arnall and Vaughn Reed

1154 **N Management in Corn Using Uav Images, Yield Stability Maps and Crop Modeling.** Olivia Davidson*, Susana Albarenque and Bruno Basso

1155 **Phosphorus (P) and Potassium (K) Management in Corn-Soybean-Winter Wheat Crop Rotation in a Long Term Experiment** Harpreet Hanzra*, David Hooker, Laura L Van Eerd, Ivan P. O'Halloran and Horst Bohner

SESSION NO. 185—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Digital Pedology Poster (includes student competition)

SSSA Division: Pedology

1156 **Dynamic Soil Survey – Next Level Soil Information** Suzann Kienast-Brown*, Pam Thomas, Chad Remley and David L. Lindbo

1157 **Land Resource Units As Soil Systems** Hunter Winsor* and Colby Brungard

1158 **Using Photogrammetry As an Archival and Data Collection Tool in Pedology** Ruben Aleman* and Karen L. Vaughan

1159 **Methods for Identification and Quantification of Rock Fragment Concentrations and Distribution in a Natural Soil Profile** Zhuodong Jiang*, Qiubing Wang, Kabindra Adhikari, Kristofor R. Brye, Zhongxiu Sun, Fujun Sun and Phillip R. Owens

1160 **The Alaska Soil Profiles Database: 1- and 2-Dimensional Representations of Legacy Soil Morphological and Laboratory Data for Alaska** Michael Sousa* and Nicolas A. Jelinski

1161 **Comparing Four Statistical Methods for Mapping the Spatial Variability of Soil Properties (Case Study: Hashtgerd, Iran)** Razieh Abdollahi*, Fereidoon Sarmadian and Cristine L.S Morgan

1162 **Digital Soil Mapping Cadmium Content in Cacao Growing Areas of Colombia** Javier Martín-López*, Daniel Guarin, Mayesse Da Silva, Zamir Libohova and Patrick J. Drohan

1163 **Soil Classification in Romanian Catenas Via Advanced Proximal Sensors** Autumn Acree*, David C. Weindorf, Somsubhra Chakraborty, Laura Paulette, Titus Man, Cynthia Jordan and Jose' Luis Prieto

SESSION NO. 186—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Conservation Agriculture Practices and Greenhouse Gas Emissions Poster

SSSA Division: Soil and Water Management and Conservation

1164 **Measuring Spatial Variability in Potential Soil N_2o Rates Using the Dentrification Enzyme Activity (DEA) Protocol on Missouri Claypan Soils.** Frank E Johnson* II, Robert Lerch, Peter Motavalli, Kristen Sloan Veum and Peter Scharf

1165 **Evaluating the Effect of Long-Term Conservation Practices on Soil Quality and Soil Carbon Dynamics on Severely Eroded Soils of Southern Guam** Mohammad H. Golabi*

1166 **Carbon Dynamics Under Agroforestry Systems in the Caatinga Biome Simulated By the Century Model** Anaclaudia Primo, Carlos Eduardo Cerri and Teogenes Senna Oliveira*

1167 **Nitrous Oxide Mitigation By [the Nitrification Inhibitor] 3,4-Dimethylpyrazole Phosphate (DMPP) As Affected By Climate and Soil Properties** Drishya Nair*, Diego Abalos, Khagendra Raj Baral and Søren O Petersen

1168 **Greenhouse Gas Emissions in Sugarcane Deep Strip-Tillage** Patrícia Pereira Dias*, Ana Stella Freire Gonçalves, Erilene Romeiro Alves, Ivanayra da Silva Mendes, Juliano Carlos Calonego and Heitor Cantarella

1169 **Carbon Dioxide Emissions in Sugarcane Soil Management** Ana Stella Freire Gonçalves*, Erilene Romeiro Alves, Ivanayra da Silva Mendes, Patrícia Pereira Dias, Juliano Carlos Calonego and Carlos Alexandre Costa Crusciol

1170 **Into the Deep: Effects of Agricultural Management Strategy on Deep Soil Carbon Dioxide Concentration** Summer Rose Ann Lockhart*, Chester Kent Keller, David R. Huggins, Lynne Carpenter-Boggs and Raymond David Evans

SESSION NO. 187—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil and Water Management and Conservation General Poster (includes student competition)

SSSA Division: Soil and Water Management and Conservation

1171 **Estimating Nitrogen Credit from Peanut to Brassica Carinata** Mahesh Bashyal*, Michael J. Mulvaney, Ramon G Leon, Gabriel Maltais-Landry, Chris Wilson and John Erickson

1172 **Impact of Cover Crops on Water Use Efficiency in Northeast Arkansas Cropping Systems** Sheldon Hamblin*, Steven Green, Joseph H. Massey, Ahmed Hashem and Edward Brown

1173 **Demonstration of Bioenergy Crop Growth in New Mexico Under Saltwater Irrigation.** Robert P. Flynn*, Girisha Keshavamurthy Ganjegunte, Leonard M. Lauriault and April L. Ulery

1174 **Assessment of Irrigation Management for Row-Irrigated Rice Using Winter Cover Crops** Divya Kandanool*, Steven Green and Joseph H. Massey

1175 **Moisture Indices Improve Remotely Sensed Estimates of Crop Residue Cover** Craig S. T. Daughtry*, Miguel Quemada, W. Dean Hively, E. Raymond Hunt Jr. and Andrew L. Russ

1200 **Evaluating Soybean Drought Status with Leaf Metabolite Indices.** Keiki Okazaki*, Fukuyo Tanaka and Yoshinari Ohwaki

1201 **Comparing Nutrient Losses from a Tile-Drained Field and an Untiled Field in Northern New York** Leanna E. Thalmann*, Stephen R. Kramer, Laura B. Klaiber and Mark K. Haney

1202 **Water Retention in the Rhizosphere: Exploring the Effects of a Rye Winter Cover Crop on Plant Available Water in Corn-Soybean Cropping Systems** Eric Britt Moore*

1203 **Cattail Biomass: A New Soil Amendment to Improve Soil Health and Reduce Wind Erosion** Douglas R Pearsall*, Eric Dunton, Shane Lishawa, Matthew E Herbert, Andrew Monks, Chris May, Brendan Carson, Benjamin Wickerham, Mary Fales and Jerry Lemunyon

1204 **Influence of Irrigation Rate on Young Citrus Trees Growth and Water Relations in High-Density Planting** Said A. Hamido* and Kelly T. Morgan

1205 **Impact of Cropland Patterns and Weather on Water Quality** Brittany Kirsch*, Andrea Basche and Jessica R. Corman

1206 **Effect of No-Tillage and Conventional Tillage Practices on Drainage Fluxes Under Irrigated Corn-Soybean Rotation** Jalal D Jabro*, William M. Iversen and William B. Stevens

1207 **New Irrigation Technologies Are Maintaining Yield with Less Water** Jonathan Holt*, Matt A. Yost, Earl Creech, Niel Allen, Darren McAvoy, Chad Reid and Dean Winward

1208 **Evaluating the Phytoremediation Potential of Barley Grown on Salt-Affected Soils.** Vijayasatya Nagendra Chaganti*, Girisha Keshavamurthy Ganjegunte and William L. Hargrove

1209 **Water Evaporation from the Soil Surface in Flood-Irrigated Pecans** Daniel S. Torres*, William L. Hargrove, Suarav Kumar, Vijay S Chaganti, Richard J Heerema and Girisha Keshavamurthy Ganjegunte

1210 **Runoff Water Quality after Spring Incorporation of Liquid Dairy Manure into a Live Rye Stubble** Jess Sherman*, Eric O. Young and Jason Cavadini

1211 **Effects of Different DEM Resolutions and Sources on Soil Erosion: A Case Study Using the Csle Model** Ao Li*

1212 **The Performance of Different Fingerprinting Methods in Estimating Sediment Source Contributions in an Arid Region** Baicheng Niu* and Xunchang (John) Zhang

1213 **PM2.5 and PM10 Emissions By Abrasion of Agricultural Managed Soils** John Tatarko*, Matthew Kucharski, Hongli Li and Huiru Li

1214 **Evaluating Structure from Motion (SfM) Photogrammetry for Rill and Interrill Erosion Measurement** Yang Yang*, Yangzi Shi, Xiaozhen Liang, Tingting Huang, Suhua Fu and Baoyuan Liu

1215 **Conservation-Agriculture System-Dynamic Analysis: What-If Ecological Value Were Presented Economically to Stakeholders?** Lisa Akinyemi*, Barbara C Bellows, James P. Muir, Edward Osei and Benjamin L Turner

1216 **Which Irrigation Scheduling Strategy Most Effectively Stretches Limited Water Supplies?** Kyle Egbert*, Matt A. Yost, Niel Allen, Earl Creech, Jody Gale, Mark Nelson, Trenton Wilde and Deric Despain

1217 **Quantifying Variation in Tart Cherry Orchards for Precision Irrigation Applications** Cole Harding*, Matt A. Yost, Brent Black, Grant E. Cardon and Niel Allen

1218 **Additive Effects of Cover Cropping to Long-Term Conservation Tillage on Phosphorus Dynamics in a Weathered Ultisols** Binaya Parajuli*, Thomas F. Ducey and Rongzhong Ye

1219 **Interpreting Soil Health Data across Land Resource Regions** Zafer Bestas*, Harold van Es, Joseph Amsili and David Rossiter

1220 **Comparing the Impact of Short-Term Soil Health Practices on Aggregate Stability across Texas** Ashtyn Stufflebeam*, Haly L. Neely, Perejitei Ebikirifagha Bekewe, Katie L. Lewis, Jamie Foster and Clark B. Neely

1221 **Riparian Catchments As an Approach to Link Upland and Riparian Conservation Practices for Watershed and Agro-Ecosystem Management** Mark D. Tomer*, David James and Sarah A Porter

1222 **Predicting Cover Crop Biomass Production for Expanded Uses in the Great Plains** Sabrina Ruis*, Humberto Blanco, Haishun Yang, Katja Koehler-Cole, Roger W. Elmore, Cody Creech, Paul Jasa and Charles A. Francis

1223 **Poultry Litter and Biochar on Soil Water Dynamics and Nutrient Leaching from a Very Fine Sandy Loam Soil** Syam K. Dodla*, Hari Bohara, Jim J. Wang, Murali Darapuneni, Bharat Sharma Acharya, Magdi Selim and Kiran Pavuluri

1224 **Feasibility of Bio-Sulfur for Removal of Hg(II) in Aqueous Solution** Hyuck Soo Kim, Seok Soon Jeong, Seung Min Oh, Sang Phil Lee, Sung Chul Kim and Jae E. Yang*

1225 **Long-Term Subsurface Drainage Effects on Physical and Hydraulic Properties of Soil** Daniel Welage*, Kevin Mitchell and Eileen J. Kladivko

1226 **Long-Term Drainage Experiment Insights on Crop Yield, Water Flow, Chemical Transport, and Soil Improvement in Southeastern Indiana** Eileen J. Kladivko*

1227 **Does Reducing Tillage and Adding Cover Crops Enhance Soil Water Management in a Frigid Glaciolacustrine Soil of the Northern Great Plains?** Aaron L.M. Daigh*, Nathan E. Derby, Caley Gasch, Jodi DeJong-Hughes and Umesh Acharya

1228 **Removal of Insensitive High Explosives from Industrial Wastewater By Vetiver Grass (*Chrysopogon zizanioides* L.)** Abhishek RoyChowdhury, Dibyendu Sarkar*, Pallabi Mukherjee, Saumik Panja, Christos Christodoulatos and Rupali Datta

1229 **Machine Learning to Determine Lead Water Quality Parameters Influencing E. coli Concentrations in Irrigation Ponds Using Multi-Year Data** Matthew Stocker*, Yakov A. Pachepsky, Robert L. Hill, Jackie Smith, Billie Morgan and Kevin Sellner

1230 **Spatial Variability of Stable Isotopes in Soil Water** Timothy Goebel* and Robert J. Lascano

1231 **Soil Conditioning Index As a Potential Soil Health Index for the Cropping Systems of Tennessee** Surendra Singh*, Daniel C. Yoder, Sindhu Jagadamma, Xinhua Yin and Forbes R. Walker

1232 **Changes in Crop and Soil Management Patterns on High Wind Erosion Risk Soils over 2 Decades** Rashad Alghamdi, Sumon Datta, Larry J. Cihacek* and Stephanie Day

1233 **Growth and Development of Irrigated Cotton in Conservation and Conventional Management Systems in the Texas Rolling Plains** Curtis Adams*, Santanu Bikram Thapa and Paul B. DeLaune

1234 **Conserving Groundwater Using Innovative Rice Irrigation Practices in the Lower Mississippi River Basin.** Joseph H. Massey*, Michele Reba and Arlene Arlene Adviento-Borbe

1235 **49 Years of Tillage Impacts on Soil Aggregates and Aggregate-Associated Carbon and Nitrogen** Anastacia Hanauer, Amanda M Weidhuner, Ronald F. Krausz and Amir Sadeghpour*

SESSION NO. 188—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Biology and Biochemistry General Poster I (includes student competition)

Sponsored by Qiagen

SSSA Division: Soil Biology and Biochemistry

1236 **Effects a One-Time Compost Application on Carbon Dynamics in Dryland Organic Wheat Systems in the Intermountain West, USA** Idowu Atoloye*, Jennifer R Reeve, Astrid R. Jacobson and Earl Creech

1237 **Nitrogen-Fixing Bacteria: Probiotic for Boreal Forest Trees?** Akshit Puri*, Kiran Preet Padda and Chris P Chanway

1238 **The Impact of Anaerobic Digestion of Dairy Manure Fertilizers on Microbial Carbon and Nitrogen Cycling in Soil** Ashley Waggoner*, Manuel Peralta and Anne E. Taylor

1239 **Effect of Different Biochars on Plant Growth, Soil Microbes and Enzyme Activity** Shagufta Gaffar*

1240 **Long-Term Impacts of Manure and Inorganic Fertilizer Application on Microbial Community and Diversity in South Dakota** Asmita Gautam*, Udayakumar Sekaran, Jose G. Guzman, Peter Kovacs, Sandeep Kumar and Peter J. Sexton

1241 **Evaluating Soil and Plant Amendments for Improving Symbiotic AMF Interactions in Acidic Soils** Shweta Priya*, Terry J. Gentry, Curtis Adams, Javid McLawrence, Cara Case, Jeff A Brady and Anil Somenahally

1242 **Tillage Management and Cropping Influence on Microbial Activity and Carbon Cycling Dynamics** Nicole Shigley*, Julie A Howe and A. Peyton Smith

1243 **Earthworm Assemblages and Soil Nematode Community Structure in Response to Long-Term Tillage Systems in Southern Illinois** Amanda M Weidhuner*, Stephen Crittenden, Ronald F. Krausz and Amir Sadeghpour

1244 **Identification and Solubilization Capacities of Silicate-Solubilizing Bacteria in Louisiana Soils** Jayvee Cruz*, Brenda Tubana, Roberto Farias, rosalie calderon, Jiraporn Bamrungrai, Marilyn Dalen, Daniel Forestieri, Wooiklee Paye, Jose Rodolfo Mite, Lisa M. Fultz, Jong Hyun Ham, Hector Mendoza and Diego Mayorga

1245 **Phospholipid Fatty Acids: Interpretations for Soil Health in the Semi-Arid Palouse Region of the Inland Pacific Northwest** Katherine Naasko*, Haiying Tao, David R. Huggins, William L Pan, John Reganold, Tarah S. Sullivan and Skye Wills

1246 **A Simple Procedure for Real-Time Soil Microbial Biomass Carbon Analysis** Yuch Hsieh*, George Anderson, Robert O. Miller and Djanan Nemours

1247 **Designing Artificial Soils to Analyze the Effects of Matrix Properties on Microbial Behaviors** Ilenne Del Valle*, Xiaodong Gao, Caroline A Masiello and Jonathan J Silberg

1248 **Viral Population Dynamics Varies with Depth in a Southeastern Ultisol** Xiaolong Liang*, Jie Zhuang, Jennifer M. DeBruyn, Steven Wilhelm, Margaret E Staton, Andrew Conrad Sherfy and Mark Radosevich

1249 **Crop Rotation History Shapes Soil Recruitment Pools of Maize Under Nitrogen Limitation** Ashley Stengel*, Morgan McPherson, Josh Herr, Megan Franklin, Elizabeth S. Jeske, Virginia L. Jin and Rhae A. Drijber

1250 **Soil Structure and Texture Control of Mitomycin C-Induced Viral Lysis** Aubrey Fine*, Sean M. Schaeffer and Mark Radosevich

1251 **Engineering a Gas-Producing Biosensor to Enable Non-Disruptive Monitoring of Nitrate Bioavailability in Soils and Marine Sediments** Emily M Fulk*, Ilenne Del Valle, Xiaodong Gao, Jonathan J Silberg and Caroline A Masiello

1252 **Nitrogen Use Efficiency and Soil Bioavailable Nitrogen in Corn Silage Production in a Semi-Arid Environment** Phearen Miller*, Avneet Kakkar, Yang Ouyang and Jeanette M. Norton

1253 **CuO Nanoparticle Dissolution and Toxicity to Soil Enzyme Activity and Microbial Communities' Composition** Kaushik Adhikari* and Hao Chen

SESSION NO. 189—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Advances of *in Situ* Sensors: Measuring Soil Chemical Properties and Processes Poster (includes student competition)

SSSA Division: Soil Chemistry

SESSION NO. 190—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Chemistry and Human Health Poster (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality

1255 **Cadmium Dose-Response Relationships with Colombian Cacao and Associated Phytoremediators in Artificially Contaminated Substrates** Jhony Benavides* Sr., Patrick J. Drohan, John T. Spargo, Siela Maximova, Mark Guiltinan and Douglas Miller

1256 **Arsenic Complexation By Sulfur Groups in Dissolved Organic Matter** Lena Abu-Ali* and Matthew Charles Reid

SESSION NO. 191—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Chemistry in the Face of Climate Change: Trace Element and Nutrient Dynamics in Soils and Sediments Poster (includes student competition)

SSSA Division: Soil Chemistry

1257 **Desorption of Chromium from Contaminated Urban Soils** Piyapas Sricharoenvech*, Donald L. Sparks, Ryan Tappero, Gautier Landrot and Matthew G. Siebecker

1258 **Changes in the Leachability of Metallic Elements from Contaminated Mine Soils after Different Flooding/Drying Treatments** Hyeyeon Lim* and Seunghun Hyun

1259 **Optimizing Arbuscular Mycorrhizal Use in Agriculture Fungi to Reduce Heavy Metal Uptake into Crops** Danielle Nicole Stevenson*

1260 **Molecular Diversity Controls on Dissolved Organic Matter Mineralization Rates** Rachelle LaCroix* and Johannes Lehmann

SESSION NO. 192—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Education and Outreach General Poster I

SSSA Division: Soil Education and Outreach

1261 **Active Learning in Adult Education: Activities, Participant Feedback, and Lessons Learned** Sara Wigginton*, Alissa Cox and Bianca Ross

1262 **Progress on Increasing Hispanic Workforce in Soil Science through Training, Research, and Education: A New Integrated Program at South Texas/Rio Grande Valley** Engil Isadora Pujol Pereira*, James Kang and Chu-Lin Cheng

1263 **Use of 3D Models for Teaching Clay Mineralogy** Cristian P. Schulthess*

1264 **Women in Soil Science: Growing Participation, Emerging Gaps, and the Opportunities for Advancement** Amanda Pennino*, Karen L. Vaughan, Helga Van Miegroet, Yamina Pressler, Chelsea Duball, Eric C. Brevik, Asmeret Asefaw Berhe and Carolyn G. Olson

1265 **The Radiocarbon Collaborative: A Resource to Support the Radiocarbon Community** Paula Zermeno*, Katherine Heckman and Christopher W. Swanston

1266 **Bachelors Degrees Offered By Land Grant Colleges to Prepare Students for a Career in Soil Science** Eric C. Brevik*

1267 **Development of a Soil and Water Conservation Annotated Bibliography and Its Adoption As an Open Textbook** Colby J. Moorberg*

1268 **Economic Performance of Diversfied Crop Rotation in South Dakota** Hanxiao Feng*, Jasdeep Singh, Tong Wang, Shannon L. Osborne and Sandeep Kumar

SESSION NO. 193—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Fertility and Plant Nutrition General Poster I

SSSA Division: Soil Fertility and Plant Nutrition

1269 **Nitrogen Response in Small Grains after Alfalfa** Collin Pound*, Matt A. Yost, Earl Creech, Grant E. Cardon, Kathleen Russell, Deric Despain, Jody Gale, Kevin Heaton, Boyd Kitchen, Michael Pace, Steven Price, Chad Reid, Matthew Palmar and Mark Nelson

1270 **Evaluation of Soil Test Methods and Wheat Response to Phosphorus Fertilization in Kansas** Christopher Weber* and Dorivar A. Ruiz Diaz

1271 **Source and Timing of Nitrogen Application to Enhance Upper Midwest Corn Production** Jared A. Spackman*, Fabian G. Fernandez, Gabriel Dias Paiao and Karina P. Fabrizzi

1272 **Is There a Better Way to Fertilize Corn with Potassium?** Scott Foxhoven* and Frederick E. Below

1273 **Hyperspectral Vegetation Indices for Predicting Corn Nitrogen Status Under Different Soil Drainage and Tillage Conditions** Gabriel Dias Paiao*, Fabian G. Fernandez, Tyler J. Nigon and Seth L. Naeve

1274 **Studying the Relationship of Nitrogen Fertilizer Rates and Corn Plant Population Using Sensor Fusion Considering Plant and Soil Spatial Variability.** Murilo de Santana Martins*, Felippe Hoffmann Silva Karp, Luciano Shozo Shiratsuchi, Syam K. Dodla, Daniel D. Fromme and Guy Boyd Padgett

1275 **Effects of Nitrogen and Irrigation Application Rates on Open-Field Fresh-Market Tomato Production** Ibukun Timothy Ayankojo* and Kelly T. Morgan

1300 **Identifying Optimal Nitrogen Use Efficiency for Agronomic and Environmental Outcomes in Potato Using the Nitrogen Nutrition Index** Brian J. Bohman*, Carl J Rosen and David J Mulla

1301 **Soybean Response to Macro and Micronutrient Application** Gena Ram Mahato*, Thandiwe M. Nleya and Peter Kovacs

1302 **Response to Timing of Nitrogen Fertilization in Winter Wheat Under Limited and Unlimited Nitrogen Rates** Joao Luis Bigatao Souza*, Vaughn Reed, Evandro Archilia, Bronc Finch and D. Brian Arnall

1303 **Importance of Magnesium and Sulfur Fertilization for Soybean and Rice in Brazil** Luciola Martins*, Bonini Flavio, Kiran Mann and Kyle Freeman

1304 **Investigating Boron's Role in Diverse Cropping Systems of China** Xian Guan, Peter Liu, Ping He, Kiran Mann* and Kyle Freeman

SESSION NO. 194—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Applications of in-Situ, Proximal, and Remote Sensing for Soil Moisture Information in Agriculture and Hydrology Poster

SSSA Division: Soil Physics and Hydrology

1305 **High-Resolution Vegetation Water Content Mapping with Venμs and UAS for Improved Microwave Soil Moisture Retrievals of Cornfields** William A. White*, Michael Cosh, Rajat R. Bindlish, Craig S. T. Daughtry, Andrew L. Russ and Feng Gao

1306 **Mapping Crop Nitrogen Content and Water Stress Using UAV-Collected Multispectral Imagery** Haoming Xia, Gary Feng*, Haile Tewolde and Yaochen Qin

1307 **Impact of Effective Electromagnetic Frequency on Soil Moisture Sensor Calibration** Juan D. González-Teruel, David A. Robinson*, Scott B. Jones, Wojciech Skierucha, Agnieszka Szyplowska, Fulgencio Soto and Roque Torres

1308 **The Impact of Cotton Biomass on Water Content Measurements Using the Cosmic Ray Neutron Probe** Nickolas Frisbee*

1309 **Quantification of the Soil Water Dynamics from Smart Field Lysimeters with a Focus on Soil Water Sensors** Deep Chandra Joshi*, Andre Peters, Sascha C. Iden, Georg Leitinger and Wolfgang Durner

1310 **Monitoring Soil-Water Content in the Unsaturated Zone of a Regulated River** Heather Christensen*, Logan Schmidt and Daniella M Rempe

1311 **Landscape Patterns of Evapotranspiration for Conservation Management Practices Compared to Crop Management Using Python–Based GIS** Salah M. Alagele*, Stephen H. Anderson, Mohammed G. Mohammed and Ranjith P. Udawatta

1312 **Evaluation of Multiple-Field Soil Sensor Calibration Models** Elia Scudiero and Todd H. Skaggs*

1313 **Analysis of Temporal Stability of Soil Moisture in a Long-Term Agroecological Research Experiment** Eeswaran Rasu* and Amor V.M. Ines

1314 **Nitrous Oxide Emissions from a *Panicum Virgatum* L. (switchgrass) Production System Applied with Variable Rate Nitrogen Fertilizer in Quebec, Canada** Alexia M. Bertholon*, Louis Longchamps, Joann K Whalen and Athyna N. Cambouris

SESSION NO. 195—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Physics and Hydrology General Poster I

SSSA Division: Soil Physics and Hydrology

Estimating Water Vapor Transport from Soil Thermal Conductivity Measurements at Various Water Contents and Temperatures Sen Lu*

1315 **Variations in Soil Water Repellency during Wetting and Drying Cycles** Jingjing Chen* and Ryan Stewart

1316 **Effects of Deposited Colloidal Particles on Nano-Bubble Transport in Saturated Porous Media** Takuya Sugimoto, Shoichiro Hamamoto* and Taku Nishimura

1317 **A Numerical Study of Contaminant Accumulation Using Soil Cooling and Heating to Induce Soil Water Freezing and Evaporation** Yuki Kojima*, Yuta Nakano, Gerald N. Flerchinger, Kohji Kamiya and Robert Horton

1318 **Investigating the Impact of Soil Organic Carbon on Soil Specific Surface Area for Samples with Different Clay Mineralogy** Emmanuel Arthur*, Markus Tuller, Maria Knadel, Per Moldrup, Peter Weber Jensen, Hafeez Ur Rehman and Lis Wollesen de Jonge

SESSION NO. 196—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soils and Environmental Quality General Poster I

SSSA Division: Soils and Environmental Quality

1319 **Removal of Antibiotics from Nutrient-Amended Secondary Wastewater Effluent** Saumik Panja, Dibyendu Sarkar and Rupali Datta*

1320 **Linking Carbon Dioxide and Nitrous Oxide Emissions from Crop Residue Decomposition** Diana Zapata*, Nithya Rajan, Kenneth D. Casey, Jake E. Mowrer and Ronnie W. Schnell

1321 **Assessing *Escherichia coli* Survival in Manure-Amended Certified Organic Soils and Transfer to Tomatoes, Radish, and Spinach Grown on the Eastern Shore of Maryland** Annette L. Kenney*, Fawzy M. Hashem, Patricia Millner, Alda Pires and Michele Jay-Russel

1322 **Changes in Soil / Water Relationships in Three Soils As a Function of Temperature of Heating** Jason E. Mowrer*, Tony L. Provin, Binita Thapa, Golnoush Hosseini and Leo Rivera

1323 **Evaluation of Phosphorus and Microbe Treatment of an in-Stream Bioreactor and a Natural Wetland in the North Carolina Piedmont** Guy Iverson*, Charles P Humphrey Jr., Christa Sanderford, Eban Bean, Michael O'Driscoll and Sushama Pradhan

1324 **Phosphorus Release Characteristics of Poultry Litter Impacted Soils of Lake Wedowee Watershed** Debolina Chakraborty* and Rishi Prasad

1325 **Edge-of-Field Water Quality in Two Northern New York Corn Silage Fields** Laura B. Klaiber*, Stephen R. Kramer and Mark K. Haney

1326 **Study on the Relationship between Farmland Environment and Organic Apple Production** Takamitsu Kai*

1327 **Sorption Behavior of Aromatic Dissolved Organic Carbon Differed Among Forest, Pasture, and Cropland Soils with Depth** Lili Lei and Louis M. McDonald*

1328 **Nanoplastic: Isolation from Soil and Plant Uptake** Stephen Taylor*, Andy Bary, Carolyn Pearce, Karen A. Sanguinet and Markus Flury

SESSION NO. 197—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Urban and Anthropogenic Soils General Poster

SSSA Division: Urban and Anthropogenic Soils

1329 **Increased Sodium in City Soils: Effects of Deicing Salts, Sodic Irrigation and Sea-Salt Deposition** Jacqueline Aitkenhead-Peterson*, Brianna Beauchamp and Katelyn Lazar

1330 **Multiyear Precipitation Variations and Relationship with Nonpoint Source of Nitrogen and Phosphorous Contamination to Surface Waters** Moustafa A. Elrashidi*

1331 **Soil Biological Health Affected By Compost and Tillage in a Post-Construction Land Hydroseeded with Turfgrass** Michael Gonzalez*, Aaron Garza, Adam Flores, Paola Granados, Engil Isadora Pujol Pereira, James Kang and Citlali Zertuche

1332 **Soil Physical Properties and Runoff Quality Affected By Compost and Tillage in Turfgrass Establishment** Adam Flores, Michael Gonzalez, Aaron Garza, Citlali Zertuche, Jungseok Ho and James Kang*

1333 **Level of Compaction and Compost Amendment Rate Alter Soil Hydraulic Properties in Three Urban Soils** Christina Kranz*, Joshua L. Heitman and Richard A. McLaughlin

1334 **Lead in Urban Residential Soils of Jersey City, NJ and San Antonio, TX** Virinder Sidhu*, Dibyendu Sarkar and Rupali Datta

1335 **Assessment of Soil Heavy Metal Concentration and Management Practices Among Urban Gardeners in Laramie, Wyoming** Tara Geiger* and Urszula Norton

1336 **Inspections of Erosion and Sediment Control Practices Via UAV-Aided Applications** Rich McLaughlin and Jalen Hairston*

1337 **Biogeochemical Homogenization in Urban Soils - a Six-City Comparison** Christopher D. Ryan* and Peter M. Groffman

SESSION NO. 198—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

"Across the Ladder": Recent Advancements in Assessment of Reducing Soil Conditions and Hydric Soils Identification Poster (includes student competition)

SSSA Division: Wetland Soils

1338 **Identification of Reducing Conditions in Micro-, Meso-, and Field-Scale Soil Experiments** Christine M. VanZomeren* and Jacob F. Berkowitz

1339 **Measuring Pore Water Sulfide Levels in Benthic (subaqueous soil) Environments in Chesapeake Bay** Cathelyn Wang*, Martin C. Rabenhorst and Barret M. Wessel

1340 **Using Iron and Manganese-Coated IRIS Films to Quantify Soil Redox Potential in Rice Paddies Under Alternate Wetting and Drying (AWD) Management** Abby Evans*, Matt Limmer and Angelia L. Seyfferth

1341 **Coupling Watershed Modeling with Wetland Soil Measurements Improves Identification of Target Locations for P Reduction** Jacob F. Berkowitz*, Christine M. VanZomeren, Derek Schlea and Chelsie Bowes

1342 **Greenhouse Gases Emission (CH4, N2O, CO2) Associated with Diversity of Microbes in Different Land-Uses of Tropical Peatland.** Fitriah S.N Azizan* and Kosuke Noborio

1343 **A Novel Sensor for Quantifying Denitrification Activity in Soils** Mark Stolt*

1344 **Biogeochemical Properties of Eroding Wetland Soil Organic Matter** Yadav Sapkota* and John R. White

1345 **Quantification of Iron Monosulfides to Address Problematic Soils and Improve the Delineation of Wetlands in the Semi-Arid Western U.S.** Chelsea Duball* and Karen L. Vaughan

1346 **Soil Biogeochemistry in Playa Wetlands in Response to Changing Land Use** Rachel K. Owen*, Keith W. Goyne, Kristen Sloan Veum and Elisabeth B. Webb

SESSION NO. 199—5:30 PM–7:00 PM

Henry B. Gonzalez Convention Center, 221C, 2nd Level

SSSA Business Meeting--Soil Chemistry

Sponsored by MDPI Ag

SSSA Division: Soil Chemistry

Tuesday, Nov. 12

SESSION NO. 200—7:00 AM–9:00 AM

Henry B. Gonzalez Convention Center, Stars at Night Ballroom 3-4, 3rd Level

ASA Breakfast, Awards, and Plenary (E.T. & Vam York Distinguished ASA Lectureship)

Keynote/Plenary Sessions

Moderator: Sylvie Brouder, Steven Evett, Gary Pierzynski

	7:00 AM	**ASA Breakfast**
	7:30 AM	**Introductory Remarks**
200-1	7:40 AM	**ASA Awards** Sara Uttech*
200-2	8:30 AM	**The CGIAR Big Data Platform: Model Infrastructures for Advancing Research on Complex Problems** Andy Jarvis*
200-3	8:40 AM	**The NAL Ag Data Commons: Model Infrastructures for Advancing Research on Complex Problems** Cynthia Parr*
	8:50 AM	**Questions & Answers**
	9:00 AM	**Adjourn**

SESSION NO. 201—7:45 AM–9:50 AM

Henry B. Gonzalez Convention Center, 213A, 2nd Level

CrossDiv Symposium--Advancements in Pedology and Beyond: Honoring Larry Wilding's Career and Life 1934-2019

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Soil Mineralogy,
SSSA Division: Soil Physics and Hydrology,
SSSA Division: Wetland Soils

	7:45 AM	**Introductory Remarks**
201-1	7:50 AM	**Professional Contributions of Dr. Larry P. Wilding to Soil Science** Charles T Hallmark*, Larry T. West and Neil E. Smeck

201-2	8:20 AM	**Pedology As a Starting Point When Defining Options for Sustainable Land Management.** Johannes Bouma*
201-3	8:50 AM	**Larry Wilding: Co-Founder of Critical Zone Science** Daniel Richter*
201-4	9:20 AM	**Mentor, Friend, and out-of-This-World Pedologist: The Legacy of Larry Wilding** Douglas W. Ming*
	9:50 AM	**Adjourn**

SESSION NO. 202—7:45 AM–9:55 AM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

CrossDiv Symposium--Advances in Our Understanding of Organo-Mineral Complexes: Mechanisms, Measurements and Models

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Soil Mineralogy,
SSSA Division: Soil Chemistry

	7:45 AM	**Introductory Remarks**
202-1	7:50 AM	***Beyond Sorption and Occlusion: Expanding the Understanding of Mineral Interactions to Include Abiotic Proteolysis in Soils*** Stephany Chacon*
202-2	8:20 AM	**Root-Driven Weathering Impacts on Mineral-Organic Associations** Marco Keiluweit*
202-3	8:50 AM	**Towards a Better Understanding of Microbial-Organo-Mineral Interactions Using High Resolution Mass Spectrometry** Malak Tfaily*
202-4	9:20 AM	**Co-Localization of Iron and Aluminum with Organic Matter** Rota Wagai*, Masako Kajiura and Maki Asano
	9:50 AM	**Concluding Remarks**
	9:55 AM	**Adjourn**

SESSION NO. 203—7:55 AM–9:35 AM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Soil Mineralogy General Oral (includes Society-wide student competition selection)

SSSA Division: Soil Mineralogy

Moderator: Youjun Deng, Julie Howe

	7:55 AM	**Introductory Remarks**
203-1	8:00 AM	**Incorporation and Exchange of Ions in Two Feldspathoids: Sodalite and Cancrinite** Darren A. Chevis*, Youjun Deng and Julie A Howe
203-2	8:15 AM	**Structural Defects and the Reactivity of Kaolinites: Intercalation and Dissolution Study** Bidemi Fashina* and Youjun Deng
203-3	8:30 AM	**Mineralogy of Different Limestones and Chemical Fertilizers after Selective Dissolution with HCl 0.1M and Water** Antonio C. S. Costa*, Raquel Romão Sevilha, Leila Cristina Canton and Ivan Granemann Souza Junior
203-4	8:45 AM	**Mass Specific Magnetic Susceptibility of Natural and Synthetic Magnetites and Maghemites** Antonio C. S. Costa*, Jerry M. Bigham, Samuel J. Traina and Ivan Granemann Souza Junior
203-5	9:00 AM	**Do They Matter: Evaluation of Inherent Soil Properties' Influence on SOM Quality and Distribution** Thomas Doohan*, M. Scott Demyan, Steve Culman, Brian Slater and Leonardo Deiss
203-6	9:15 AM	**A Novel Method for Imaging Pedon-Scale Arrangements of Soil Minerals, Organic Matter, and Macropores** Xiaoyang Cao, Daniel R Hirmas*, Pamela L Sullivan and Matthew G Sena
203-7	9:20 AM	**The Role of Microscopy Techniques in Whole-Regolith Pedology: Linking Methods to Evaluate Mineral Weathering across Lateral Gradients in Forest Soils** Jennifer Bower*, Donald S. Ross, Scott W. Bailey, Kevin J. McGuire, Brian D. Strahm, Madeline Schreiber, Amanda Pennino, Stephanie Duston and Joshua Benton
	9:25 AM	**Questions & Answers**
	9:30 AM	**Concluding Remarks**
	9:35 AM	**Adjourn**

SESSION NO. 204—7:55 AM–10:00 AM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 1, 3rd Level

Symposium--Digital Technologies in Turfgrass: The Promise, Development and Application

Sponsored by Helena Agri-Enterprises

C05 Turfgrass Science

Moderator: John Kaminski

	7:55 AM	**Introductory Remarks**
204-1	8:00 AM	**Translating Digital Values into Data** Dana Sullivan*, John M Beck and Michael R. Schlemmer
204-2	8:25 AM	**Wireless Soil Sensing for Turfgrass Irrigation** Bernhard Leinauer*, Matteo Serena and Elena Sevostianova
204-3	8:50 AM	**Effective Utilization of Aerial Imagery and GPS Technologies for Site-Specific Turf Management** David S. McCall*, Jordan Booth and Dana Sullivan
204-4	9:15 AM	**Integrating Research and Technology to Guide Decision Support in Turfgrass** William C. Kreuser*
	9:40 AM	**Roundtable**
	10:00 AM	**Adjourn**

SESSION NO. 205—7:55 AM–11:00 AM

Henry B. Gonzalez Convention Center, 225A, 2nd Level

Soil Biology and Biochemistry General Oral Session II (Management Effects on Microbial Community)

SSSA Division: Soil Biology and Biochemistry

Moderator: Mary Ann Bruns

	7:55 AM	**Introductory Remarks**
205-1	8:00 AM	**Increasing Diversity of Maize Crop Rotations Under Variable Rates of Nitrogen Fertilization Alters Soil Microbial Community Structure and Function** Salvador Ramirez*, Virginia L. Jin, Hussein Al Serae, Elizabeth S. Jeske, Lance Gunderson, Ashley Stengel, Kathryn Hanford and Rhae A. Drijber

205-2 8:15 AM **Impacts of Cropping System Composition and Nutrient Management on Agricultural Soil Fungal and Bacterial Communities** Sarah C Castle*, Michael J Sadowsky, Deborah A Samac, Jessica L Gutknecht, Carl J Rosen and Linda L Kinkel

205-3 8:30 AM **Plateau Study: Testing the Soil Carbon Saturation Theory through the Application of Biosolids** Alice Snyder*, M. Scott Demyan, Nicholas T. Basta and G Matthew Davies

205-4 8:45 AM **Does Infrequent Tillage and High-Residue Farming Change the Microbial Structure and Function of Willamette Valley Soils?** Kristin Trippe*, Claire L Phillips and Viola Manning

205-5 9:00 AM **Impacts of Landscape Position and Precipitation Changes on Symbiotic Biological Nitrogen Fixation in Soybean** Kathryn R. Glanville* and G. Philip Robertson

9:15 AM **Break**

205-6 9:30 AM **Soil Biogeochemical Responses to Legume Crop Termination** Mary Ann V. Bruns*, Mara Cloutier, Curtis J. Dell and Heather D. Karsten

205-7 9:45 AM **Evaluating Lehmann Lovegrass and Black Grama Rhizosphere Microbial Communities Along a Topographic Gradient in the Chihuahuan Desert** Andrew Dominguez*, Nicole Pietrasiak, Erik Lehnhoff and David Burke

205-8 10:00 AM **Soil Microbial Response to Long-Term Management Practices in Cotton Systems of the Texas Southern High Plains** Billi Jean Petermann, Katie L. Lewis, Veronica Acosta-Martinez, Jyotsna Sharma, Joshua J. Steffan and Lindsey C. Slaughter*

205-9 10:15 AM **Long-Term Cattle Grazing Increased Soil Microbial Biomass but Decreased Enzyme Activities in a Native Grassland** Newton Z. Lupwayi*, Xiying Hao, Andrea Eastman, Derrick Kanashiro and Renee Petri

205-10 10:30 AM **Impacts of Management on Soil Microbial Communities in Subsurface Soils of Long-Term Switchgrass Bioenergy Plots** Lisa M. Durso*, Erin Scully, Nathan Palmer, Marty R. Schmer, Virginia L. Jin, Gautam Sarath and Scott Geib

205-11 10:45 AM **Microbial Response to Altered Land Management Strategies in Eastern Montana** Billi Petermann*, Joshua J. Steffan, Eric C. Brevik and Lindsey C. Slaughter

11:00 AM **Adjourn**

SESSION NO. 206—7:55 AM–12:00 PM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Coupling and Feedbacks of Phosphorus and Nitrogen in Soil and Ecosystems: Missing Gaps and Future Directions Oral (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality,
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Deb Jaisi, Ganga Hettiarachchi, Xionghan Feng, Shenqiang Wang

7:55 AM **Introductory Remarks**

206-1 7:55 AM **Nitrogen, Phosphorus, and Tile Drainage, Oh My! a Case for Edge-of-Field Practices** Laura Christianson*

206-2 8:10 AM **The Influence of Long-Term Nitrogen Fertilization on Phosphorus Forms and Cycling in Continuous Wheat Cropping Systems in a Semiarid Agroecosystem** Barbara J. Cade-Menun*, Luke D. Bainard, Jin Liu, Jianjun Yang, Yongfeng Hu and Chantal Hamel

206-3 8:25 AM **Microscale Imaging of Phosphate Mobility As Affected By Fertilizer Enhancing Polymer** Aziz Amoozegar*, Dean Hesterberg, Sarah Doydora, Paul Northrup and Samuel M. Webb

8:40 AM **Break**

206-4 8:50 AM **Emission Flux of Fertilizer Nitrogen to the Environment and Its Control Technology in the Lower Yangtze Region of China** Weiming Shi*, Ju Min, Tingmei Yan, Jun Qiao, Youhua Ma, Deb P. Jaisi and Hongxiang Hu

206-5 9:05 AM **Soil Phosphorus Accumulation Induced By 30-Year Fertilization and Potential Environmental Implications in the Loess Plateau** Shengli GUO*

206-6 9:20 AM **Should Greater Emphasis be Placed on Phosphorus Fertilizer Source Selection to Build Better P Management Systems?** Joseph J. Weeks* Jr. and Ganga M. Hettiarachchi

206-7 9:35 AM **Tracing the Sources of Phosphorus in the Love Creek Watershed, Delaware** Qiang Li*, Hezhong Yuan, Christopher Main, Hui Li and Deb P. Jaisi

206-8 9:50 AM **Immobilization of Agricultural Phosphorus in a Temperate, Deciduous Floodplain Soil** Mary Arenberg* and Yuji Arai

206-9 10:05 AM **Phosphorus Solid Phase Speciation and Hedley Sequential Extraction Residues: Using Multi-Modal μ-XRF Mapping and μ-XANES to Speciate Legacy P in Agricultural Soils** Kathryn Daria Szerlag*, Fatemeh Izaditame, Paul Northrup, Ryan Tappero, Deb P. Jaisi and Donald L. Sparks

10:20 AM **Break**

206-10 10:30 AM **Adsorption and Precipitation of *Myo*-Inositol Hexakisphosphate Onto Kaolinite** Zhen Hu*, Deb P. Jaisi, Yupeng Yan, Hongfeng Chen, Xiaoming Wang, Biao Wan, Fan Liu, Wenfeng Tan, Qiaoyun Huang and Xionghan Feng

206-11 10:45 AM **Exchange of Organic Acids for Phosphate on Goethite: A Density Functional Theory Approach** James Kubicki*, Jiye Guo, Lin Ma and Tsutomu Ohno

206-12 11:00 AM **Simulating Oxidative Transformation of Agriculturally-Derived Lignin in the Soil and Its Impact on Phosphate Bioavailability** Macey Cohen*, Tsutomu Ohno and Patrick Hatcher

206-13 11:15 AM **Phosphate Sorption Speciation and Precipitation Mechanisms on Amorphous Aluminum Hydroxide** Xiaoming Wang*, Brian Phillips, Jean-François Boily, Yongfeng Hu, Zhen Hu, Xionghan Feng and Mengqiang Zhu

206-14 11:30 AM **Characterization of Different Inositol Hexakisphosphate Stereoisomers in Soil Incubation** Taylor Moore*, Ruifang Hu, Mingjing Sun and Deb P. Jaisi

206-15 11:45 AM **Effect of Nitrogen Application Rate on Phosphorus Transformation in an Agricultural Soil: A Phosphate Oxygen Isotope Study** Xionghan Feng*, Dandan Jing, Deb P. Jaisi, Yupeng Yan, Tao Ren, Jianwei Lu, Xiaoming Wang, Wenfeng Tan and Fan Liu

12:00 PM **Adjourn**

SESSION NO. 207—8:00 AM–9:35 AM

Henry B. Gonzalez Convention Center, 008A, River Level

Crop Physiology and Metabolism Oral III

C02 Crop Physiology and Metabolism

Moderator: Tyson Raper

8:00 AM **Introductory Remarks**

207-1 8:05 AM **Cotton X Environment X Water: 9 Years X 6 Plantings X 4 Water Levels on the Southern High Plains of Texas** James R. Mahan* and Paxton Payton

207-2 8:20 AM **Out of Darkness: Nocturnal Transpiration and Its Circadian Control As Contributors of Drought Tolerance in Crops** Walid Sadok*, Bishal Gole Tamang, Rémy Schoppach, Brian Steffenson and James A. Anderson

207-3 8:35 AM **Variation Among Cotton Genotypes in Stomatal Conductance Responses to High Vapor Pressure Deficit Under Rainfed Conditions** Avat Shekoofa*, Sara Safikhan, John Snider, Tyson Brant Raper and Freddie Bourland

207-4 8:50 AM **Acclimation of Leaf Physiological Traits Under High-Tunnel Production System Increases Radiation and Water Use Efficiency in Tomatoes and Peppers** Hyungmin Tony Rho*, Paul D. Colaizzi, Qingwu Xue and Charlie M. Rush

207-5 9:05 AM **Screening of Rose Cultivars for Heat and Drought Tolerance Using Physiological and Reproductive Parameters** Bhupinder Singh*, Daryl Chastain and K. Raja Reddy

207-6 9:20 AM **High Throughput Assessment of the Highly Responsive Physiological Traits in Cotton Under Drought Stress** Taity Changa*, Anastasios Mazis, Sruti Choudhury, Jane Okalebo, Jeremy Hiller, Patrick Morgan, Gregory Sword, Harkamal Walia and Tala Awada

9:35 AM **Adjourn**

SESSION NO. 208—8:00 AM–9:35 AM

Henry B. Gonzalez Convention Center, 006D, River Level

Functional Foods Oral

C07 Genomics, Molecular Genetics and Biotechnology

8:00 AM **Introductory Remarks**

208-1 8:05 AM **Evolution of Ph1 Gene and It's Use in Wheat Improvement** Kanwardeep Singh Singh*, Muhammad Khan and Kulvinder Gill

208-2 8:20 AM **Development and Utilization of Gene-Based Breeding (GBB) for Enhanced and Continued Genetic Improvement in Maize** Meiping Zhang*, Yun-Hua Liu, Chantel F. Scheuring, Xiaoli Qi, Jacob Pekar, Sing-Hoi Sze, Wenwei Xu, Seth C. Murray and Hongbin Zhang

208-3 8:35 AM **Identification of Potential QTLs and Genes Associated with Seed Composition Traits in Peanut (*Arachis hypogaea* L.) Using GWAS and RNA-Seq Analysis** Hui Zhang, Ming Li Wang, Phat Dang, Tao Jiang and Charles Yiwu Chen*

208-4 8:50 AM **RNAi-Mediated Inactivation of Rice Plasma Membrane Intrinsic Proteins, OsPIP1;3, OsPIP2;6, Showed Decreased Accumulation and Enhanced Tolerance to Arsenic** Ahmed Meselhy and Om Parkash Dhankher*

208-5 9:05 AM **Quantitative Trait Loci Associated with Tocochromanol Pathway in Barley** Ramamurthy Mahalingam*

208-6 9:20 AM **QTL Mapping of Grain Cadmium and Other Related Metal in Spring Wheat** Jianli Chen*, Ling Qiao, Justin Wheeler, Natalie Klassen, Kyle Isham and Rui Wang

9:35 AM **Adjourn**

SESSION NO. 209—8:00 AM–9:50 AM

Henry B. Gonzalez Convention Center, 007A, River Level

Poster and 5 Minute Rapid--Ph.D. Grad Student Oral (includes Society-wide student competition selection)

C03 Crop Ecology, Management and Quality

Moderator: David Marburger

8:00 AM **Introductory Remarks**

209-1 8:05 AM **Corn Growth and Development: Ear Formation Issues** Osler Ortez*, A. Justin McMechan, Tom Hoegemeyer and Roger W. Elmore

209-2 8:10 AM **Does the Management System for Corn Production Influence the Response to Plant Growth Regulators and Biostimulants?** Connor N. Sible* and Frederick E. Below

209-3 8:15 AM **Variation Among Commercial Corn Hybrids in Response to Agronomic Management** Eric T. Winans* and Frederick E. Below

209-4 8:20 AM **Optimizing Seeding Rate to Maximize Winter Malting Barley Grain Yield and Quality** Greg McGlinch*, Laura E. Lindsey, Matt Hankinson and Raj K. Shrestha

209-5 8:25 AM **Assessment of Yield Gaps in High-Yielding Rice Systems in Uruguay Using Field-Level Data** Meng-Chun Tseng*, Alvaro Roel, Muzio Marella, Gonzalo Zorrilla, Jose A. Terra and Cameron M. Pittelkow

209-6 8:30 AM **Historical Changes in Plant Density Tolerance in Sweet Corn** Daljeet Dhaliwal*

209-7 8:35 AM **Optimum Nitrogen Fertilizer Rate and Timing for Corn Following a Rye Cover Crop** Daniel Quinn*, Hanna Poffenbarger and Chad D Lee

209-8 8:40 AM **Crop Rotation and Cover Cropping: Impacts on Soil Bacterial Communities** Lindsay Chamberlain*, Marian Lund Bolton, Jean-Michel Ané and Shawn P. Conley

8:45 AM **Questions & Answers**

209-9 8:55 AM **Wheat Genotypes Recruiting Disease Suppressive Microbiomes** Christine Jade Dilla Ermita*, Ricky S. Lewis, Tarah S. Sullivan and Scot H. Hulbert

209-10 9:00 AM **Double Cropping Field Pea with Short Season Crops, Forages, and Cover Crops in Eastern Nebraska** Alexandre Tonon Rosa*, Samuel Koeshall, Cody Creech, Keith L. Glewen, Daren D. Redfearn, Mary Drewnoski, Rodrigo Werle and Strahinja Stepanovic

209-11 9:05 AM **Agronomic and Economic Challenges of the Emerging Soybean-Pennycress Cropping System** Julija A. Cubins*, M. Scott Wells, Roger L. Becker, Gregg A. Johnson, Maninder K. Walia, William Lazarus and Russ Gesch

209-12 9:10 AM **Microwave Absorption through a Corn Canopy with Crop Development** Richard Cirone*, Brian K. Hornbuckle and Anton Kruger

209-13	9:15 AM	**Development of a Technique to Estimate Stand in Peanut (Arachis hypogaea L.) for Replant Decisions Using an Unmanned Aerial System.** Sara E. Pelham*, W. Scott Monfort and Vasileios Liakos
209-14	9:20 AM	**Nitrogen and Phosphorus Stoichiometry in Maize Kernels during Grain Filling** Lia B. Olmedo Pico* and Tony J. Vyn
209-15	9:25 AM	**Quantifying Corn Root Growth and Development in Relation to Leaf Nitrogen Levels** Charles Hunt Walne* and K. Raja Reddy
209-16	9:30 AM	**Evaluation of Fungicide Seed Treatments on Hrsw Under Different Tillage, Crop Rotations and Soil Conditions** Ryan Buetow*, Joel Ransom, Andrew Friskop and John Rickertsen
209-17	9:35 AM	**Potassium Fertigation with Deficit Watering Improves Nutritive and Reduces Anti-Nutritive Quality of Cassava** Daniel Wasonga*, Jouko Kleemola, Laura Alakukku and Pirjo S. A. Makela
	9:40 AM	**Questions & Answers**
	9:50 AM	**Adjourn**

SESSION NO. 210—8:00 AM–9:55 AM

Henry B. Gonzalez Convention Center, 006A, River Level

Symposium--Celebrating the Health and Nutritional Potential of Underutilized Crop Species

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

Moderator: Kevin Murphy

	8:00 AM	**Introductory Remarks**
210-1	8:05 AM	**Oat Grain Quality QTL for Marker Development to Breed for Human Nutrition.** D. Jo Jo Heuschele*
210-2	8:25 AM	**Using Wild Emmer (*Triticum dicoccoides*) Genetic Resources to Improve Nutritional Quality of Bread Wheat** Mary Guttieri* and Alan Fritz
210-3	8:45 AM	**Essential Amino Acid Content of a "World Core" Quinoa Collection** Evan Craine* and Kevin Murphy
210-4	9:05 AM	**Development of *Cannabis sativa* As a New Crop for Modern Medicine** Nirit Bernstein*
210-5	9:30 AM	**Millets for Human Health and Nutrition** Dipak K. Santra*
	9:55 AM	**Adjourn**

SESSION NO. 211—8:00 AM–10:00 AM

Henry B. Gonzalez Convention Center, 007D, River Level

Finding a Common Language for Science Workshop

Sponsored by Bayer CropScience

Graduate Student Sessions

SESSION NO. 212—8:00 AM–10:00 AM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

Symposium--Transdisciplinary Contributions and Opportunities in Soil Physical Hydrology

SSSA Division: Soil Physics and Hydrology

Moderator: Jirka Simunek, Keith Bristow

	8:00 AM	**Introductory Remarks**
212-1	8:05 AM	**A Life-Long Ambassador of Water: A Celebration of the Excellent, Timely and Diverse Research Contributions of Emeritus Professor Jan Hopmans** Jasper Vrugt*
212-2	8:30 AM	**Embracing the Digital Environment By Combining Models with Practical Knowledge of Best Soil Hydrology for Plant Root Zone.** Alvin J.M. Smucker* and Andrey K. Guber
212-3	8:55 AM	**Bridging Scales and Disciplines in the Southern Sierra Critical Zone** Anthony Toby O'Geen*
212-4	9:20 AM	**Professor Jan Hopmans – a Highly Successful and Impactful Scientist** Keith L. Bristow*
	9:45 AM	**Discussion**
	10:00 AM	**Adjourn**

SESSION NO. 213—8:00 AM–11:00 AM

Henry B. Gonzalez Convention Center, 006B, River Level

Crop Breeding and Genetics Oral III

C01 Crop Breeding and Genetics

Moderator: Wayne Smith

	8:00 AM	**Introductory Remarks**
213-1	8:05 AM	**Canola Roots – Genetic, Genomic and Transcriptomic Analysis** Mukhlesur Rahman* and Muhammad Arifuzzaman
213-2	8:20 AM	**A New SNP Genomic Selection System to Determine Parent and Cross Worth Indices in Canola (Brassica napus) Breeding** Jack Brown*, Zhiwu S. Zhang, Haixiao Dong, Joseph Kuhl, James B. Davis and Job Ashley
213-3	8:35 AM	**Progress Toward the Identification and Stacking of Crucial Domestication Traits in Pennycress** Ratan Chopra* and M David Marks
213-4	8:50 AM	**Genetic and QTL Mapping in an African Bermudagrass Population** Shuhao Yu*, Yanqi Wu, Liuling Yan, Dennis L. Martin, Justin Quetone Moss, Charles Henry Fontanier, Tilin Fang and Hongxu Dong
213-5	9:05 AM	**Evaluation of Breeding Populations of Guar (*Cyamopsis tetragonoloba* L.) for Cultivation in Southwestern United States** Pradip Sapkota*, Robert Kelby Imel, Weixin Liu, Sangamesh Angadi, Calvin L. Trostle, Ryan Blake Williams, Ellen Beth Peffley, Dick L. Auld and Mark D. Burow
213-6	9:20 AM	**High-Throughput Screening of Soybean Flood-Tolerance in a Hydroponic Environment** Derrick Harrison*, Andrea Acuna, Marcos da Silva, Maria De Olivera, Sandra Liliana Florez-Palacios, Francia Ravelombola, Chengjun Wu and Leandro Mozzoni

213-7	9:35 AM	**Evaluation of a Population Developed for Tolerance to Water Deficit, Introgressed from the Peanut Minicore Collection** Mark D. Burow*, Jennifer Chagoya, Roshan Kulkarni, Michael Baring, Charles E. Simpson, John Cason, James R. Mahan and Paxton Payton
	9:50 AM	**Break**
213-8	10:00 AM	**Effect of Irrigation Levels on Peanut Production and Profitability** Cheng-Jung Sung*, Paxton Payton, James R. Mahan, Jennifer Chagoya and Mark D. Burow
213-9	10:15 AM	***Validation of Cotton Fiber Length and Strength QTLs Identified in a MAGIC Population Using Breeding Populations Derived from Different Genetic Backgrounds*** David D. Fang*, Linghe Zeng, Ping Li and Efrem Bechere
213-10	10:30 AM	**Continued Genetic Improvement of Cotton through Gene-Based Breeding** Yun-Hua Liu, Meiping Zhang, Sing-Hoi Sze, C. Wayne Smith and Hongbin Zhang*
213-11	10:45 AM	**High-Density Linkage Map Construction and QTL Analyses for Fiber Quality, Yield and Morphological Traits Using 63K SNP Array in Upland Cotton (*Gossypium hirsutum* L.)** Linglong Zhu*, Kuang Zhang, Vasu Kuraparthy, Ryan James Andres, Hui Fang, Shilpa Sood and Donald Jones
	11:00 AM	**Adjourn**

SESSION NO. 214—8:00 AM–11:00 AM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

Enhanced Nutrient Availability from the Soil Oral

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Binaya Parajuli, Javed Iqbal

	8:00 AM	**Introductory Remarks**
214-1	8:05 AM	**Does a Healthy Soil Yield More? Moving from Correlation to Causation in N Fertilized Systems** Jordon Wade*, Steven W. Culman, Jessica A.R. Logan, M. Scott Demyan, Matthew D. Ruark, Jamie West, Hanna Poffenbarger, John H. Grove and Antonio P. Mallarino
214-2	8:20 AM	**Can Soil Protein Serve As an Indicator of Soil Nitrogen Availability?** Steven W. Culman*, Jordon Wade, Anthony Fulford, Tunsisa T. Hurisso and Meredith Mann
214-3	8:35 AM	**When to Single or Split Apply Nitrogen Fertilizer to Corn** Jason Clark*, Fabian G. Fernandez, James J. Camberato, Paul R. Carter, Richard B Ferguson, David W. Franzen, Newell R Kitchen, Carrie A.M. Laboski, Emerson Nafziger, John E. Sawyer and John Shanahan
214-4	8:50 AM	**Cover Crop Termination Date Influences Cover Crop Decomposition Rates and Corn N Requirements in Southern Illinois** Oladapo Adeyemi, Amanda M Weidhuner, Pawan Kumar, Gurbir Singh, Randy Lange and Amir Sadeghpour*
214-5	9:05 AM	**Organic Inputs Enhance Maize Productivity and Soil Fertility in the Central Highlands of Kenya** Daniel N. Mugendi*, Monicah Mucheru-Muna and Felix Ngetich
214-6	9:20 AM	**Cover Crop and No-Tillage System for Enhancing Soil Health By Increasing Soil Organic Matter in Soybean Cultivation** Heppy Suci Wulanningtyas* Jr.
	9:35 AM	**Break**
214-7	9:45 AM	**Impact of Soil Acidity and Moisture on Phosphorus Fertilizer Solubility** Meryem Drief*
214-8	10:00 AM	**Improve Phosphorus Availability in Calcareous Soils By Developing Coated P Fertilizer** Khalid Al-Rohily*
214-9	10:15 AM	**The Impact of Biochar in the Rhizosphere in Relation to Soil pH, Biomass Production and P Uptake of Chickpea and Maize Crops in Different Soil Types.** Jude J.O Odhiambo* and Siphiwe G Lusiba
214-10	10:30 AM	**Utilising Soil Nitrogen to Enhance Nutrient Use Efficiency in Temperature Dairy Pastures** Helen Suter*, Oxana Belyaeva and Graeme Ward
214-11	10:45 AM	**Nitrogen Availability from Fall Cover Crops Impacts Fresh Market Tomato Production** Zachary D. Hayden*
	11:00 AM	**Adjourn**

SESSION NO. 215—8:00 AM–11:50 AM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

Soil Fertility and Plant Nutrition General Oral I

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Uttam Saha, Matt Clover

	8:00 AM	**Introductory Remarks**
215-1	8:05 AM	**Validating N Fertilizer Recommendation Models Developed Using USDA-NRCS Hydrologic Soil Groups and Drainage Classifications** Gregory Mac Bean*
215-2	8:20 AM	**Testing the Holland-Schepers Variable-Rate N Application Algorithm in Irrigated Cotton** Kevin F. Bronson*, Kyle H. Holland, James S. Schepers, Matthew R. Conley, Kelly R. Thorp and Douglas J. Hunsaker
215-3	8:35 AM	**A Mechanistic Approach for Determining N Rates in Precision Farming** Merle F. Vigil*, Francisco J. Calderon, David J. Poss and David C. Nielsen
215-4	8:50 AM	**Developing a Response Index to Determine Mid-Season Nitrogen Applications in Rice** Trenton L. Roberts*, Richard J. Norman, Jarrod T. Hardke, Nathan A. Slaton and Kyle Hoegenauer
215-5	9:05 AM	**Impacts of Tile Drainage and Crop Rotation on Nitrogen Dynamics in Corn Based Cropping System in Southeastern Iowa** Javed Iqbal*, Sotirios V. Archontoulis, Aaron M. Sassman and Michael J. Castellano
215-6	9:20 AM	**Nitrogen Mineralization in Long-Term Wheat Experiments** Rezvan Karimi*
215-7	9:35 AM	**Effect of Split Fertilizer Application Via Drip Fertigation on Distribution of Soil Nitrate and Durum Yield** Rezvan Karimi*
	9:50 AM	**Break**
215-8	10:05 AM	**Assessment of Slow-Release Properties of an Organically Enhanced N and S Fertilizer.** Sen H Chien*
215-9	10:20 AM	**Effect of Sulfur Application on Grain Yield and Quality of Malting Barley** Jasper M Teboh*, Szilvia Yuja, Blaine G Schatz, Mike Ostlie and Ezra Aberle

215-10 10:35 AM **New Sulfur Fertilizer Technologies: How Do They Stack up to Traditional Sulfur Sources in Cotton and Corn Systems in the Southeastern Coastal Plain.** William Hunter Frame* and Mark S. Reiter

215-11 10:50 AM **Phosphorus Fertilization and Planting Date Effects on Soybean Yields in North Dakota** Jasper M Teboh*, Szilvia Yuja, Kelly Cooper and Mike Ostlie

215-12 11:05 AM **Irrigated Alfalfa Response to Phosphorus and Potassium in Arizona Calcareous Soil** Worku Burayu* and Ayman Mostafa

215-13 11:20 AM **Potassium Research in 3D: Aspects of Fertility Research Across Spatial Scales** Megan Bourns*, Don Flaten, John Heard and Greg Bartley

215-14 11:35 AM **Sidedressing Corn: Swine Manure Via Dragline Hose Produces Yields Comparable to Commercial Fertilizer** Christopher Pfarr* and Melissa Wilson

11:50 AM **Adjourn**

SESSION NO. 216—8:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

CrossDiv Workshop--Diversity of Practice for Professional Soil Scientists

SSSA Cross-Divisional Symposium

Section or Division Cosponsor: SSSA Division: Pedology, SSSA Division: Soil Education and Outreach, SSSA Division: Wetland Soils, SSSA Division: Soil and Water Management and Conservation

8:00 AM **Introductory Remarks**

216-1 8:15 AM **Characterization of Soils and Landscapes for Stormwater Infiltration** Tracey Jeanette Olexa*

216-2 8:30 AM **Rehabilitation of Severely Disturbed Australian Landscapes** John W. Zupancic* Jr.

216-3 8:45 AM **Solving Rural Septic System Issues** Lesley A. Spokas*

216-4 9:00 AM **Adventures of a Consulting Soil Scientist in the Champlain Valley of Vermont** Sheri Butterfield Young*

216-5 9:15 AM **Muddy Waters: Explorations with a Consulting Wetland Scientist** Rebecca Beduhn*

216-6 9:30 AM **Soils and Stormwater Management** Matthew C. Hostrander*

216-7 9:45 AM **High-Intensity Soil Mapping for Planning Land Development** Laurel F. Mueller*

10:00 AM **Break**

216-8 10:15 AM **Applying Agriculture, Soil Science, Hydropedology and Water Chemistry to Urban Development Planning** James Leslie Henry*

216-9 10:30 AM **Development of Publicly-Funded Small Community Soil-Based Wastewater Projects in Minnesota. Discussion Will Include Technical, Social, Political, Regulatory, and Funding Challenges.** Matthew Summers*

216-10 10:45 AM **The Many Roles of Soil Scientists in Environmental Services** Pierre A. Bordenave*

216-11 11:00 AM **Management Practices Influenced Soil Chemical Properties and Grain Yield of Eroded Crop Land** Maysoon M. Mikha*, Augustine K Obour, Kumar Vipan and Phillip W. Stahlman

216-12 11:15 AM **Describing Soil Profiles for Purposes of Septic Design; Methods of Examining Soil Profiles** James R. Fincham*

11:30 AM **Discussion**

11:55 AM **Concluding Remarks**

12:00 PM **Adjourn**

SESSION NO. 217—8:00 AM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Excellence in Extension Materials on Display II

ASA Section: Education and Extension

Lead Community: Extension Education Community

SESSION NO. 218—8:10 AM–11:30 AM

Henry B. Gonzalez Convention Center, 301B, 3rd Level

Molecular Techniques, Genetics and Plant Breeding Oral (includes student competition)

C05 Turfgrass Science

Moderator: David Jespersen

8:10 AM **Introductory Remarks**

218-1 8:15 AM **Exploring Novel Genetic Donors of Salt Tolerance across the Tetraploid Cultivated Cotton Germplasm (*Gossypium hirsutum*) By Transcriptome Profiling and Genetic Network Modeling.** JungHyun Shim*, Kevin Cushman, Naga Bhushana Rao Karampudi, Lori L. Hinze, Megan Sweeney and benildo de reyes

218-2 8:30 AM **Metabolic Adjustment of Creeping Bentgrass for Improved Drought Tolerance and Post-Drought Recovery By the Colonization of Plant Growth Promoting Rhizobacteria** William Errickson* and Bingru Huang

218-3 8:45 AM **QTL Mapping of Resistance to Gray Leaf Spot in St. Augustinegrass** Xingwang Yu*, Steve E. Mulkey, Maria C. Zuleta, Consuelo Arellano, Bangya Ma and Susana R. Milla-Lewis

218-4 9:00 AM **Genetic Analysis of Drought Response of Tall Fescue [*Festuca Arundinacea* (Schreb.)] in Rain-out Shelter Using Bayesian Mixed Linear Models** Henry Yuanshuo Qu*, Edwin J. Green, Stacy A. Bonos and William A. Meyer

218-5 9:15 AM **Transcriptomic Approach to Identification of Freezing Tolerance Components in Zoysiagrass** Jessica Brown*, Xingwang Yu, Tan D. Tuong, David Livingston and Susana R. Milla-Lewis

9:30 AM **Break**

218-6 9:45 AM **Identification and Validation of Freeze Tolerance and Cold Acclimation Associated QTL in Zoysiagrass** Jessica Brown*, Xingwang Yu, Tan D. Tuong, Brian M. Schwartz, Aaron J. Patton, Consuelo Arellano, David Livingston and Susana R. Milla-Lewis

218-7 10:00 AM **Assessment of Tillering and Rhizomatous Growth in Strong Creeping Red Fescue** Nicole T Mihelich*, Dominic P Petrella, Florence Sessoms, Laura M Shannon and Eric Watkins

218-8 10:15 AM **Increasing Competition in Perennial Ryegrass Selection Nurseries Bolsters Prediction Accuracy** Garett Heineck*, Nancy Jo Ehlke, Kayla Altendorf and Eric Watkins

218-9 10:30 AM **Engineering Dollar Spot Resistance in *Paspalum Vaginatum* (Seashore Paspalum) By Biolistic Gene Transformation.** Katherine E Catching and Paul L. Raymer*

218-10 10:45 AM **Molecular Genetic Variability of Bermudagrass Collected in the Transitional and Northern US** Christopher Reid*, Yanqi Wu and Charles Henry Fontanier

218-11 11:00 AM **Unveiling Transcriptome Composition in Hexaploid Hard Fescue (*Festuca brevipila*) through Pacbio Isoform Sequencing** Yinjie Qiu*, Cory Hirsch and Eric Watkins

218-12 11:15 AM **Quantitative Trait Locus Mapping for Growth Habit Morphology Traits in Perennial Ryegrass (*Lolium perenne* L.)** Phillip L. Vines*, Josh A. Honig, Jennifer Vaiciunas, Christine Kubik, Eric N. Weibel, William A. Meyer and Stacy A. Bonos

11:30 AM **Adjourn**

SESSION NO. 219—8:10 AM–12:00 PM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

Nutrient Management and Soil and Plant Analysis General Oral II

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Manjula Nathan, Ross Bender

8:10 AM **Introductory Remarks**

219-1 8:15 AM **Effectiveness of Post-Emergence Sidedressed Fluid Potassium Fertilizer in Corn** Antonio P. Mallarino* and Louis B. Thompson

219-2 8:30 AM **Extraction Method and Sampling Time Effects on Soil-Test and Non-Exchangeable Potassium in Iowa** Ryan R. Oltmans* and Antonio P. Mallarino

219-3 8:45 AM **Analysis of Various Plant Nutrient Concentrations in the Corn and Cotton Leaf Tissues By Visible-Near Infrared Spectroscopy** Uttam K. Saha* and Jason T. Lessl

219-4 9:00 AM **Coupling Multi-Omics Analyses of the Rhizosphere with Laser Ablation-Irms Could Spatially Decipher Plant Preference for Nutrient Acquisition.** Matthew J Peterson*, Pubudu P Handakumbura, Zachary Russell, Christer Jansson, Young-Mo Kim, Sarah J. Fansler, Montana Smith, Jason Toyoda, Rosey Chu, Bryan Stanfill, Allison Thompson, Steven C. Fransen, Elizabeth Denis, Nicholas Huggett, Vivian Lin, Kim Hixson, Stephen Callister and James Moran

219-5 9:15 AM **Estimating Soil Properties Using Mid-Drifts Specific Peak Areas** Leonardo Deiss*, Tania Burgos-Hernandez, Aista Sall, Thomas Doohan, Jaimie R West, Yichao Rui, Andrew J. Margenot, Steve Culman and M. Scott Demyan

219-6 9:30 AM **Assessment of LIBS for the Determination of Soil Organic Carbon** Robert O. Miller* and Russell Harmon

219-7 9:45 AM **Long Term Effects of Bio Fuel Cropping Systems on Soil Quality** Manjula V. Nathan*, Robert J. Kremer, Yichang Sun, Kelly A. Nelson and Timothy M. Reinbott

10:00 AM **Break**

219-8 10:15 AM **Determining Grid Sample Size for Soil Testing- Science or Magic** M. Wayne Ebelhar* and Richard E. Turner

219-9 10:30 AM **Classical and Geostatistical Soil Sampling from Past to Present: The Challenge of Agroecosystem Complexity** Patrick Lawrence*, Wayne R Roper III, Thomas F. Morris and Karl Guillard

219-10 10:45 AM **The Effect of Micronutrients and Macronutrients on the Development and Grain Yield of Annual Canarygrass (Phalaris canariensis L.)** William May*

219-11 11:00 AM **Determination of ZINC (Zn) Requirement of Cassava (*Manihot esculenta* Crantz) in Soils Derived from Coastal Plain SANDS of South Eastern Nigeria.** Damian O. Asawalam*

219-12 11:15 AM **Distribution of Total Sulphur Content in South African Tea-Growing Soils with Varying Physico-Chemical Characteristics** Funso Raphael Kutu* and Adeola M Ojo

219-13 11:30 AM **New Novel Approach for Nutrient Analysis in Plant Tissue Analysis Using ED-XRF without Acid Digestion** Thomas Bloomer*

219-14 11:45 AM **Fifteen Site-Years of Testing the Cation Saturation Ratio Approach to Soil Management: Effects on Soils, Crops and Weeds** Steven W. Culman, Douglas Doohan, Vijay S Chaganti, Catherine Herms, Alan P. Sundermeier, Katie Linder, Mohseni Moghadam, Andrea Leiva Soto, Louceline Fleuridor and Warren A Dick*

12:00 PM **Adjourn**

SESSION NO. 220—8:15 AM–9:50 AM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Soils in Ecological Restoration Oral (includes Society-wide student competition selection)

SSSA Division: Forest, Range and Wildland Soils

Section or Division Cosponsor:
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Wetland Soils, SSSA Division: Pedology,
SSSA Division: Soils and Environmental Quality,
SSSA Division: Soil and Water Management and Conservation,
SSSA Division: Urban and Anthropogenic Soils

Moderator: M. Derek Mackenzie

8:15 AM **Introductory Remarks**

220-1 8:20 AM **Biochar As a Reclamation Amendment for Oil Sands Exploration Pads in Boreal Alberta** M. Derek Mackenzie*, Saira Ali and Jocelyn Kowalski

220-2 8:35 AM **Stability of Soil Carbon Storage in Afforested Lands** JEROME LAGANIERE* and Denis Angers

220-3 8:50 AM **A Chronosequence of Soil Health Under Tallgrass Prairie Reconstruction in Central Missouri** Chenhui Li*, Kristen Sloan Veum, Keith W. Goyne and Veronica Acosta-Martinez

220-4 9:05 AM **Height Growth of Three Hardwood Species in Mine Soils Compared to Forest Soils** Jeffrey G. Skousen* and Kara Dallaire

220-5 9:20 AM **Can Nitrogen-Fixing Bacteria Help Reclaim Gravel Mining Sites?** Kiran Preet Padda*, Akshit Puri and Chris P Chanway

220-6	9:35 AM	**Soil Microbial Diversity and Function of Loblolly Pine and Mixed Loblolly Pine and Hardwood Forests Two Decades after Establishment on Retired Pastures in Northwest Louisiana** Michael A Blazier*, Ales Kucera and Lewis Gaston
	9:50 AM	**Adjourn**

SESSION NO. 221—8:15 AM–10:15 AM

Henry B. Gonzalez Convention Center, 007B, River Level

Symposium--Big Data and the Digital Environment in Forage and Grazinglands Research

Sponsored by Noble Research Institute

C06 Forage and Grazinglands

Moderator: Jamie Foster Malone, Joao Vendramini

	8:15 AM	**Introductory Remarks**
221-1	8:20 AM	**Use and Reuse of Agricultural Big Data** Seth C Murray*
221-2	8:45 AM	**Relevant "Big Data" Collection Tools and Their Use in Forage and Grazinglands Research** Jay Angerer*
221-3	9:10 AM	**Statistical Approaches in Forage and Grazinglands Research: Traditional Vs. "BIG Data"** Edzard van Santen*, William B. Smith and Francis M. Rouquette Jr.
221-4	9:35 AM	**Successful Uses, Cautionary Tales, and Great Expectations: "Big Data" and Forage and Grazinglands Research** Lynn E. Sollenberger* and Twain J. Butler
	10:00 AM	**Discussion**
	10:15 AM	**Adjourn**

SESSION NO. 222—8:15 AM–10:20 AM

Henry B. Gonzalez Convention Center, 007C, River Level

Symposium--Native Genes from Exotic Germplasm and Wild Relatives for Improving Crop Disease and Insect Resistance: Part II - Molecular Characterization and Marker-Assisted Selction

C08 Plant Genetic Resources

	8:15 AM	**Introductory Remarks**
222-1	8:20 AM	**Improving Resistance to SCN in Soybean with QTL from *Glycine Soja*** Brian Diers*
222-2	8:50 AM	**Insights of Disease Resistance Genes - Maize Rough Dwarf Disease As a Case Study** Mingliang Xu*
222-3	9:20 AM	**Identifying and Developing Maize Germplasm with Resistance to Aflatoxin Accumulation** W. Paul Williams*
222-4	9:50 AM	**Using Genomic Tools to Improve Wheat Resistance to Fusarium Head Blight** Guihua Bai*
	10:20 AM	**Adjourn**

SESSION NO. 223—8:15 AM–10:05 AM

Henry B. Gonzalez Convention Center, 216B, 2nd Level

Tips, Tricks, and Techniques for Effective Extension and Outreach Oral

SSSA Division: Soil Education and Outreach

Moderator: Jodi Johnson-Maynard

	8:15 AM	**Introductory Remarks**
223-1	8:20 AM	**Anatomy of an 8-Hour Workshop: Promoting Engagement and Learning Among Adult Professionals** Alissa Cox*, Bianca Ross and Sara Wigginton
223-2	8:35 AM	**Getting the Message out: Comparing the Effect of Different Information and Communication Technologies in Delivering Agricultural Advice to Farmers in Nepal** Nicoletta Giulivi*
223-3	8:50 AM	**USDA National Needs Fellows: Connecting Soil Science, Chemical Engineering, and Extension** Catherine E. Brewer*, April L. Ulery, John Idowu and Ram Acharya
223-4	9:05 AM	**Sequencing the Undie-Sphere: A Brief Survey of Soil Microbial Communities in Ontario Agricultural Landscapes** Lori Phillips*, Brent Seuradge and Anne Verhallen
223-5	9:20 AM	**No P on My Lawn! an Urban Nutrient Management Education Program** Brad D. Lee*, Richard E. Durham, Gregg C. Munshaw and Suzette Walling
223-6	9:35 AM	**Lessons Learned: Urban Stream and Floodplain Enhancement Demonstration Projects at Auburn University** Eve Brantley* and Thorsten Knappenberger
223-7	9:50 AM	**Outreach through Visual and Spatial Representations of the Nature and Extent of Impact on Agricultural System in Navajo Nation after the 2015 Gold King Mine Spill** Gaurav Jha*, April L. Ulery and Kevin A Lombard
	10:05 AM	**Adjourn**

SESSION NO. 224—8:40 AM–11:10 AM

Henry B. Gonzalez Convention Center, 210B, 2nd Level

One Health Vision, Healthy Soils, Healthy Food, Healthy People Oral

SSSA Division: Soil and Water Management and Conservation

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality,
SSSA Division: Nutrient Management and Soil and Plant Analysis,
SSSA Division: Soil Biology and Biochemistry

Moderator: Gurpreet Kaur, Bhupinder Farmaha

	8:40 AM	**Introductory Remarks**
224-1	8:45 AM	**Building a Nitrogen Credit System for Sustainable Agriculture** Deli Chen*, Baojing Gu, Hans J.M. Van Grinsven, Shu Kee Lam and Oene Oenema
224-2	9:00 AM	**Crop Yield Stability Under Weather Extremes As a Function of Soil Resilience** Amin Nouri Gharahassanlou*, Jaehoon Lee, Daniel C. Yoder, Forbes R. Walker, Sindhu Jagadamma, Xinhua Yin and Prakash R. Arelli

224-3	9:15 AM	**Biochar As Soil Amendment to Improve Flooded Sandy Soil for Corn Production** Nastaran Basiri Jahromi*, Jaehoon Lee, Matthew Johnsen, Amy Fulcher, Amin Nouri Gharahassanlou, Forbes R. Walker, Sindhu Jagadamma and Prakash R. Arelli
224-4	9:30 AM	**SOC, N, P and K Dynamics in Saline Soils Irrigated with Treated Municipal Wastewater to Produce Energy Sorghum in Arid West Texas** Girisha Keshavamurthy Ganjegunte*, Vijayasatya Nagendra Chaganti and Anil Somenahally
	9:45 AM	**Break**
224-5	9:55 AM	**Healthy Food Connects to Healthy Soils** Rafiq Islam*, Nataliia O Didenko, Vira Konovalova and Rushena A Kupiedinova
224-6	10:10 AM	**Assessing the Agricultural Capacity to Expand Fruit, Vegetable, and Legume Production in the U.S.** Ashley C. McCarthy*, Timothy S. Griffin, Sumeeta Srinivasan and Christian J. Peters
224-7	10:25 AM	**American Farmland Trust's Farmers Combating Climate Change Initiative** Jennifer Moore-Kucera*
224-8	10:40 AM	**The Role of Hedgerows in Supporting Multiple Agroecosystem Functions in Smallholder Systems of the Andean Highlands** Steven J Fonte*, Anna Visscher, Steven J Vanek, Katherin Meza Retamozo, Ron G.M. de Goede, Raul Ccanto, Edgar Olivera and Maria Scurrah
224-9	10:55 AM	**Have We Reached Peak Soil Cover on the Canadian Prairies?** Francis J. Larney*
	11:10 AM	**Adjourn**

SESSION NO. 225—8:25 AM–11:45 AM

Henry B. Gonzalez Convention Center, 210A, 2nd Level

Management Impacts on Soil Properties and Soil C and N Dynamics Oral I

SSSA Division: Soil and Water Management and Conservation

Moderator: Andres Rodriguez, Surendra Singh

	8:25 AM	**Introductory Remarks**
225-1	8:30 AM	**Soil Organic Carbon and Nitrogen Cycling in Semiarid Southern High Plains Agroecosystems** Rajan Ghimire*, Babu Ram Khanal and Amy Ganguli
225-2	8:45 AM	**Long-Term Influence of Crop Sequences, Bio-Covers, and Aggregate Sizes on Organic Carbon and Nitrogen in Soil Profile Under No-Tillage** Sangeeta Bansal*, Xinhua Yin, Virginia R. Sykes, Sindhu Jagadamma and Jaehoon Lee
225-3	9:00 AM	**Organic Carbon Fractions and Soil Aggregate Stability UNDER Different Landuse Types in Ile Ife Nigeria** Durodoluwa Joseph Oyedele*, Bankole Akinde and Oladapo Fatai Tijani
225-4	9:15 AM	**Long-Term Conservation Management Increased Organic C and Microbial Biomass Only in the Top Soils of a Norfolk Soil** Binaya Parajuli*, Min Luo and Rongzhong Ye
225-5	9:30 AM	**Evaluation of Soil Organic Matter from Integrated Production Systems in Tropical Region** Amanda M Tadini*, Alfredo A. P. Xavier, Ladislau Martin-Neto, Débora M.B.P. Milori and Alberto C. de Campos Bernardi
225-6	9:45 AM	**Soil Inorganic Carbon – an Important Form of Carbon Sequestration with Crop Rotations in Dryland Cropping Systems** Upendra M. Sainju*, Brett L. Allen, William B. Stevens and Jalal D Jabro
	10:00 AM	**Break**
225-7	10:15 AM	**Restoring Soil Organic Carbon in Degraded Ultisols: Is Soil Structure the Key?** Rongzhong Ye* and Binaya Parajuli
225-8	10:30 AM	**Mixed Crop Residue Contribution to Soil N Dynamics in Long-Term No-till Systems** Rashad Alghamdi* and Larry J. Cihacek
225-9	10:45 AM	**Sixty Years of Irrigation and Fertilizer Influence on Pasture Soil Carbon: A Radiocarbon Archive Study** Shane Stoner*
225-10	11:00 AM	**Comparative Assessment of Biomass Production, Soil Water Use, and Soil Health of Cover Crop Species across Soil Types** Bhupinder Singh Farmaha*
225-11	11:15 AM	**Impacts on Soil Health Resulting from Use of Double Crops or Cover Crops Instead of Fallow Management in Dryland Winter Wheat Production in the Semi-Arid Texas Rolling Plains** Brian Hux*, Terry J. Gentry, Paul B. DeLaune and Partson Mubvumba
225-12	11:30 AM	**Soil Moisture Depletion in Drip-Irrigated Cotton Under Deficit Irrigation Practices in Texas High Plains** Atinderpal Singh*, Sanjit K Deb, Sukhbir Singh and Eduardo Escamilla
	11:45 AM	**Adjourn**

SESSION NO. 226—8:50 AM–11:55 AM

Henry B. Gonzalez Convention Center, 212A, 2nd Level

Soil-Based Wastewater Treatment: Impact and Mechanisms Oral (includes student competition)

SSSA Division: Soils and Environmental Quality

Moderator: Alissa Cox, Sara Wigginton, Bianca Ross

	8:50 AM	**Introductory Remarks**
226-1	8:55 AM	**Assessing Nitrogen Inputs to the Charlestown Coastal Watershed from Advanced Onsite Wastewater Treatment Systems** Bianca Ross*, Jose Adolfo Amador and George Loomis
226-2	9:10 AM	**Assessment of Redox Conditions in Septic Systems Using IRIS Tubes** Jose Adolfo Amador*, Mark Stolt, George Loomis, Sara Wigginton and Bianca Ross
226-3	9:25 AM	**Comparison of Soil-Based Treatment of Nutrients and Bacteria By Three Onsite Wastewater Systems in Eastern North Carolina** Charles P Humphrey* Jr., Guy Iverson and Mike O'Driscoll
226-4	9:40 AM	**Nutrients Dynamics in Onsite Wastewater Treatment Systems** Gurpal Toor*, Mriganka De and Sara Mechtensimer
226-5	9:55 AM	**Comparison of Soil Renovation of Primary Vs. Secondary Pre-Treatment Using Drip Irrigation on a Moderately Well Drained Soil.** Joseph A. Valentine* and Lawrence D. Hepner Jr.
226-6	10:10 AM	**Modeling of Land-Based Food Processing Wastewater Treatment System to Improve Carbon Degradation and Nitrogen Removal** Younsuk Dong* and Steven Safferman
	10:25 AM	**Break**

226-7	10:40 AM	**Tracing Biomat Growth in Soil Treatment Units Using a Network of Automated Soil Sensors** Jan Knappe*, Celia Somlai, Andrew C. Fowler and Laurence Gill
226-8	10:55 AM	**Nitrogen Removal and Microbial Communities in Soil Treating Septic System Wastewater** Sara Wigginton*, George Heufelder, George Loomis and Jose Adolfo Amador
226-9	11:10 AM	**Transformations, Transport Mechanisms, and Human Health Risk Assessment of Micro-pollutants in Onsite Wastewater Treatment Systems** Yun-Ya Yang* and Gurpal Toor
226-10	11:25 AM	**A Peek below the Ground Surface: Ground-Penetrating Radar and Long-Term Monitoring Wells Suggest Coastal Septic Systems Are Threatened By Elevated Groundwater Tables** Alissa Cox*, Deborah Surabian, Jim Turenne, George Loomis and Jose Adolfo Amador
226-11	11:40 AM	**Nutrient Impacts of Domestic WaStewater Treatment Systems on Surface Water Quality in Poorly Permeable Subsoils** Laurence Gill*, Laura Brophy, Donata Dubber, Chris Fennell, Jan Knappe and Bruce Misstear
	11:55 AM	**Adjourn**

SESSION NO. 227—9:00 AM–10:45 AM

Henry B. Gonzalez Convention Center, 006C, River Level

Sources, Transport and Management of Pollutants in Urban Stormwater Runoff Oral (includes student competition)

SSSA Division: Urban and Anthropogenic Soils

Moderator: Mary Lusk

	9:00 AM	**Introductory Remarks**
227-1	9:05 AM	**Characterization of Phosphorus in Stormwater and Stormwater Pond Sediments in Urban Residential Neighborhoods with Contrasting Urban Form** Mary G Lusk*
227-2	9:20 AM	**Rebirth to Adolescence: A 16-Year Investigation of Excess Phosphorus Discharge from a Restored Farmed Wetland in Suburban Chicago** James Montgomery*, J. Marshall Eames and Christie Klimas
227-3	9:35 AM	**How Do Urban Stormwater Infiltration Basins Treat Nitrogen Along a Hydrologic Flow Path Gradient?** Qianyao Si*, Mary G Lusk, Patrick W. Inglett and Jean-Claude Bonzongo
227-4	9:50 AM	**Modeling Nitrogen Loading from Leaking Septic Systems in Coastal Urban Watersheds Using Arcnlet** Yongshan Wan*
227-5	10:05 AM	**Carbon Dynamics of Urban Stoemwater Ponds: Burial, Gas Flux, and OM Quality** Audrey Goeckner* and Mary G Lusk
227-6	10:20 AM	**LEAF Litter on Urban Impervious Surfaces As a Source of Nitrogen and Phosphorus in Stormwater Runoff** Zijing Liao*
	10:35 AM	**Concluding Remarks**
	10:45 AM	**Adjourn**

SESSION NO. 228—9:00 AM–11:05 AM

Henry B. Gonzalez Convention Center, 216A, 2nd Level

Symposium--Emerging Contaminants in Soil, Water, and Plant Systems

SSSA Division: Soils and Environmental Quality

Moderator: Wei Zhang

	9:00 AM	**Introductory Remarks**
228-1	9:05 AM	**Uptake, Accumulation and Metabolism of Pharmaceuticals in Soil-Water-Plant Systems** Hui Li*
228-2	9:35 AM	**Plant-Driven Processes Influencing the Accumulation of Wastewater-Derived Organic Contaminants** Joel A. Pedersen*
228-3	10:05 AM	**From Farm to Fork: Tracking Antibiotic Resistance in Agro-Ecosystems at Field-Scale** Lauren Wind*, Leigh-Anne Krometis, W. Cully Hession, Chaoqi Chen, Kang Xia, Kendall Fogler, Monica Ponder and Amy Pruden
228-4	10:35 AM	**Inactivation of *Legionella Pneumophila* Harbored By Amoebae Using a Nano-Enabled Alternative Technology** Navid Saleh*, Craig Ayres and Mary Jo Kirisits
	11:05 AM	**Adjourn**

SESSION NO. 229—9:00 AM–11:50 AM

Henry B. Gonzalez Convention Center, 213B, 2nd Level

Conservation Practices That Improve Water Quality Outcomes Oral (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor:
SSSA Division: Soil and Water Management and Conservation

Moderator: Katherine Tully, Elizabeth de la Reguera

	9:00 AM	**Introductory Remarks**
229-1	9:05 AM	**Seasonal Variability of Nitrate-N Loads from Controlled Drainage Systems across the Midwest Region** Giorgi Chighladze*, Matthew J Helmers, Lori J. Abendroth, Laurent Ahiablame, Barry Allred, Laura C. Bowling, Norm Fausey, Jane Frankenberger, Dan B. Jaynes, Eileen J. Kladivko, Kelly A. Nelson, Lindsay Pease, Benjamin Reinhart, Jeffrey S. Strock and Mohamed A. Youssef
229-2	9:20 AM	**Reducing Nitrate Leaching By Interseeding Cover Crops Early and Killing Them Late.** Nathan M Sedghi*, Rebecca J. Fox, Catherine Gaudlip, Leslie A. Sherman and Ray Weil
229-3	9:35 AM	**Projected Water Quality Benefits of an Intensively Managed Agricultural Watershed Under an Alternative Bioenergy Landscape** Julian F. Cacho*, M. C. Negri, J. J. Quinn, M. Ha, L. J. Walston and M. Wu
229-4	9:50 AM	**Impacts of Flue Gas Desulfurization Gypsum Application on Water Quality and Crop Production in Southern Illinois** Harpreet Kaur*, Karl W.J. Williard, Jon E. Schoonover, Jennie Snyder and Gurbir Singh

229-5	10:05 AM	**Low-Grade Weirs As a Management Practice for Nutrient Removal in Agricultural Drainage Ditches in the Upper Mississippi River Basin** Jeffrey S. Strock*, Andry Ranaivoson, Brent J. Dalzell, Gary Feyereisen and Axel Garcia y Garcia
229-6	10:20 AM	**Bioreactors As a Management Practice for Nutrient Removal from Agricultural Drainage in the Upper Mississippi River Basin** Andry Ranaivoson*, Jeffrey S. Strock, Brent J. Dalzell, Gary Feyereisen and Axel Garcia y Garcia
	10:35 AM	**Break**
229-7	10:50 AM	**Phosphorus Application on Frozen Soils and Loss from a No-till Cover Crop Terrace** Gurbir Singh* and Kelly A. Nelson
229-8	11:05 AM	**Cover Crops and Nutrient Loss from the Edge-of-Field Network in Northwest Ohio** Emily W. Duncan, Brittany Hanrahan, Kevin King, Vinayak S. Shedekar* and William R. Osterholz
229-9	11:20 AM	**Changes in Nutrient Concentrations Leaving Plots through Subsurface Drainage Systems after Planting Rye Cover Crop** Arun Bawa*, Rachel MacDowell, Juan D. Perez-Guatierrez, John McMaine, Peter J. Sexton, Shannon L. Osborne and Sandeep Kumar
229-10	11:35 AM	**Runoff and Nutrient Transport When Transitioning to Conservation Management in Furrow-Irrigated Corn** Gene Spencer*, L. Jason Krutz, Martin A. Locke, Drew M. Gholson, Bobby R. Golden, Brien Henry and Corey Bryant
	11:50 AM	**Adjourn**

SESSION NO. 230—9:25 AM–11:10 AM

Hilton Palacio del Rio, La Vista DE, 22nd Floor

Share Your Science--By Video! Oral

ASA Section: Agronomic Production Systems

Moderator: Newell Kitchen

	9:25 AM	**Introductory Remarks**
230-1	9:30 AM	**Corn Videos to Supplement Research, Extension, and Teaching** William Brien Henry, John J. Williams* and Louis Wasson
230-2	9:38 AM	**Optimizing Corn Seeding Depth By Soil Texture and Landscape Position to Improve Emergence Uniformity** Stirling Stewart*, Newell R Kitchen and Lance Conway
230-3	9:46 AM	**Virtual Reality in Classroom** Te-Ming Paul Tseng*, Shandrea Stallworth and Brooklyn Schumaker
230-4	9:54 AM	**Evaluating Corn Nitrogen Sources** Eric Richer*, Kenzie Johnston, Robert Leeds, Rachel Leggett and Jacci Smith
230-5	10:02 AM	**Undercover Diagnostic Tools for Farmers and Scientists** Eric B. Brennan*
	10:10 AM	**Discussion**
230-6	10:20 AM	**Hands-on Lab for Introduction to Agronomy Course** Alexander J. Lindsey*, Rose Vagedes and Bruce A Ackley
230-7	10:28 AM	**Preplant Burndown Using Organic Herbicides** Nels E. Hansen* and Jessica Wayment
230-8	10:36 AM	**Planting Depth and Soil Series Effect on in-Furrow Soil Sensor Performance** Lance Conway, Curtis Ransom*, Newell R Kitchen, Kenneth A Sudduth, D. Brenton Myers, Alexander J. Lindsey and Paul R. Carter
230-9	10:44 AM	**Using Drone Based Sensors to Direct Variable-Rate Aerial Nitrogen Fertilizer Application** Laura Thompson*
230-10	10:52 AM	**A New Innovative Soil Water Conservation That Doubles Root Zone Water Contents Maximizing Production with Half the Water** Alvin J.M. Smucker* and Brian C. Levene
	11:00 AM	**Concluding Remarks**
	11:10 AM	**Adjourn**

SESSION NO. 231—9:40 AM–12:00 PM

Henry B. Gonzalez Convention Center, 212B, 2nd Level

Soil and Water Management and Conservation General Oral II

SSSA Division: Soil and Water Management and Conservation

Moderator: Sushil Thapa, Ekrem Ozlu

	9:40 AM	**Introductory Remarks**
231-1	9:45 AM	**Nutrient Movement in Great Lakes Restoration Initiative Focus Area – Sediment Source Tracking, Edge-of-Field Monitoring, and Tile Drains** Tanja N. Williamson*, Edward Dobrowolski, diana karwan, Randall K. Kolka, Faith Fitzpatrick and ethan pawlowski
231-2	10:00 AM	**Phosphorus Sources, Sinks, and Mobility in an Agricultural Watershed, Iowa, USA** John L. Kovar*, William J. Beck, Thomas M. Isenhart, Suroso Rahutomo, Michael L. Thompson, Keith E. Schilling, Peter L. Moore, Richard C. Schultz and Mark D. Tomer
231-3	10:15 AM	**Effect of Eastern Red Cedar Plantings on Soil Hydraulic Properties in the U.S. Great Plains** Thomas J. Sauer* and Eric C. Brevik
231-4	10:30 AM	**Biochar As a Soil Additive: Effect on Physical Properties.** Abdulaziz Alghamdi*
	10:45 AM	**Break**
231-5	11:00 AM	**Dairy Liquid Manure Injection Method to a Cover Crop Affects Phosphorus Losses** Francisco J. Arriaga*, Nicholas Bero, Matthew D. Ruark, Heidi J. Johnson and Kevin Shelley
231-6	11:15 AM	**Wintertime Processes and Soil Dynamics: The State of the Science** Nicholas J. Balster*, Edward Boswell, Anita M. Thompson and Francisco J. Arriaga
231-7	11:30 AM	**Ancient Chinese Water Management As Detailed in Ritual Bronzes** Bruce Jones*
231-8	11:45 AM	**Priming of Soil Nitrous Oxide Fluxes: Moisture, Carbon and Nitrogen Additions** Erin J. Daly, Sisi Lin, Carmen C. Roman, Ekanayaka M.S.K. Thilakarathna and Guillermo Hernandez*
	12:00 PM	**Adjourn**

SESSION NO. 232—9:25 AM–12:00 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

Soil Remediation and Pollution Control: Biogeochemical Processes of Organic, Inorganic, and Biological Contaminants Oral (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality

Moderator: Jianming Xu, Yan He, Zhijiang Lv, Sanjai Parikh, Fungai Mukome

	9:25 AM	**Introductory Remarks**
232-1	9:30 AM	**Implications for Soil Remediation: Insight from Health Risk Analysis** Xingmei Liu*, Shiyan Yang, Mingjiang He and Jianming Xu
232-2	9:45 AM	**Silicon Coprecipitation with Green Rust Carbonate and Sulfate and Its Effects on Formation and Air-Oxidation** Aaron R. Betts* and Donald L. Sparks
232-3	10:00 AM	**Cadmium Is More Toxic to Microbial Mediated N Transformation in a Paddy Soil Under Non-Flooding Than Flooding Conditions** Muhammad Afzal, Mengjie Yu and Jianming Xu*
232-4	10:15 AM	**The Potential Coupling Network between Dechlorinators and Methanogens in Anaerobic Systems** Jing Yuan*, Yan He and Jianming Xu
232-5	10:30 AM	**Phytoremediation of Arsenic and the Immobilization of Lead in Soil: The Impacts of Apatite Particle Size** Andrew Lee* and Paul Schwab
	10:45 AM	**Break**
232-6	11:00 AM	**Assembly of Root-Associated Microbiomes of Typical Rice Cultivars in Response to Lindane Pollution** Jiayin Feng*, Yan He, Zhijiang Lu and Jianming Xu
232-7	11:15 AM	**Biochar Combined with Compost to Reduce the Mobility, Bioavailability and Plant Uptake of Organic Pollutants in Soil** Leilei Xiang* and Fang Wang
232-8	11:30 AM	**Outstanding Performance for Cd Remediation Using a Novel Biochemical Composite Synthesized with Bacillus Sp. K1 and Magnetic Biochar: Both in Aqueous Solution and Natural Soils** Lu Wang*, zhangtao Li, Jizi Wu, Jianming Xu and Xingmei Liu
232-9	11:45 AM	**An Integrated Analysis on Source-Exposure-Risk of Metal Accumulations in Agriculture Soils Near Intense Electronic Waste Recycling Activities** Shiyan Yang*, Mingjiang He, Xingmei Liu and Jianming Xu
	12:00 PM	**Adjourn**

SESSION NO. 233—9:30 AM–11:00 AM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

Symposium--Program Assessment - How Do I Do It and How Can I Publish It?

ASA Section: Education and Extension

Lead Community: K-16 Education and Outreach Community

Moderator: Melanie Bayles

	9:30 AM	**Introductory Remarks**
233-1	9:45 AM	**A Roadmap to Create Effective Online Survey Design with Robust Data Collection** Chih Ming Chung* and Kelva Hunger
233-2	10:15 AM	**Program Assessment - How Do I Do It? Part II** Kelva Hunger*
	10:45 AM	**Discussion**
	11:00 AM	**Adjourn**

SESSION NO. 234—9:30 AM–11:35 AM

Hilton Palacio del Rio, La Vista AB, 22nd Floor

Symposium--Opportunities through Industry-Academia Partnerships for Emerging Biofuel Feedstock Commercialization

ASA Section: Agronomic Production Systems

Lead Community: Bioenergy Systems Community

Moderator: Ramdeo Seepaul, Ratan Chopra

	9:30 AM	**Introductory Remarks**
234-1	9:35 AM	**Covercress – a Novel Oilseed Winter Crop with Canola-like Composition That Helps to Prevent Soil Erosion** Tim Ulmasov*
234-2	10:00 AM	**Employing CRISPR Gene Editing and EMS Mutagenesis to Rapidly Domesticate Pennycress As an Oilseed-Producing Cash Cover Crop** John Sedbrook*
234-3	10:25 AM	**The Future of Low Carbon Biofuel Feedstocks** Glenn Johnston*
234-4	10:55 AM	**Aviation Industry Interest in Emerging Oilseed Feedstocks for the Production of Sustainable Aviation Fuel and Multiple High Value Co-Products.** Steve Csonka*
	11:25 AM	**Discussion**
	11:35 AM	**Adjourn**

SESSION NO. 235—9:30 AM–11:35 AM

Hilton Palacio del Rio, La Vista F, 22nd Floor

Symposium--New Developments for Improving Genomic Selection Methods Under Complex Scenarios

ASA Section: Biometry and Statistical Computing

Lead Community: Bioinformatics in Crops and Soils Community

	9:30 AM	**Introductory Remarks**

235-1	9:35 AM	**Multi-Omics Integration for Modeling Drought Stress Response in Soybean** Hiroyoshi Iwata*, Yusuke Toda, Yuji Yamasaki, Kai Uchida, Yoshihiro Ohmori, Hirokazu Takahashi, Mai Tsuda, Hideki Takanashi, Hiromi Kajiya-Kanegae, Hisashi Tsujimoto, Yuji Sawada, Akito Kaga, Mikio Nakazono and Toru Fujiwara
235-2	10:15 AM	**Putting Secondary Phenotyping to Work in Genomic Prediction** Fred van Eeuwijk*
235-3	10:35 AM	**Statistical Models and Methods for Increasing Genome and Phenome Prediction Accuracy in Plant Breeding** Jose Crossa*, Osval Antonio Montesinos Lopez, PAULINO PEREZ RODRIGUEZ and Juan Diego Hernandez Jarquin
235-4	11:15 AM	**Coupling Day Length Data and Genomic Prediction Tools for Predicting Time-Related Traits Under Complex Scenarios** Juan Diego Jarquin*, Hiromi Kajiya-Kanegae, Chen Taishen, Shiori Yabe, Reyna Persa, Jianming Yu, Hiroshi Nakagawa, Masanori Yamasaki and Hiroshi Iwata
	11:35 AM	**Adjourn**

SESSION NO. 236—8:15 AM–10:20 AM

Henry B. Gonzalez Convention Center, Cantilever Room, 2nd Level

Symposium--Managing Plant-Soil-Microbe Partnerships for Soil Carbon Stabilization and Nutrient Cycling: From Genes to Landscapes

SSSA Division: Soil Biology and Biochemistry

	8:15 AM	**Introductory Remarks**
236-1	8:20 AM	**Probing the Quantitative Ecology of Soil Bacteria** Bram Stone*, Junhui Li, Egbert Schwartz, Ember Michelle Morrissey, Kirsten Hofmockel, Jennifer Pett-Ridge and Bruce Hungate
236-2	8:50 AM	**Intensifying Crop-Microbiota Partnership to Solve the Soil C Dilemma: A Lesson Learned from Natural Ecosystems** M. Francesca Cotrufo*, Laura van der Pol and Meagan E. Schipanski
236-3	9:20 AM	**Toward Harnessing the Potential of Plant-Soil Microbes' Interactions to Enhance Maize N Cycling and Acquisition** Amelie CM Gaudin*, Jennifer E. Schmidt, Megan Machmuller, Matthew Wallenstein and Angela D. Kent
236-4	9:50 AM	**Diversifying Cropping Systems to Enhance Soil Microbial Processes That Build Soil Carbon and Crop Resilience** Timothy Bowles* and Maria Mooshammer
	10:20 AM	**Adjourn**

SESSION NO. 237—9:30 AM–12:00 PM

Hilton Palacio del Rio, La Condesa, 2nd Floor

Sensor-Based Nutrient Management for Greater Profitability and Healthier Environment Oral I (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Sensor-based Nutrient Management Community

	9:30 AM	**Introductory Remarks**
237-1	9:35 AM	**Streamlining UAS Imagery Analysis from Research Plots Using Arcgis and Python Scripts** Joao Flores*
237-2	9:50 AM	**Variable Response of 15 Soft Red Winter Wheat Varieties to Increasing Nitrogen Rates Compared to Sensor-Based Rate** Kaitlyn Moody*, Angela Post, Brian Arnall, Ryan Heiniger, Rob Austin and Gary T. Roberson
237-3	10:05 AM	**Soil Management Zone Delineation Using Proximal Soil Sensors for Potato Production in Eastern Canada** Athyna N. Cambouris*, Bernie J. Zebarth and Isabelle Perron
237-4	10:20 AM	**Can a Crop Sensor be Used to Assess in-Season Maize N Status and Yield in Semi-Arid Region?** Dinesh Panday* and Bijesh Maharjan
237-5	10:35 AM	**Uses of Digital Twins for in-Season Management of Inputs for Cotton Crops** Juan Landivar*, Jinha Jung, Akash Ashapure, Nothabo Dube, Anjin Chang, Murilo M. Maeda, Josh McGinty, Thomas J. Gerik and Sungchan Oh
	10:50 AM	**Break**
237-6	11:00 AM	**Managing in-Season N Applications Using Remote Sensing and N Nutrition Index for Potato** Brian J. Bohman*, Carl J Rosen and David J. Mulla
237-7	11:15 AM	**Predicting Sugarcane Yield and Nitrogen Requirement Based on Ground Sensor- and Aerial Image-Based Vegetation Indices in Louisiana Production Systems** Daniel Forestieri*, Brenda Tubana, Marilyn Dalen, Jose Rodolfo Mite, Wooiklee Paye, Jayvee Cruz, Diego Mayorga, Hector Mendoza and Jiraporn Bamrungrai
237-8	11:30 AM	**Integrating Remote Sensing and Crop Growth Models for an Improved Regional Corn Nitrogen Recommendation** Curtis Ransom*, Newell R Kitchen, James J. Camberato, Paul R. Carter, Richard B Ferguson, Fabian G. Fernandez, David W. Franzen, Carrie A.M. Laboski, Emerson Nafziger, John E. Sawyer and John Shanahan
237-9	11:45 AM	**Predicting in-Season Maize (Zea mays L) Yield Potential Using Crop Sensors and Climatological Data** Jagmandeep Singh Dhillon*, Elizabeth Eickhoff, Lawrence Aula, Peter Omara, Gwendolyn Wehmeyer, Fikayo Oyebiyi, Eva Nambi, Jonathan Carpenter and William R. Raun
	12:00 PM	**Adjourn**

SESSION NO. 238—9:30 AM–12:00 PM

Hilton Palacio del Rio, El Mirador West, 22nd Floor

Airborne and Satellite Remote Sensing General Oral I (includes student competition)

ASA Section: Climatology and Modeling

Lead Community: Airborne and Satellite Remote Sensing Community

Moderator: Michael Cosh, Song Cui

	9:30 AM	**Introductory Remarks**
238-1	9:35 AM	**Satellite Remote Sensing for Precision Agriculture** David J. Mulla*
238-2	9:50 AM	**Calibration Strategies for Active Crop Canopy Sensors** Laila A. Puntel*, Keith L. Glewen, Troy Ingram, Laura Thompson, Nathan D. Mueller, Brian T Krienke, Dean Krull, Taro Mieno, Joe D. Luck, Richard B Ferguson, Chunxia Wu and James S. Schepers

238-3 10:05 AM **Using UAS Acquired Data to Explore within and between Plot Variability for a till and No till Cropping System for Cotton** Nothabo Dube*, Juan Landivar, Akash Ashapure, Jinha Jung, Anjin Chang, Sungchan Oh, Murilo M. Maeda and Andrea Maeda

238-4 10:20 AM **Assessing Cotton Water Stress in Southern High Plains Using Unmanned Aerial Systems** Yazhou Sun*, Wenxuan Guo, Xiaoyuan Yang, Valeriy Kovalskyy, Zhe Zhu, Zhe Lin and Jasmine Neupane

238-5 10:35 AM **Monitoring Cotton Growth with Unmanned Aerial Infrared Thermography** Jeff Siegfried*, Nithya Rajan and Haly L. Neely

10:50 AM **Break**

238-6 11:00 AM **Cotton Stand Counting Via UAS Photogrammetry and Deep Learning** Sungchan Oh*, Nothabo Dube, Akash Ashapure, Anjin Chang, Jinha Jung, Murilo M. Maeda, Andrea Maeda and Juan Landivar

238-7 11:15 AM **Estimation of Gross Primary Production for Cotton and Corn Using High Resolution Planetscope Satellite Data** Dorothy Menefee*, Nithya Rajan, Song Cui and Sanaz Shafian

238-8 11:30 AM **Use Airborne Multispectral Imagery to Improve in-Season Nitrogen Management of Maize in Irrigated High Yielding Environments** Angel Maresma*, Jaume Lloveras, Francisca Santiveri and Jose Antonio Martinez-Casanovas

238-9 11:45 AM **Deep Neural Networks for Corn Phenology Prediction** Luciana Nieto*, Ignacio A. Ciampitti, Rai Schwalbert, Bradly Olson and Vara Prasad

12:00 PM **Adjourn**

SESSION NO. 239—9:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 008B, River Level

Functionalized Biochar for Agricultural and Environmental Applications Oral I (includes student competition)

ASA Section: Environmental Quality

Lead Community:
Biochar: Agronomic and Environmental Uses Community

Moderator: Wei Zheng, Jim Wang

9:30 AM **Introductory Remarks**

239-1 9:35 AM **Electroactive Biochar Amendment of Anoxic Soil: Enhancing Redox Reactions and Electron Transfer to Decrease the GHGs Emissions** Andrea Goglio*, Danielle L. Gelardi, Devin A. Rippner, Raul Berenguer, Sanjai J. Parikh and Andrea Schievano

239-2 9:50 AM **Physical Properties Determine Biochar Movement and Fate in the Environment** Xiaodong Gao* and Caroline A Masiello

239-3 10:05 AM **Engineered Biochar for Pollution Degradation** Hao Chen*, Hem Sharma and Aneesh Chandel

239-4 10:20 AM **Does Biochar Help Conserve Soil Water? Perspectives from Field, Greenhouse, and Modeling Studies** Claire L Phillips*, Kylie Meyer, Sarah Light, Hero T. Gollany, Thomas Wanzek and Kristin Trippe

10:35 AM **Break**

239-5 10:50 AM **Enhancing Biochar Property through Functionalization for Agricultural and Environmental Applications** Jim J. Wang*

239-6 11:05 AM **Enhanced Biochar-Based Silicon Fertilizer for Suppression of Plant Disease** Meng Wang, Jim J. Wang* and Negar Tafti

239-7 11:20 AM **Effect of Biosurfactant, Biochar and Nitrogen Application on Crude Oil Remediation and Greenhouse Gas Emission in Coastal Marsh** Zhuo Wei*, Jim J. Wang and Ronald Delaune

239-8 11:35 AM **Removal of Phosphate from Aqueous Solution Using Chitosan/MgO-Biochar Composite Bead** Baoyue Zhou*, Jim J. Wang and Amitava Roy

11:50 AM **Discussion**

12:00 PM **Adjourn**

SESSION NO. 240—9:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

CrossDiv Symposium--Soil, Water, Plant and Atmosphere Interactions and Soil Carbon Dynamics in Long Term Research Experiments I

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality,
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Chemistry,
SSSA Division: Forest, Range and Wildland Soils

Moderator: Jane Johnson, Augustine Obour

9:30 AM **Introductory Remarks**

240-1 9:35 AM **Soil Carbon Dynamics in Long-Term No-till Based Soybean Experiment in Southern Brazil** Telmo J. C. Amado*, Charles W. Rice, Rodrigo S. Nicoloso, Ademir Oliveira Ferreira Sr. and Jackson Ernani Fiorin

240-2 10:05 AM **Soil Carbon Dynamics with Intensification of Agricultural Systems** Charles W. Rice*, Rodrigo S. Nicoloso, Carlos Augusto Bonini Pires and Telmo J. C. Amado

10:35 AM **Break**

240-3 10:50 AM **Soil and Plant Interactions Affect Soil Carbon Dynamics and Accumulation Efficiency in Long-Term Organic Waste Research Experiments** James A. Ippolito*

240-4 11:20 AM **Agricultural Carbon Sequestration for Enhancing Soil Resilience and Mitigating Greenhouse Gas Emission** Jane M-F Johnson*

11:50 AM **Discussion**

12:00 PM **Adjourn**

SESSION NO. 241—9:30 AM–12:05 PM

Hilton Palacio del Rio, La Reina, 2nd Floor

Wheat, Small Grains, Rice & Flax--Agronomic Production Systems Oral

ASA Section: Agronomic Production Systems

Moderator: Ryan Heiniger

9:30 AM **Introductory Remarks**

241-1	9:35 AM	**Growing Degree Units Required for Yield Recovery in Soft Red Winter Wheat Following Spring Freeze** Andrew Baucom, Megan Miller, Ryan Heiniger and Angela Post*
241-2	9:50 AM	**Effect of Timing of Palisade Application with and without Nitrogen on Three Soft Red Winter Wheat Varieties** Angela Post, Ryan Heiniger and Taylor Purucker*
241-3	10:05 AM	**Genotype x Management Strategies to Stabilise the Flowering Time of Wheat in Response to Changing Rainfall Patterns in Southern Australia** Bonnie M Flohr*, James Hunt, John Kirkegaard and John Evans
241-4	10:20 AM	**Challenging Traditional Barley End-Use Boundaries to Increase Feed Barley Profitability** Laurel Thompson*, Sheri Strydhorst and Doon Pauly
	10:35 AM	**Break**
241-5	10:50 AM	**Enhancing Durum Yield and Quality with Diversified Crop Rotation and Improved Cultural Practice** Upendra M. Sainju*, Andrew W. Lenssen, Brett L. Allen, William B. Stevens and Jalal D Jabro
241-6	11:05 AM	**No-till Flax Management Under Semiarid Climate of the US Northern Great Plains** Gautam Prasad Pradhan*, Jerald W. Bergman, James A. Staricka, Meridith Miller and Cameron Wahlstrom
241-7	11:20 AM	**Impact of Rice Planting Arrangement on Stand Density and Grain Yield** Mary Jane Lytle*, Jarrod T. Hardke, Trenton L. Roberts, Donna L. Frizzell, Eddie Castaneda, Trent Frizzell and Justin L Chlapecka
241-8	11:35 AM	**Wheat Gluten Strength Tolerance to Anthesis-Applied Fungicide and Pre-Harvest Glyphosate** Kate Dorrian, Paul R. Bullock*, Harry Sapirstein, Soleiman Abbasi, Manasah Mkhabela and Filiz Koksel
241-9	11:50 AM	**Integration Strategies for Intermediate Wheatgrass in Upstate New York** Cynthia Bartel*, Quirine M. Ketterings, Lee R. DeHaan, Tim Crews and Matthew R. Ryan
	12:05 PM	**Adjourn**

SESSION NO. 242—9:35 AM–11:45 AM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

Symposium--Exploring G x E x M Synergies in World-Wide Wheat Production and the Opportunities for International Collaboration

ASA Section: Global Agronomy

Lead Community: Wheat Initiative Agronomists Community

Moderator: Jochum Wiersma, Romulo Lollato

	9:35 AM	**Introductory Remarks**
242-1	9:40 AM	**Social and Management Factors and Farm Characteristics Explain Farm Level Wheat Yield Gaps in Australia** Zvi Hochman*
242-2	10:05 AM	**Exploring Wheat Intensification with the Global Yield Gap Atlas** Patricio Grassini*
242-3	10:30 AM	**Wheat Yield-Nitrogen Curves: Insights from Population Ecology** Victor O. Sadras*
242-4	10:55 AM	**Crop Model Applications to Explore G x E x M Opportunities in Wheat Production** Julianne M Lilley*, John Kirkegaard and James Hunt
242-5	11:20 AM	**Looking Ahead: Empowering Research on G x E x M** Kenneth G Cassman*
	11:45 AM	**Adjourn**

SESSION NO. 243—9:40 AM–11:45 AM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Symposium--Long-Term Effects of Crop Management - Learning from Long-Term Experiments to Simulate Future Developments.

ASA Section: Climatology and Modeling

Lead Community: Model Applications in Field Research Community

Moderator: Kurt Kersebaum, Daniel Moriasi

	9:40 AM	**Introductory Remarks**
243-1	9:45 AM	**Long-Term Effects of Crop Management – Lessons from the Rothamsted Long-Term Experiments** Andy J. Macdonald*, David S. Powlson, Paul R. Poulton and Margaret J. Glendining
243-2	10:15 AM	**Rotation Diversity and Intensity Effects on Soil Health, Yield and GHG Emissions at the Breton Plots Long-Term Agroecological Experimental Site** Miles Dyck*
243-3	10:45 AM	**Understanding Carbon and Nitrogen Cycling in Cropping Systems through Model-Based Exploration of Long-Term Experimental Data** Jorgen Eivind Olesen*
243-4	11:15 AM	**Modeling Long-Term Effects of Crop Management on Yield and the Environment in the Upper Midwest** Bruno Basso*
	11:45 AM	**Adjourn**

SESSION NO. 244—9:45 AM–11:45 AM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

Symposium--on Farm Research with Cover Crops

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

Section or Division Cosponsor:
ASA Section: Education and Extension,
ASA Section: Land Management and Conservation

	9:45 AM	**Introductory Remarks**
244-1	9:50 AM	**Innovation through Collaboration: Using on-Farm Research and Industry Partnerships to Drive Knowledge and Practice** Erin M. Silva*
244-2	10:15 AM	**Filling the Fallow: Adventures in on-Farm Cover Crop Research and Demonstration in North Dakota** Caley Gasch* and Abbey Foster Wick
244-3	10:40 AM	**Impact of Cover Crops on Texas High Plains' Corn Production Systems** Jourdan M. Bell*, Katie L. Lewis, Dana Porter, Brock C. Blaser, Tim Steffens, Donna M. McCallister, Kevin D. Heflin and Preston Sirmon
244-4	11:05 AM	**Data Management and Protocol Standardization for on-Farm Research Networks.** S. Chris Reberg-Horton*, Steven B Mirsky, Harry H. Schomberg, Ankita Raturi, Sarah Seehaver, Aurelie Poncet, Alondra Thompson and Brian Davis

11:30 AM **Discussion**
11:45 AM **Adjourn**

SESSION NO. 245—9:45 AM–11:45 AM

Henry B. Gonzalez Convention Center, 006D, River Level

Symposium--Analyzing, Improving and Managing Seed Quality: Recent Advances in the Digital Age I

C04 Seed Physiology, Production and Technology

9:45 AM **Introductory Remarks**
245-1 9:50 AM **Developing Novel Pollen Preservation Systems for Recalcitrant Pollen Species to Improve Seed Yield and Seed Quality** Mark E. Westgate*, Todd Krone, George Singletary and Sara Etter
245-2 10:10 AM **Gxexm and Seed Quality** A. Susana Goggi*
245-3 10:30 AM **Application of Nondestructive Scanning Technologies to Detect Seeds Infected with Bacterial Fruit Blotch (*Acidovorax avenae*)** Gregory E. Welbaum*
245-4 10:50 AM **New Concepts for Why Seed Quality Changes during Storage and New Technologies to Detect Seed Aging** Christina Walters*
245-5 11:10 AM **Using Digital Imaging and Respiration Rates to Assess Seed Quality** Kent Bradford* and Pedro Bello
11:30 AM **Discussion**
11:45 AM **Adjourn**

SESSION NO. 246—9:45 AM–12:00 PM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Topics in Soil Chemistry Oral II (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Biswanath Dari, Chongyang Li, Dani Gelardi

9:45 AM **Introductory Remarks**
246-1 9:45 AM **Characterization, Transformations and Reaction Pathways of Phosphorus Based Recovered Nutrient Products from Wastewaters in Soils** Kasuni Hiranthika Haputhanthri Gamage*, Ganga M. Hettiarachchi, Prathap Parameshwaran and Stacy Hutchinson
246-2 10:00 AM **Interactive Influences of Climate and Parent Material on Soil Organic Phosphorus Speciation** Chunhao Gu*, Rota Wagai, Stewart G Wilson and Andrew J. Margenot
246-3 10:15 AM **Interactive Effects of Temperature, Urease and Nitrification Inhibitors on Hydrolysis of Urea** Ahmed Lasisi*, Olalekan O. Akinremi, Darshani Kumaragamage and Qiang Zhang
246-4 10:30 AM **Simulating the Conditions of Soil in the Laboratory Elucidates the Limitations of Soil pH Values in Biogeochemistry and the Potential of "Proticity" As a Unitful Physical Quantity of Acidity at All Scales** Michael James Braus*
10:45 AM **Break**
246-5 11:00 AM **Cryptic Iron Cycling in Biogenic Iron Oxide Deposit** Emma C Rieb, Joshua Henson, Andrew Hays Whitaker, Jasquelin Pena and Owen W. Duckworth*
246-6 11:15 AM **Effect of Reaction Time of Fe (II) with Different C/Fe Ratio Containing Ferrihydrite-Natural Organic Matter Coprecipitate on the Bioavailability of Carbon.** Nadia Noor*, Zhe Zhou, Drew E Latta, Michelle M Scherer, Alain F. Plante, Thomas Borch and Aaron Thompson
246-7 11:30 AM **The Impact of Ryegrass on a Fragipan Soil** Keegan P. Smith*, David H. McNear Jr., Ole Wendroth, Michael A. Winkler, MD, Martin VanDiviere and Christopher J. Matocha
246-8 11:45 AM **Diffusion, Extractability, and Reaction Products of Zinc Fertilizers in a Mildly Calcareous Soil** Madhubhashini B. Galkaduwa* and Ganga M. Hettiarachchi
12:00 PM **Adjourn**

SESSION NO. 247—9:55 AM–12:00 PM

Henry B. Gonzalez Convention Center, 008A, River Level

Special Session Symposium--Drought Tolerance in Crops: From Physiological Processes to Functional Traits.

Special Sessions

Moderator: Walid Sadok

9:55 AM **Introductory Remarks**
247-1 10:00 AM **Genetic Analysis of Drought Tolerance with a Scenario-Dependent Approach** Francois Tardieu*, Boris Parent and Claude Welcker
247-2 10:30 AM **Delivering Genetic and Physiological Understanding and the Tools to Increase Wheat Yields in Water-Limited Environments** Greg Rebetzke*, Richard James, William Bovill, Richard Richards and Tony Condon
247-3 11:00 AM **Is Nitrogen Fixation the Weakest Link in the Response of Legumes to Drought?** Larry C. Purcell*
247-4 11:30 AM **Elastic Conduits in Vein Endings: A Novel Hydraulic Design Against Cavitation** Noel Michele Holbrook*, Yongjiang Zhang, Fulton Rockwell and Anju Manandhar
12:00 PM **Adjourn**

SESSION NO. 248—9:55 AM–12:00 PM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

CrossDiv Symposium--Astropedology and Space Exploration: Synergies between Planetary and Soil Sciences

SSSA Cross-Divisional Symposium

Section or Division Cosponsor: SSSA Division: Pedology, SSSA Division: Soil Chemistry, SSSA Division: Soil Biology and Biochemistry

9:55 AM **Introductory Remarks**
248-1 10:00 AM **The Lunar Regolith- a Rosetta Stone for the Inner Solar System** Amy Fagan*
248-2 10:30 AM **Aqueous Alteration on Mars** Douglas W. Ming*
248-3 11:00 AM **The Last Outposts of Life in the Atacama Desert and What It Means for the Search for Life on Mars** Dirk Schulze-Makuch*

248-4 11:30 AM **Bringing Asteroid "Soils" (Regolith) into Focus with Sample Return Missions** Michael Zolensky*
12:00 PM **Adjourn**

SESSION NO. 249—9:55 AM–12:00 PM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

Symposium--Correctly Calculating Nitrogen Rates for Sustainable Crop Production and Environmental Protection: Advances Towards Understanding Natural Processes Governing Nitrogen Availability

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Fabian Fernandez, Dari Biswanath

9:55 AM **Introductory Remarks**
249-1 10:00 AM **A Journey through Recent Advances and Future Prospects in Understanding N Mineralization Process in Agricultural Soils.** Jacynthe Dessureault-Rompré*
249-2 10:30 AM **Nitrogen Loss through Leaching** Matthew J Helmers*
249-3 11:00 AM **Can We Effectively Manage Ammonia Volatilization and Nitrous Oxide Emissions from Soils?** Craig F. Drury*
249-4 11:30 AM **Blindfolded and Throwing Darts at the Wall: Will Crop Nitrogen Fertilizer Rate Recommendations Ever Get Better?** Newell R Kitchen* and Curtis Ransom
12:00 PM **Adjourn**

SESSION NO. 250—10:00 AM–11:20 AM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Mid-Infrared (MIR) Spectroscopy for Characterizing Soil Organic Matter Composition Oral (includes Society-wide student competition selection)

SSSA Division: Forest, Range and Wildland Soils

Moderator: Yamina Pressler

10:00 AM **Introductory Remarks**
250-1 10:05 AM **Mid-Infrared Spectroscopy for Characterizing Soil Organic Matter: Methodological Overview and Emerging Opportunities for Soil Science** Jessica Miesel*
250-2 10:20 AM **Application of Piecewise Direct Standardization for Precise and Accurate Prediction of Soil Properties and Carbon Fractions Using Spectra from Multiple Spectrometers** Shree Dangal* and Jonathan Sanderman
250-3 10:35 AM **Coupling DRIFT Spectroscopy and BPCA Techniques to Quantify Pyrogenic Carbon in Soils across Europe** Yamina Pressler*, Claudia Boot, Samuel Abiven, Emanuele Lugato and M. Francesca Cotrufo
250-4 10:50 AM **Regional Mapping of Biologically Significant Carbon Fractions Aided By Mid Infrared Spectroscopy** Jonathan Sanderman*, Jeff Baldock, Shree Dangal and Kathleen Savage
250-5 11:05 AM ***Using Mir Spectrometry to Predict Soil Organic Carbon and Soil Organic Matter for the Soil Survey Program in the USA*** Rich Ferguson*, Cathy A. Seybold, Scarlett Bailey, Brian Nester and Joe Anderson
11:20 AM **Adjourn**

SESSION NO. 251—10:00 AM–12:00 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

ACS528 - Diversity Student Poster Competition

Graduate Student Sessions

Section or Division Cosponsor: Undergraduate (SASES) Sessions

SESSION NO. 252—10:00 AM–12:00 PM

Hilton Palacio del Rio, La Corona, 2nd Floor

Symposium--By-Product Gypsum Use in Agriculture

ASA Section: Environmental Quality

Lead Community:
By-product Gypsum Uses in Agriculture Community

Moderator: Allen Torbert

10:00 AM **Introductory Remarks**
252-1 10:05 AM **Overview of Agronomic and Other Uses for By-Product Gypsum from Power Plants** Lamar Larrimore*
252-2 10:20 AM **Gypsum Use in Peanut Production** Glen Harris*
252-3 10:35 AM **Using Coal Combustion Flue Gas Desulfurization (FGD) Gypsum for Coal Mine Reclamation** Tarunjit Butalia*, Chin-Min Cheng, Robert Baker, John Massey-Norton and William Wolfe
252-4 10:50 AM **Addressing P Transport in Tile Drained Landscape Using FGD Gypsum** Kevin King*, Mark R. Williams, Greg LaBarge and Warren A Dick
252-5 11:05 AM **Amending Broiler Litter with Gypsum Buffers pH By Precipitating Calcium Carbonate** Miguel L. Cabrera*, Christopher D. Burt, Michael Rothrock and David E. Kissel
252-6 11:20 AM **Influence of FGD Gypsum Bedding Material on Broiler Production** Dexter B. Watts* and Allen Torbert
252-7 11:35 AM **Status of US-EPA Risk Evaluation of FGD-Gypsum Uses in Agriculture** H. Allen Torbert*
11:50 AM **Discussion**
12:00 PM **Adjourn**

SESSION NO. 253—10:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 007A, River Level

Symposium--Barriers to Adoption of Management Practices

C03 Crop Ecology, Management and Quality

Moderator: Shawn Conley

10:00 AM **Introductory Remarks**

253-1 10:05 AM **Adoption of Crop Management Practices to Close the Productivity Gap in Smallholder Farming: The Long View** Derek Byerlee*

253-2 10:30 AM ***Socio-Psychological and Management Drivers of Farm Level Wheat Yield Gaps in Australia.*** Zvi Hochman*

253-3 10:55 AM **Limitations of Traditional Field Experiments for the Adoption of Improved Technologies By Farmers** Juan I Rattalino Edreira*, Jose F. Andrade, Spyridon Mourtzinis, Shawn P. Conley and Patricio Grassini

253-4 11:20 AM **" 'I Would Say That Might be All It Is, Is Hope': Disruption, Attachment, and Farmers' Framing of Herbicide Resistant Weeds"** Katherine Dentzman*

11:45 AM **Discussion**

12:00 PM **Adjourn**

SESSION NO. 254—10:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 213A, 2nd Level

Symposium--Advancements in Pedology and Beyond: Honoring Larry Wilding's Career and Life 1934-2019

SSSA Division: Pedology

Section or Division Cosponsor:
SSSA Division: Soil Mineralogy,
SSSA Division: Soil Physics and Hydrology,
SSSA Division: Wetland Soils

Moderator: Michael Vepraskas

10:00 AM **Introductory Remarks**

254-1 10:05 AM **A Timeline of Larry Wilding's Scientific Contributions** Eric C. Brevik*, Henry Lin, Daniel Richter and Michael J. Vepraskas

254-2 10:25 AM **Mentor, Model, and Micromorphologist – a Perspective on Larry Wilding's Legacy** Martin C. Rabenhorst*

254-3 10:40 AM **Pioneering Work of L.P. Wilding in Biogenic Minerals** Eugene Kelly*

254-4 10:55 AM **Pedogenic Carbonates—Advancements Made By Larry Wilding's Research Program** Curtis Monger*, Larry T. West, Martin C. Rabenhorst and Lee C. Nordt

254-5 11:10 AM **Paleo-Vertisols in the Phanerozoic Rock Record: In Honor of Career Contributions of Dr. Larry P. Wilding** Steven G. Driese* and Lee C. Nordt

254-6 11:25 AM **Linking Soil Structure to Adoption of Soil Health Promoting Practices in Vertisols** Cristine L. S. Morgan*, Dianna K. Bagnall, Sayantan Samanta, Richard T Woodward, William Alex McIntosh, Srinivasulu Ale and Julie A Howe

254-7 11:40 AM **Larry Wilding's Contribution to International Soil Science** Donald L. Sparks*, Lee E. Sommers and Gary W. Petersen

12:00 PM **Adjourn**

SESSION NO. 255—10:05 AM–11:55 AM

Henry B. Gonzalez Convention Center, 006A, River Level

Sustainable Intensification Oral

ASA Section: Environmental Quality

Lead Community: Sustainable Intensification Community

10:05 AM **Introductory Remarks**

255-1 10:10 AM **Using Agroecological Management Theory to Identify Sustainable Intensification Capacity** Sharon L Lachnicht Weyers*, David W. Archer and Jane M-F Johnson

255-2 10:25 AM **Evaluating Tradeoffs between Rice Productivity and Resource Use Efficiencies in Uruguay** Cameron M. Pittelkow*, Alvaro Roel, Jose A. Terra, Gonzalo Zorrilla, Muzio Marella and Meng-Chun Tseng

255-3 10:40 AM **Cropping Pattern Changes Diminish Agroecosystem Services in North and South Dakota, USA** Peter O'Brien*, Jerry L. Hatfield, Christian Dold, Erica Kistner-Thomas and Ken Wacha

255-4 10:55 AM **Conservation Agriculture Practices Lead to Increased Water and Nitrogen Use Efficiency in the Rice-Wheat System of the Eastern Gangetic Plains (EGP), Rajshahi, Bangladesh** Apurbo K. Chaki*, Donald S. Gaydon, Ram C. Dalal, William B. Bellotti and Neal W. Menzies

255-5 11:10 AM **Driving Process for the Booming Grain Production in Brazil: A Transition from Extensification to Intensification** Jialu Xu*, Henrique Vinicius de Holanda and Tao Lin

255-6 11:25 AM **Cover Crop Grazing for Sustainable Intensification of Soybean and Beef Production Systems** Caitlin A Peterson* and Amelie CM Gaudin

255-7 11:40 AM **Malawian Farm Soils Store More Carbon, and Have More Storage Potential, Than Previously Estimated** Patrick M. Ewing*, Xinyi Tu, Dan TerAvest and Sieg Snapp

11:55 AM **Adjourn**

SESSION NO. 256—10:05 AM–12:10 PM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

CrossDiv Symposium-Environmental Nanotechnology: Preventing and Solving Current and Future Problems

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Soil Physics and Hydrology,
SSSA Division: Soil Chemistry,
SSSA Division: Soils and Environmental Quality,
SSSA Division: Soil Mineralogy,
SSSA Division: Soil Biology and Biochemistry

10:05 AM **Introductory Remarks**

256-1 10:10 AM **Engineered Nanomaterials and Their Application I. Where Are We Now?** Bin Gao*

256-2	10:40 AM	**Engineered Nanomaterials, II: Where Did They Go?** Greg Lowry*, Xiaoyu Gao, Astrid Avellana, Eleanor Spielman-Suna, Elizabeth A Casman and Sónia Morais Rodrigues
256-3	11:10 AM	**Engineered Nanomaterials: Are They Healthy and Safe?** Baoshan Xing*
256-4	11:40 AM	**Optimized Delivery of Nanoparticles to Enhance Soil and Groundwater Remediation** Scott A. Bradford*, Hyunjung Kim, Chongyang Shen, Salini Sasidharan, Jirka Simunek and Saeed Torkzaban
	12:10 PM	**Adjourn**

SESSION NO. 257—10:10 AM–12:00 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

Nutrients and Environmental Quality General Oral I (includes student competition)

ASA Section: Environmental Quality

Lead Community: Nutrients and Environmental Quality Community

Moderator: Heidi Peterson

	10:10 AM	**Introductory Remarks**
257-1	10:15 AM	**Using Artificial Neural Networks to Improve Phosphorus Indices** Pauline Welikhe* and Sylvie M. Brouder
257-2	10:30 AM	**Co-Optimization of Biological Nitrogen Fixation and Yield in Guar through Soil Nitrogen Management** Philip Hinson*, Curtis Adams, Rajan Shrestha and Jennifer MacMillan
257-3	10:45 AM	**Performance of Fall Planted Winter-Killed Cover Crops in Corn-Soybean Rotation and Tillage Practices** Rabin KC*, Gregg A. Johnson, Jeffrey S. Strock, Nicholas R. Jordan and Axel Garcia y Garcia
257-4	11:00 AM	**Using Stable Water Isotopes to Characterize Pathways of Subsurface P Loss in a Ditch-Drained Field** Lauren Mosesso*, Amy L. Shober, Anthony R. Buda, Casey Kennedy and Amy S. Collick
257-5	11:15 AM	**Phosphorus Fate in Denitrifying Woodchips Bioreactors** Ana Paula Paula Sanchez Bustamante*, Laura Christianson, Andrew J. Margenot and Richard A. Cooke
257-6	11:30 AM	**Attenuation of Wastewater-Derived Nitrogen Using Natural and Nature-Based Features in the North Carolina Piedmont** Guy Iverson*, Charles P Humphrey Jr., Christa Sanderford, Eban Bean, Michael O'Driscoll and Sushama Pradhan
257-7	11:45 AM	**N_2o Emissions after Termination of a Legume (grass pea) and a Non-Legume (oat) Cover Crops** Hardeep Singh*, Tanka P Kandel, Prasanna H. GOWDA, Brian K. Northup and Vijaya Gopal Kakani
	12:00 PM	**Adjourn**

SESSION NO. 258—10:10 AM–12:00 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Soil Carbon and Greenhouse Gas Emissions-General Oral I (includes student competition)

ASA Section: Environmental Quality

Lead Community:
Soil Carbon and Greenhouse Gas Emissions Community

Moderator: Virginia Jin, Debjani Sihi

	10:10 AM	**Introductory Remarks**
258-1	10:15 AM	**Estimation and Modeling of Field-Scale Soil Nitrous Oxide Emissions Based on Strategic Sampling Plans** Yushu Xia*, Hoyoung Kwon and Michelle Wander
258-2	10:30 AM	**Does a Long-Term No-till System Decrease Nitrous Oxide Emissions in Southern Illinois?** Amanda M Weidhuner*, Ronald F. Krausz and Amir Sadeghpour
258-3	10:45 AM	**Soil N_2o Emissions in Continuous Corn As Affected By 4R and Cover Crops** Giovani Preza Fontes*, Laura Christianson and Cameron M. Pittelkow
258-4	11:00 AM	**Nitrous Oxide Production and Consumption By Soil Microorganisms in a Semi-Arid Region** Mark McDonald*, Katie L. Lewis, John Boswell and Terry J. Gentry
258-5	11:15 AM	**Short-Term Cover Crops and Grazing Under Integrated Crop-Livestock System Do Not Negatively Impact Soil Surface Greenhouse Gas Fluxes** Jashanjeet Kaur Dhaliwal*, Navdeep Singh, Gandura Omar Abagandura, Udayakumar Sekaran and Sandeep Kumar
258-6	11:30 AM	**Midseason Drainage As a Viable Greenhouse Gas Mitigation Practice in Flooded California Rice Systems** Henry Perry*
258-7	11:45 AM	**The Impacts of Nitrogen Fertilizer Rates on Greenhouse Gas Emissions from Potato Production, While Considering Relationships with Aggregate Stability and Soil Nitrogen Content** Chantel Chizen*, Maja Krzic, Sean M. Smukler and Andrew Black
	12:00 PM	**Adjourn**

SESSION NO. 259—10:10 AM–12:00 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 1, 3rd Level

Turf Ecology and Management Oral II: Soil, Water, Plant Nutrition, and Biotic Stress (includes student competition)

C05 Turfgrass Science

Moderator: Mingying Xiang

	10:10 AM	**Introductory Remarks**
259-1	10:15 AM	**Determining Nitrogen Fertilizer Cost Using Turfgrass Response** Travis W. Shaddox* and J. Bryan Unruh
259-2	10:30 AM	**Variability of Creeping Bentgrass Growth Response and Reflectance Under Multiple Nitrogen and Irrigation Management Strategies** Michael Carlson* and William C. Kreuser

259-3	10:45 AM	**Determining Subsurface Distribution of Petroleum Hydrocarbon Spills on a Bermudagrass Green** William L. Berndt* and Jonathon W. Riger
259-4	11:00 AM	**Soil Physicochemical Properties and Carbon Sequestration of Urban Landscapes in Lubbock, TX** Manish Sapkota*, Joseph Ronald Young and Lindsey C. Slaughter
259-5	11:15 AM	**Soil and Plant Health As Affected By Surfactants** William Bosland*, Omololu J. Idowu, Bernhard Leinauer, Matteo Serena, Mohammed Nasir Omer and Darien Pruitt
259-6	11:30 AM	**Environmental Impacts and Runoff Dynamics Associated with Turfgrass Removal and Urban Landscape Conversions** Baoxin Chang*, Benjamin Wherley and Jacqueline Aitkenhead-Peterson
259-7	11:45 AM	**Determining the Water Requirements of Kentucky Bluegrass As Affected By Deficit Irrigation and Soil Texture** Tyler Q. Carr*, Douglas E. Karcher and Michael D. Richardson
	12:00 PM	**Adjourn**

SESSION NO. 260—10:10 AM–12:00 PM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

Transdisciplinary Contributions and Opportunities in Soil Physical Hydrology Oral I

SSSA Division: Soil Physics and Hydrology

Moderator: Jirka Simunek, Keith Bristow, Naftali Lazarovitch

	10:10 AM	**Introductory Remarks**
260-1	10:15 AM	**Microhydrological Niches in Soils: How Mucilage and EPS Alter the Biophysical Properties of the Rhizosphere and Other Biological Hotspots** Mohsen Zarebanadkouki*, Pascal Benard and Andrea Carminati
260-2	10:30 AM	**Is There the Best Infiltration Model? Analysis of the International Database on Water Infiltration to Soils.** Gulay Karahan*, Sabit Ersahin and Yakov A. Pachepsky
260-3	10:45 AM	**Vadose Zone Transport Processes and Soil Hydraulic Functions** Wolfgang Durner*, Sascha C. Iden, Andre Peters, Efstathios Diamantopoulos and Tobias K.D. Weber
260-4	11:00 AM	**Integrated Watershed and Site-Scale Simulation of Flow and Transport for Environment Remediation** Fred Fred Zhang*, Teklu Tesfa and Chang Liao
260-5	11:15 AM	**Evaluation of the Short-Term Effects of Cover Crops on Soil Water Infiltration in the Eastern US.** Aurelie Poncet*
260-6	11:30 AM	**The Role of Hydropedology When Contributing to Transdisciplinary Land Use Studies.** Johannes Bouma*
260-7	11:45 AM	**Continuous Measurements of Root Zone Water Status and Composition: What Have We Learned from Jan Hopmans?** Naftali Lazarovitch*
	12:00 PM	**Adjourn**

SESSION NO. 261—10:30 AM–11:30 AM

Henry B. Gonzalez Convention Center, 007B, River Level

CSSA Business Meeting --Forage and Grazinglands

C06 Forage and Grazinglands

SESSION NO. 262—10:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 007D, River Level

Master your Career - Strategies for International Students & Professionals

Early Career Sessions

Section or Division Cosponsor: Graduate Student Sessions

SESSION NO. 263—10:30 AM–12:00 PM

Henry B. Gonzalez Convention Center,
Cantilever Room, 2nd Level

Francis E. Clark Distinguished Lectureship on Soil Biology

SSSA Division: Soil Biology and Biochemistry

Moderator: Alain Plante

	10:30 AM	**Introductory Remarks**
263-1	10:35 AM	**The Role of Fungi in Mediating Ecosystem Response to Climate Change** Kathleen Treseder*
	11:35 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 264—10:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 216B, 2nd Level

Linking Soil and Environmental Health: Indicators and Outcomes General Oral I (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis,
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Chemistry

Moderator: Andrea Basche

	10:30 AM	**Introductory Remarks**
264-1	10:30 AM	**Growth Promoting Potential of Silicate-Solubilizing Bacteria in Louisiana Soils** Jayvee Cruz*, Brenda Tubana, Lisa M. Fultz, Jong Hyun Ham, Jiraporn Bamrungrai, Marilyn Dalen, Wooiklee Paye, Jose Rodolfo Mite, Daniel Forestieri, Hector Mendoza and Diego Mayorga

264-2	10:45 AM	**Next Generation Soil Biological Health Indicators:** ***Linking EL-Fame Microbial Markers with p-Nitrophenol Enzyme Activities and Functional Gene qPCR*** Lumarie Perez-Guzman*, Lori Phillips and Veronica Acosta-Martinez
264-3	11:00 AM	**Soil Microbial Diversity Influenced Soil Functional Diversity across Different Crops and Sites.** Juan Pablo Frene*, Julieta Covelli, Luciano Andres Gabbarini, Natalia Belen Robledo and Luis Gabriel Wall
264-4	11:15 AM	**Responses of Soil Microbial Community Structure and Greenhouse Gas Fluxes to Crop Rotations That Include Winter Cover Crops** Jasdeep Singh*, Navdeep Singh, Udayakumar Sekaran, Gandura Omar Abagandura, Jashanjeet Kaur Dhaliwal, Sandeep Kumar and Peter J. Sexton
264-5	11:30 AM	**Farming Carbon: The Link between Saltwater Intrusion and Carbon Storage in Coastal Agricultural Fields** Elizabeth de la Reguera*, Margaret Palmer and Katherine Tully
264-6	11:45 AM	**Agronomic and Grazing Management Influences on Soil Health, Water Quality and Grain Quality.** Douglas R Smith*, Harold P. Collins, Rick Haney and Daren Harmel
	12:00 PM	**Adjourn**

SESSION NO. 265—11:00 AM–11:15 AM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

ASA Community Planning Session --K-16 Education and Outreach

ASA Section: Education and Extension

Lead Community: K-16 Education and Outreach Community

Moderator: Melanie Bayles, Veronica Justen

SESSION NO. 266—11:00 AM–11:50 AM

Hilton Palacio del Rio, La Vista C, 22nd Floor

Soil Plant Water Relations Oral

ASA Section: Climatology and Modeling

Lead Community: Soil-Plant-Water Relations Community

	11:00 AM	**Introductory Remarks**
266-1	11:05 AM	**Using the Internet of Things to Monitor Soil-Plant-Water Relationships** Susan O'Shaughnessy* and Minyoung Kim
266-2	11:20 AM	**Simulating Crop-Weed Competition for Light, Soil Water and Nitrogen** John L. Lindquist*, Lammert Bastiaans and Xinyou Yin
266-3	11:35 AM	**On-Demand Watering System for Food Production in Microgravity** Oscar Monje* and Joshua Finn
	11:50 AM	**Adjourn**

SESSION NO. 267—11:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, Stars at Night Ballroom 2, 3rd Level

Ron Phillips Plant Genetics Lectureship

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

Moderator: Davina Rhodes, Mark Cooper

	11:00 AM	**Introductory Remarks - Mark Cooper**
267-1	11:05 AM	***in silico*** **Crop Design: Simulate to Innovate** Graeme L. Hammer*
	12:00 PM	**Adjourn**

SESSION NO. 268—11:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 006C, River Level

Impact of Urbanization on Wetland Soils Oral (includes student competition)

SSSA Division: Urban and Anthropogenic Soils

Section or Division Cosponsor: SSSA Division: Wetland Soils

Moderator: Brian Brigham

	11:00 AM	**Introductory Remarks**
268-1	11:05 AM	**Assessment of Seasonal Patterns on Nitrogen Mitigation in Wastewater Influenced Restored and Natural Wetlands Along the Texas Coast** Lydia Hayes*, Rosario Martinez, Rae Mooney, Katie Swanson, Lauren Williams and Lin Zhang
268-2	11:20 AM	**Soil Microbial Ecosystem Dynamics of Semi-Arid Wetlands Under Differing Land-Use.** Meagan Riley*, Veronica Acosta-Martinez, Cade Coldren, Ken Rainwater and Lindsey C. Slaughter
268-3	11:35 AM	**Acetate Additions Enhance Greenhouse Gas Production in Wetland Soils and Estuarine Sediments** Brian A. Brigham*, Angel Montero, Gregory O'Mullan and Jeffrey A. Bird
	11:50 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 269—11:35 AM–11:50 AM

Hilton Palacio del Rio, La Vista AB, 22nd Floor

ASA Community Planning Session --Bioenergy Systems

ASA Section: Agronomic Production Systems

Lead Community: Bioenergy Systems Community

SESSION NO. 270—11:35 AM–11:50 AM

Hilton Palacio del Rio, La Vista F, 22nd Floor

ASA Community Planning Session --Bioinformatics in Crops and Soils

ASA Section: Biometry and Statistical Computing

Lead Community: Bioinformatics in Crops and Soils Community

SESSION NO. 271—11:45 AM–12:00 PM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

ASA Community Planning Session --Model Applications in Field Research

ASA Section: Climatology and Modeling

Lead Community: Model Applications in Field Research Community

SESSION NO. 272—11:45 AM–12:00 PM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

ASA Community Planning Session --Cover Crop Management

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

SESSION NO. 273—11:45 AM–1:15 PM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

ASA Community Planning Session --Wheat Initiative Agronomists

ASA Section: Global Agronomy

Lead Community: Wheat Initiative Agronomists Community

Moderator: Jochum Wiersma, Brian Beres

11:45 AM **Planning Session**
12:00 PM **Discussion and Lunch**
1:15 PM **Adjourn**

SESSION NO. 274—11:55 AM–12:10 PM

Henry B. Gonzalez Convention Center, 006A, River Level

ASA Community Planning Session --Sustainable Intensification

ASA Section: Environmental Quality

Lead Community: Sustainable Intensification Community

SESSION NO. 275—12:15 PM–1:30 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 3-4, 3rd Level

SSSA Business Meeting --Soil Biology and Biochemistry

SSSA Division: Soil Biology and Biochemistry

12:15 PM **Discussion**
1:15 PM **Concluding Remarks**
1:30 PM **Adjourn**

SESSION NO. 276—12:00 PM–1:30 PM

Hilton Palacio del Rio, Salon del Rey B, 2nd Floor

Special Session--Science Policy Graduate Student Luncheon

Sponsored by Bayer CropScience

Special Sessions

Moderator: Julie McClure, Karl Anderson

12:00 PM **Introductory Remarks**
12:10 PM **Panel Discussion**
12:30 PM **Panel Q&A**
12:50 PM **Small Group Discussions**
1:10 PM **Small Group Report**
1:20 PM **Concluding Remarks**
1:30 PM **Adjourn**

SESSION NO. 277—1:25 PM–4:10 PM

Henry B. Gonzalez Convention Center, 210A, 2nd Level

ET Measurement, Modeling, and Applications Oral

ASA Section: Climatology and Modeling

Lead Community:
Evapotranspiration Measurement and Modeling Community

Moderator: Kendall DeJonge, Huihui Zhang

1:25 PM **Introductory Remarks**

277-1 1:30 PM **Energy Balance in the DSSAT-CSM-Cropgro Model and Validation with Soybean Eddy Covariance Data** Santiago Cuadra, Bruce A. Kimball, Kenneth J. Boote*, Andrew E. Suyker and Nigel PIckering

277-2 1:45 PM **User Interface to Assist Quality Assurance and Control of Weighing Lysimeter Evapotranspiration Data** Manuel A. Andrade*, Steven R. Evett, Qingwu Xue and Gary W. Marek

277-3 2:00 PM **Revisiting the Crop Coefficient-Reference Evapotranspiration Procedure for Improving Irrigation Management** Fabio R Marin*, Luiz R Angelocci, Daniel S P Nassif, Murilo S Vianna, Felipe Gustavo Pilau, Evandro da Silva, Luiz Sobenko, Alexandre Ortega, Rodolfo Pereira and Kassio Carvalho

277-4	2:15 PM	**Leaf Waxes and Water Use of Grain Sorghum** Henrique Da Ros Carvalho*, James L. Heilman and Kevin J. McInnes
277-5	2:30 PM	**Corn Response to Limited Irrigation in the Texas High Plains** Qingwu Xue*, Sushil Thapa, Kirk Jessup, Thomas H. Marek and Jourdan M. Bell
277-6	2:45 PM	**Measurement and Estimation of Evapotranspiration (ET) across Different Vegetation Types in Wetland** Sumin Kim*, Sojung Kim and Jim Kiniry
	3:00 PM	**Break**
277-7	3:10 PM	**Using Remote Sensing to Monitor and Forecast Water Use By Durum Wheat in Arizona** Andrew French*, Charlie A Sanchez, Mazin Saber, Juan R. Gonzalez Cena and Douglas Hunsaker
277-8	3:25 PM	**Remote Sensing of Evapotranspiration Using SEBAL and Metric Energy Balance Models for Enhanced Precision Agriculture Cotton Irrigation Scheduling** Ahmed Harb Rabia*, Stefano Lo Presti, Stefano Gobbo, Francesco Morari and George Vellidis
277-9	3:40 PM	**Evaluation of Simplified Surface Energy Balance Model Estimates of Pasture Evapotranspiration at Flux Station in North Central Kentucky** Maheteme Gebremedhin*, Gabriel B Senay, Ian Ries, Jeremy Sandifer, Ibukun Amusan, Martin Matisoff, Kenneth Andries and Buddhi Gyawali
277-10	3:55 PM	**Potential for Remotely Sensed Evapotranspiration and Transpiration: Performance of the Two-Source Energy Balance Model in a Vineyard** Dilia Kool*, William Kustas, Alon Ben-Gal and Nurit Agam
	4:10 PM	**Adjourn**

SESSION NO. 278—1:30 PM–2:40 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

Managing Denitrification in Agronomic Systems General Oral

ASA Section: Environmental Quality

Lead Community:
Managing Denitrification in Agronomic Systems Community

Moderator: Lordwin Jeyakumar

	1:30 PM	**Introductory Remarks**
278-1	1:35 PM	**Subsurface Runoff Characteristics and Nitrogen Loss Reduction with Controlled Drainage and a Saturated Buffer** Stefan Bischof, Scott Matteson, Tim Radatz, Katie Rassmussen and Jeppe H. Kjaersgaard*
278-2	1:50 PM	**Cold-Adapted Denitrifying Fungi for Nitrate Removal** Nouf Aldossari*, Brandy Toner and Satoshi Ishii
278-3	2:05 PM	**Rates of Nitrate Removal in a 4- Year-Old Wood Chip Bioreactors Treating Agricultural Drainage Under Low Temperature Conditions** Lordwin Jeyakumar* and David B. McKenzie
278-4	2:20 PM	**Complementing Denitrification Bioreactors with Phosphate Sorbing Media to Remove N and P in Agricultural Subsurface Drainage: Preliminary Result** Olawale O. Oladeji*, Guanglong Tian, Albert E. Cox, Richard A. Cooke, Shorma B Bailey, Heng Zhang and Edward Podczerwinski
	2:35 PM	**Concluding Remarks**
	2:40 PM	**Adjourn**

SESSION NO. 279—1:30 PM–2:50 PM

Henry B. Gonzalez Convention Center, 213B, 2nd Level

5 Minute Rapid--Innovative Teaching of Intro to Soils Class, Lab, or Field Oral (includes student competition)

SSSA Division: Soil Education and Outreach

Moderator: Garrett Liles

	1:30 PM	**Introductory Remarks**
279-1	1:35 PM	**Active Learning Approaches to Teaching Soil Science: Problem-Based Learning, Just-in-Time Teaching and Peer Instruction** Jose Adolfo Amador*
279-2	1:40 PM	**Transforming an Introductory Soils Lab into a Community-Based Learning Experience** Allison Rick VandeVoort*
279-3	1:45 PM	**From Silt to Sand: A Hybrid Approach to Teaching a Soils Lab** Michael L. Mashtare* Jr., Erica Lott, Charlotte I Lee and Chantal Levesque-Bristol
279-4	1:50 PM	**Teaching Water Movement through Soil Using Experiential Learning Techniques** Julie A Howe* and Ana Barrientos
279-5	1:55 PM	**Converting an Introductory Environmental Soil Science Course into a *Course-Based Undergraduate Research Experience (CURE)*** James Montgomery*
279-6	2:00 PM	**Beyond Jeopardy: The Gamification of Soil Science** Charlotte I Lee*, Erica Lott and Michael L. Mashtare Jr.
279-7	2:05 PM	**Animating Soil: Using Storytelling and Digital Graphics to Bring Soils Education to Life** Jessica Chiartas* and Toby O'Geen
279-8	2:10 PM	**Building Skills through Soils - Infographics!** Garrett C. Liles*
279-9	2:15 PM	**Infographic Creation As a Learning and Communication Tool in an Undergraduate Soil Course** Caley Gasch*
279-10	2:20 PM	**Using Soil Profiles and Descriptions to Practice Soil Formation and Classification Concepts** Ana Luisa Barrientos Velazquez* and Julie A Howe
279-11	2:25 PM	**Class Exercise for Improved Recall and Content Engagement** Nicholas J. Balster*
	2:30 PM	**Discussion and Sharing**
	2:45 PM	**Concluding Remarks**
	2:50 PM	**Adjourn**

SESSION NO. 280—1:30 PM–3:00 PM

Henry B. Gonzalez Convention Center, 007D, River Level

Grant Application Navigation and Resources for Expanding Early Career Opportunities

Early Career Sessions

SESSION NO. 281—1:30 PM–3:00 PM

Henry B. Gonzalez Convention Center, 213A, 2nd Level

Advancements in Pedology and Beyond: Honoring Larry Wilding's Career and Life 1934-2019 Oral

SSSA Division: Pedology

Section or Division Cosponsor:
SSSA Division: Soil Mineralogy,
SSSA Division: Soil Physics and Hydrology,
SSSA Division: Wetland Soils

Moderator: Daniel Richter

	1:30 PM	**Introductory Remarks**
281-1	1:35 PM	**Aquic Conditions and Hydric Soils: Past Achievements and Future Possibilities** Michael J. Vepraskas*
281-2	1:50 PM	**Pedogenesis of Southeastern U.S. Blackland Prairie Vertisols** Joey N. Shaw* and Cassi L. Savage
281-3	2:05 PM	**Larry Wilding - Quantitative Pedon Evaluations** Alfred E. Hartemink*
281-4	2:20 PM	**Hydropedology and a Systems View of Landform-Soil-Water-Life** Henry Lin*
	2:35 PM	**Wilding Family Remarks**
	2:50 PM	**Concluding Remarks**
	3:00 PM	**Adjourn**

SESSION NO. 282—1:30 PM–3:00 PM

Hilton Palacio del Rio, La Vista F, 22nd Floor

SSSA Business Meeting --Soil and Water Management and Conservation

SSSA Division: Soil and Water Management and Conservation

	1:30 PM	**Introductory Remarks**
	1:35 PM	**Business Meeting**
	2:55 PM	**Concluding Remarks**
	3:00 PM	**Adjourn**

SESSION NO. 283—1:30 PM–3:05 PM

Hilton Palacio del Rio, La Corona, 2nd Floor

By-Product Gypsum Use Oral

ASA Section: Environmental Quality

Lead Community:
By-product Gypsum Uses in Agriculture Community

Moderator: Dexter Watts

	1:30 PM	**Introductory Remarks**
283-1	1:35 PM	**Predicting Soil Carbon and Nitrogen Stocks Under No-till Soybean-Corn Amended with FGD Gypsum and Cover Crops** Rafiq Islam*, Vinayak S. Shedekar, Yogendra Raut, Alima A Bandaogo, Javier Gonzales, Dexter B. Watts, Dennis Flanagan, Tara Van Toai, Norman Fausey, Marv Batte and Warren A Dick
283-2	1:50 PM	**Effect of Cover Crops and Crop Rotation on Physical Properties of Soils Amended with Flue Gas Desulfurization Gypsum** Vinayak S. Shedekar*, Khandakar R. Islam, Norm Fausey, Dexter B. Watts, Javier Gonzalez, Warren A Dick, Tara VanToai, Dennis Flanagan, Marv Batte and Randall C Reeder
283-3	2:05 PM	**Possible Suppression of Clubroot Using Polyhalite Fertiliser** Timothy D Lewis*, Robert Lillywhite, Adam Baker and Rachel Fields
283-4	2:20 PM	**Can FGD Gypsum be Used As a Best Management Practice to Reduce Nutrient Loss from Horticultural Potting Media** Ashley Robinson*, Dexter B. Watts and H. Allen Torbert
283-5	2:35 PM	**Can FGD Gypsum be Used As an Amendment to Reduce Ammonia Loss from Broiler Litter?** Kyrie Adkins*, Dexter B. Watts and H. Allen Torbert
283-6	2:50 PM	**Effects of FGD Gypsum on Greenhouse Gas Emissions from Broiler Litter** Brett Runion*, Dexter B. Watts and H. Allen Torbert
	3:05 PM	**Adjourn**

SESSION NO. 284—1:30 PM–3:05 PM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

Exploring G x E x M Synergies in World-Wide Wheat Production and the Opportunities for International Collaboration Oral

ASA Section: Global Agronomy

Lead Community: Wheat Initiative Agronomists Community

Moderator: Jochum Wiersma, Romulo Lollato

	1:30 PM	**Introductory Remarks**
284-1	1:35 PM	**Gxexm Options to Adapt Flowering Time and Harvest Index in Spring Wheat Environments** Scott C. Chapman*, Pengcheng Hu and Bangyou Zheng
284-2	1:50 PM	**On-Farm Survey Identifies Genotype x Management Strategies to Reduce Wheat Yield Gaps: A Case-Study for Kansas** Brent Jaenisch* and Romulo Pisa Lollato
284-3	2:05 PM	**The Ups and Downs of Plant Growth Regulator Responses in Different Cwrs Wheat Varieties** Sheri Strydhorst*, Laurel Thompson and Linda Hall
284-4	2:20 PM	**Physiological Basis of Genotypic Response to Management in Dryland Wheat** Lucas Berger Munaro*, Gustavo Slafer, Alan Fritz and Romulo Pisa Lollato
284-5	2:35 PM	**Evaluating the Impact of Seeding Density on Winter Wheat Varieties with Differing Growth Habits** Maninder Pal Singh*, Kalvin Canfield and Dennis R. Pennington
284-6	2:50 PM	**Relationships between Soil Characteristics and Wheat Production Parameters on Fields Receiving Dairy Manure Applications** Amber D. Moore*, April B. Leytem, Juliet Marshall and Christopher W. Rogers
	3:05 PM	**Adjourn**

SESSION NO. 285—1:30 PM–3:05 PM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

Smallholder Mixed Crop-Livestock Systems and Their Contribution to Sustainable Intensification, Diversification and Risk Management Oral

ASA Section: Global Agronomy

Lead Community: Agronomic Solutions for Smallholders Community

Moderator: Axel Schmidt

	1:30 PM	**Introductory Remarks**
285-1	1:35 PM	**Building SI on a Rock: Is a Systems Perspective Essential for Integrated Crop Livestock Systems?** Peter Thorne* and Sieglinde S. Snapp
285-2	1:50 PM	**Key Sustainability Challenges for Re-Integration of Crop-Livestock Systems in North America** Sarah E. Beebout*
285-3	2:05 PM	**Perennial Grass in Rotation with Annual CROPS for Marginal Tropical Soils** Charles Wortmann* and Feyera Merga Liben
285-4	2:20 PM	**Integrating Agronomic Predictions, Data Models and ICT for Farms Site-Specific Recommendations** Veronica N. Uzokwe*
	2:35 PM	**Discussion**
	3:05 PM	**Adjourn**

SESSION NO. 286—1:30 PM–3:05 PM

Henry B. Gonzalez Convention Center, 006D, River Level

Symposium--Moving Genome Edited Plants out of the Laboratory

C07 Genomics, Molecular Genetics and Biotechnology

	1:30 PM	**Introductory Remarks**
286-1	1:35 PM	**Advanced Plant Breeding Technology, Tools, and Collaboration for Food Security Crops** Kevin Diehl*
286-2	2:05 PM	**USDA Regulation of Genome Editing Technology.** Neil E Hoffman*
286-3	2:35 PM	**Optimizing a High-Throughput Genome Editing Pipeline Using Rice As a Model System** Michael J. Thomson*, Endang M. Septiningsih, Oneida Ibarra, Mark Brooks and Nancy Wahl
	3:05 PM	**Adjourn**

SESSION NO. 287—1:30 PM–3:05 PM

Henry B. Gonzalez Convention Center, 301B, 3rd Level

Environmental Nanotechnology: Preventing and Solving Current and Future Problems Oral

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Physics and Hydrology,
SSSA Division: Soil Mineralogy,
SSSA Division: Soils and Environmental Quality

Moderator: Salini Sasidharan, Devin Rippner

	1:30 PM	**Introductory Remarks**
287-1	1:35 PM	**Nano- and Micro- CuO Translocation and Cu Uptake in a Soil-Tomato System** Devin A. Rippner*, Andrew J. Margenot, Lizette Andrea Aguilera, Alana Chin, Chongyang Li, Hannah Waterhouse, Katherine A. Dynarski, Felipe H Barrios-Masias, Leonardo Hernandez-Espinoza, Peter G. Green, Andrew J McElrone, Sirine Fakra and Sanjai J. Parikh
287-2	1:50 PM	**Effects of Zinc Oxide Nanoparticles on Drought Stress in Winter Wheat** Justin W. Deakin*, Matthew Potter, Anthony Cartwright, Joshua Hortin, Dakota Sparks, Kyle Jackson, Joan E. McLean, Anne J. Anderson, David W. Britt and Astrid R. Jacobson
287-3	2:05 PM	**Do Metal Oxide Nanoparticles Prime Crop Defenses Against Water Stress** Astrid R. Jacobson*, Anthony Cartwright, Justin W. Deakin, Joshua Hortin, Kyle Jackson, Matthew Potter, Dakota Sparks, Anne J. Anderson, Joan E. McLean and David W. Britt
287-4	2:20 PM	**Preferential Adsorption of Arsenate and Phosphate on Binary Nano-Sorbents of Goethite and Maghemite Using in Situ ATR-FTIR** Junho Han* and Hee-Myong Ro
287-5	2:35 PM	**Recovery and Purification of Phosphorus from Agricultural Wastes for the Synthesis of a Hydroxyapatite Nanofertilizer** Gulcin Unal Tosun*, Yuriy Sakhno and Deb P. Jaisi
287-6	2:50 PM	**Emerging Environmental Contamination from Microplastics and Nanoplastics** Salini Sasidharan*, Scott A. Bradford and Jirka Simunek
	3:05 PM	**Adjourn**

SESSION NO. 288—1:30 PM–3:05 PM

Henry B. Gonzalez Convention Center, 216B, 2nd Level

Linking Soil and Environmental Health: Indicators and Outcomes General Oral II (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis,
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Chemistry

Moderator: Morgan Davis

	1:30 PM	**Introductory Remarks**

288-1	1:35 PM	**Connecting Soil Health to Human Health** Fatma Rekik*, Harold van Es and Prabhu Pingali
288-2	1:50 PM	**Effect of Pb Mining Activities on Heavy Metal Levels and Okra Growth in Soils of Two Communities of Ebonyi State, South East Nigeria** Olayinka I. Nwachukwu* and Augustine O Uwanuruochi
288-3	2:05 PM	**Does Stacking Cover Cropping and No-Tillage Conservation Practices Enhance Soil Health and Environmental Health?** Morgan P. Davis*, Emily Waring, Matthew J Helmers and Marshall D. McDaniel
288-4	2:20 PM	**What Is the Appropriate Context for Interpreting Soil Health Indices?** David L. Burton*, Carolyn Marshall and Bernie J. Zebarth
288-5	2:35 PM	**Soil Health and Water Quality Under Organic and Conventional Management Practices** Atanu Mukherjee*
288-6	2:50 PM	**Soil Quality Indices Based on Long-Term Conservation Cropping Systems Management** Helen Carla Santana Amorim*, Amanda J. Ashworth, Brian J. Wienhold, Fred L. Allen, Mary Cathleen Savin, Phillip R. Owens, Nilton Curi, Sérgio Henrique Godinho Silva and Teotonio Soares de Carvalho
	3:05 PM	**Adjourn**

SESSION NO. 289—1:30 PM–3:10 PM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

K-16 Education: Tips, Tricks, Ideas, and Best Practices Oral

ASA Section: Education and Extension

Lead Community: K-16 Education and Outreach Community

Moderator: Melanie Bayles

	1:30 PM	**Introductory Remarks**
289-1	1:35 PM	**Using Agriculture As a Model System: Professional Development for High-School Teachers** Alexander J. Lindsey*
289-2	1:50 PM	**Using Stakeholder Input to Create a Course in Organic Crop Production** Steve Hague*, Martin Costa and Jane Dever
289-3	2:05 PM	**Training the Next Generation of Agriculturists: Telling Our Story in a Progressively Urbanized World** Carolyn J. Butts-Wilmsmeyer* and Adam Davis
289-4	2:20 PM	**School Gardens: A Gateway to Extension Master Gardeners in the Classroom** Candace Schaible*
289-5	2:35 PM	**Assessing Learning Gains in an Integrated Cropping Systems Capstone Course** Karen A. Renner*
	2:50 PM	**Discussion**
	3:10 PM	**Adjourn**

SESSION NO. 290—1:30 PM–3:20 PM

Henry B. Gonzalez Convention Center, 006C, River Level

Symposium--Extending Remote & Digital Technologies to Traditional Crop Variety & Hybrid Trials

ASA Section: Agronomic Production Systems

Section or Division Cosponsor:
ASA Section: Education and Extension

Moderator: Calvin Trostle

	1:30 PM	**Introductory Remarks**
290-1	1:35 PM	**Assessing and Improving Data Quality for Variety Testing Locations Using UAVs: In Practice** Ryan Heiniger*, Ronnie W. Heiniger and Angela Post
290-2	1:50 PM	**Unmanned Aerial Systems (UAS) As a Tool to Evaluate Variety Performance** Murilo M. Maeda*, Juan Landivar, Jinha Jung, Anjin Chang and Sungchan Oh
290-3	2:05 PM	**Adding Drone Scouting to Delaware Variety Trials** Jarrod O. Miller*
290-4	2:20 PM	**Use of Technologies in County Standardized on-Farm Row Crop Variety Strip Trials** Ryan H. Blair*, Tyson Brant Raper and Freeman Brown
290-5	2:35 PM	**Integrating UAS-Based High Throughput Phenotyping System into a Winter Wheat Breeding Program** Shannon Baker*, Jackie C. Rudd, Jinha Jung, Anjin Chang, Amir M.H. Ibrahim, Brent Auvermann and Juan Landivar
290-6	2:50 PM	**Improving Variety Recommendations from Extension Trials Using Low-Cost Cloud Connected Sensors.** Roger Tyler*
	3:05 PM	**Discussion**
	3:20 PM	**Adjourn**

SESSION NO. 291—1:30 PM–3:05 PM

Hilton Palacio del Rio, La Vista DE, 22nd Floor

Management Impacts on Soil Properties and Soil C and N Dynamics Oral II

SSSA Division: Soil and Water Management and Conservation

Moderator: Jasdeep Singh, Rishi Prasad

	1:30 PM	**Introductory Remarks**
291-1	1:35 PM	**Grassland Conversion to Row Crops: Short-Term Impacts to Soil Health, Water Dynamics and Microbial Populations** Christopher J. Graham*, Harold van Es and Michael Lehman
291-2	1:50 PM	**Changes in Soil Hydrology and Carbon after Conversion of Remnant Prairie to Row Crop Production** David Tollefson*, Jeffrey S. Strock, Jane M-F Johnson and Andry Ranaivoson
291-3	2:05 PM	**Alternatives to Minimize Soil Subsidence in a Drained Peatland. the Case of the Everglades Agricultural Area** Andres Felipe Rodriguez*, Samira H. Daroub and Stefan Gerber
291-4	2:20 PM	**Integrating Cover Crops with Crop Residue Management for Managing Soils in Rainfed and Irrigated Regions: Lessons after 6 Years** Sabrina Ruis*, Humberto Blanco, Paul Jasa, Richard B Ferguson and Glen P Slater

291-5	2:35 PM	**Soil Degradation and Recovery – Changes in Organic Matter and Structural Stability** Johannes Lund Jensen, Per Schjønning, Chris W Watts, Bent Lund Christensen, Peter Bilson Obour and Lars J. Munkholm*
291-6	2:50 PM	**Quantifying Land Management Impacts on Anaerobic Metabolisms in Upland Soils** Robert J Rossi*, Emily Morgan Lacroix, Deborah Bossio and Scott Fendorf
	3:05 PM	**Adjourn**

SESSION NO. 292—1:30 PM–3:25 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Symposium--Applications and Advancements of Machine Learning from Big Agriculture Data

ASA Section: Agronomic Production Systems

Lead Community: Precision Agriculture Systems Community

Moderator: Sanaz Shafian

	1:30 PM	**Introductory Remarks**
292-1	1:35 PM	**Machine Learning, Big Data and the Future of Digital Agriculture** Abdullah A. Jaradat*
292-2	2:10 PM	**Transdisciplinary Research: The Necessity of Merging Agriculture and Machine Learning for Meaningful Algorithm Development** Alina Zare* and Diane L. Rowland
292-3	2:45 PM	**Machine Learning Tools in Phenomics Big Data Management** Sindhuja Sankaran*
	3:20 PM	**Concluding Remarks**
	3:25 PM	**Adjourn**

SESSION NO. 293—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 007A, River Level

Symposium--Generational Threats to No-till Systems: Glyphosate and Urea Dependence

ASA Section: Agronomic Production Systems

Lead Community: Semi-arid Dryland Cropping Systems Community

Moderator: Drew Lyon

	1:30 PM	**Introductory Remarks**
293-1	1:35 PM	**Herbicide Resistant Weeds Threaten No-till Systems: Lessons Learned and Management Challenges** Phillip W. Stahlman* and Vipan Kumar
293-2	2:00 PM	**Glyphosate Overreliance Threatens No-till Agriculture: Is Kochia a Canary in the Coal Mine?** Charles M. Geddes*
293-3	2:25 PM	**Soil Acidification: An Emerging Threat to No-till** Clain A. Jones*, Richard E. Engel, Patrick M. Carr, Perry R Miller, Stephanie A. Ewing, Simon Fordyce, Jane Holzer, Scott Brown and Scott Powell
293-4	2:50 PM	**Does Occasional Tillage Undo the Soil Ecosystem Services of No-till?** Humberto Blanco*
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 294—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 007B, River Level

Symposium--Weed Management Innovations for Organic Systems

ASA Section: Agronomic Production Systems

Lead Community: Organic Management Systems Community

Moderator: Kathleen Delate

	1:30 PM	**Introductory Remarks**
294-1	1:35 PM	**Weed Management in Organic Arable Crops in Northern Europe** Bo Melander*
294-2	2:00 PM	**Changing Perspectives in Agro-Ecological Weed Management: The Italian Experience** Stefano Canali*, Corrado Ciaccia, Elena Testani and Kathleen Delate
294-3	2:25 PM	**Mechanical Weed Control Systems in Poorly Competitive Small Grain Crops** Steven Shirtliffe* and Steve Shirtliffe
294-4	2:50 PM	**Weed Management in Organic Grains: Competition, Harrowing and Hoeing** Eric Gallandt* and Margaret McCollough
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 295—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 210B, 2nd Level

Symposium--Water Movement in Soil and Plants

ASA Section: Climatology and Modeling

Lead Community: Soil-Plant-Water Relations Community

Section or Division Cosponsor:
C02 Crop Physiology and Metabolism

	1:30 PM	**Introductory Remarks**
295-1	1:35 PM	**Going with the Flow - Microbial Life in the Rhizosphere Commodities Exchange** Zoe Cardon*, Congsheng Fu and Guiling Wang
295-2	2:10 PM	**Improvement of Crop Species Via Coordinated Trait Assemblages: Water – Xylem – Carbon** Sean M. Gleason*
295-3	2:45 PM	**Simulating Evapotranspiration and Crop Water Use: Balancing Biophysical Realism with Model Parsimony** Phillip Alderman*
	3:20 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 296—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 008B, River Level

Functionalized Biochar for Agricultural and Environmental Applications II - Oral (Includes Student Competition)

ASA Section: Environmental Quality

Lead Community:
Biochar: Agronomic and Environmental Uses Community

Moderator: Jim Jian Wang, Wei Zheng

	1:30 PM	**Introductory Remarks**
296-1	1:35 PM	**Biochar + Salt: Impacts on Water Sorption and Beyond** Kurt A. Spokas*
296-2	1:50 PM	**Use Designer Biochars to Simultaneously Capture Dissolved Phosphorus and Ammonium Nitrogen from Tile Drainage Water** Wei Zheng* and Sarmila Katuwal
296-3	2:05 PM	**Application Effect of Chemically-Modified Biochars on Phosphorous Sorption in a Mississippi Alluvial Soil** Negar Tafti*, Meng Wang and Jim J. Wang
296-4	2:20 PM	**Comparison of Iron-Impregnated Biochar and Activated Carbon for Heterogeneous Fenton Oxidation of Recalcitrant Organic Pollutants** JongHwan Park*, Jim J. Wang, Amitava Roy and Kerry Dooley
296-5	2:35 PM	**Bacterial Transport through Biochar-Amended Sand Filters** Carl H. Bolster*
	2:50 PM	**Lightning Talk Introduction**
296-6	2:55 PM	**Effects of Pre-Enriched Manure and Cellulosic Biochars on Soil Physiochemical Properties and Forage Growth** Lauren Selph*, Donald G. McGahan, James P. Muir and Eunsung Kan
296-7	3:00 PM	**Cotton Root and Arbuscular Mycorrhizae Association Response to Additions of Bio-Char and Compost** Binita Thapa*, Jake E. Mowrer and Ginette Dembélé
296-8	3:05 PM	**Phosphorus Availability When Converting Biosolids into Biochar** Andressa Freitas*, Vimala D. Nair, Willie Harris and María Rosa Mosquera-losada
296-9	3:10 PM	**Activation of Persulfate By N-Doped Rice Husk Biochar for the Removal of Contaminants** Aneesh Chandel*, Hem Sharma and Hao Chen
296-10	4:00 PM	**Solubility and Dissolution Kinetics of Wood Ash in Acid Soils of Mozambique** Luis Casimiro Savanguane*, Ieyasu Tokumoto, Tsutomo Sato and Hiroyuki Cho
	3:20 PM	**Discussion**
	3:35 PM	**Adjourn**

SESSION NO. 297—1:30 PM–3:30 PM

Hilton Palacio del Rio, La Vista AB, 22nd Floor

Symposium--Relevance of Long-Term Research in Meeting Tomorrow's Challenges in Agriculture

ASA Section: Land Management and Conservation

Lead Community:
Agricultural Experiment Station Management Community

Section or Division Cosponsor:
ASA Section: Agronomic Production Systems,
ASA Section: Environmental Quality,
SSSA Division: Soil and Water Management and Conservation,
SSSA Division: Soil Fertility and Plant Nutrition,
C03 Crop Ecology, Management and Quality

	1:30 PM	**Introductory Remarks**
297-1	1:35 PM	**Introduction: History and Challenges of Long-Term Experiments** Glen Aiken*
297-2	1:50 PM	**Leveraging Remote Sensing, Soil Mapping and Environmental Sensors to Quantify Impacts of Cropping Systems in Long Term Studies** Ian M Small*, Rebecca Barocco, James Clohessy, Sudeep Singh Sidhu and David L. Wright
297-3	2:15 PM	**Developing and Maintaining a 20 Year Integrated Crop/Livestock Farming System** David L. Wright*, Sudeep Singh Sidhu, Sheeja George and Ian M Small
297-4	2:40 PM	**Fifty Years of Stocking Rates on Bermudagrass Pastures: Planning, Persistence, and Good Fortune** Francis M. Rouquette* Jr.
297-5	3:05 PM	**Long-Term Grazing Experiments and Soil Carbon: What Have We Learned?** Rebecca L. McCulley*
	3:30 PM	**Adjourn**

SESSION NO. 298—1:30 PM–3:30 PM

Hilton Palacio del Rio, El Mirador West, 22nd Floor

Symposium--Putting Big Data into Practice across Technologies and Scales

Sponsored by Corteva Agriscience and FMC

C03 Crop Ecology, Management and Quality

Moderator: Cameron Pittelkow

	1:30 PM	**Introductory Remarks**
298-1	1:35 PM	**Towards an Operational Framework to Map Crop Functional and Structural Traits from Airborne Hyperspectral Imagery** Kaiyu Guan*, Sheng Wang, Zhihui Wang, Elizabeth A. Ainsworth, Philip A. Townsend and Kaiyuan Li
298-2	2:00 PM	**Application of Big-Data at Sub-Field Scale to Enhance the Sustainability of Cropping Systems** Bruno Basso*
298-3	2:25 PM	**Refining Data of All Shapes and Sizes - a Practitioner's Guide** Christopher Seifert*
298-4	2:50 PM	**How Much Will Precision Nitrogen Management Pay Off? a Big-Data Driven Analysis over the US Corn-Belt** Zhenong Jin*
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 299—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 212B, 2nd Level

Symposium--Urban Soils: Genesis, Morphology, Classification, and Interpretations

SSSA Division: Urban and Anthropogenic Soils

Section or Division Cosponsor: SSSA Division: Pedology

Moderator: John Galbraith, Bryant Scharenbroch

	1:30 PM	**Introductory Remarks**
299-1	1:35 PM	**Genesis of Urban Soils** Richard K Shaw*
299-2	1:55 PM	**Morphology of Urban Soils** Bryant Scharenbroch*
299-3	2:15 PM	**Classification of Urban Soils** John M. Galbraith*
299-4	2:35 PM	**Mapping of Urban Soils** Randy Riddle* and Richard K Shaw
299-5	2:55 PM	**Urban Soil Interpretations** Nicolas A. Jelinski*
	3:15 PM	**Discussion**
	3:25 PM	**Concluding Remarks**
	3:30 PM	**Adjourn**

SESSION NO. 300—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

Symposium--Making the Most of on-Farm Trials Using Spatial Statistics

ASA Section: Biometry and Statistical Computing

Lead Community:
Spatial Statistics and On-Farm Research Community

	1:30 PM	**Introductory Remarks**
300-1	1:35 PM	**Historical Datasets of on-Farm Strip Trials, Field Surveys and on-Line Decision Tools** Peter M. Kyveryga*
300-2	2:05 PM	**Using Spatial Statistics to Analyze on-Farm Trials** Joseph Guinness*, Byung Jae Cho, Tulsi Kharel, Angel Maresma, Karl J. Czymmek and Quirine M. Ketterings
300-3	2:35 PM	**Changing Agronomic Research through on-Farm Precision Experimentation** David S. Bullock, Maria Boerngen, Haiying Tao, Joe D. Luck, Bruce Maxwell, Luciano Shozo Shiratsuchi and Nicolas Federico Martin*
300-4	3:05 PM	**Use of Precision Technologies to Conduct Successful on-Farm Trials** Mark Stelford* and Andrew Krmenec
	3:35 PM	**Adjourn**

SESSION NO. 301—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 006B, River Level

Symposium--Maximizing Genetic Gain in Plant Breeding Via Use of 2020 Enabling Technologies - the Drive to Digitize!

C01 Crop Breeding and Genetics

Section or Division Cosponsor: C01 Crop Breeding and Genetics, C07 Genomics, Molecular Genetics and Biotechnology

Moderator: David Bubeck

	1:30 PM	**Introductory Remarks**
301-1	1:35 PM	**Developing Resources to Advance Implementation of Genomic Prediction in Soybean** Aaron J. Lorenz*
301-2	2:05 PM	**Climbing the Phenotyper's Pyramid** James C. Schnable*
301-3	2:35 PM	**Connecting the Micro and Macro - from Genes to Global Climate Data at Bayer Crop Science** Shilpa Sood*
301-4	3:05 PM	**Predictive Breeding at Corteva Agriscience** Dean Podlich*
	3:35 PM	**Adjourn**

SESSION NO. 302—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 225A, 2nd Level

Biostimulants, Bioaugmentation and Soil Biological Health Oral

SSSA Division: Soil Biology and Biochemistry

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Ann-Marie Fortuna

	1:30 PM	**Introductory Remarks**
302-1	1:35 PM	**Impact and Evaluation of Biostimulants in Specialty Crop Production** Andrea Nuzzo, Aditi Satpute, Ute Albrecht and Sarah L. Strauss*
302-2	1:50 PM	**Elucidating Mechanisms of Biostimulant Products on Nutrient Uptake, Growth, and Yield of Corn** Connor N. Sible*, Andrew J. Margenot and Frederick E. Below
302-3	2:05 PM	**Long-Term Benefits of Humic Product Application to Soil Organic Matter and Physical Properties in Iowa Corn-Soybean Rotations.** Daniel C. Olk*, Dana Dinnes, Hamada Abdelrahman and Rene Scoresby
302-4	2:20 PM	**Genetic Diversity of *Rhizobium Leguminosarum* and *Mesorhizobium Ciceri* from Pea and Chickpea Fields in the Palouse** Nickisha Pierre-Pierre*, George J. Vandemark and Jessica Puente Arroyo
302-5	2:35 PM	**Soil Microbial Community Responses to Deficit Irrigation Shift with Organic Amendments** Lauren Hale*, Milt McGiffen and Muhammad Azeem
302-6	2:50 PM	**Can Soil Microbial Activity be Improved with the Use of Amendments?** Matthew Kruger*, Amitava Chatterjee, Thomas M. DeSutter, Caley Gasch and Sailesh Sigdel

302-7	3:05 PM	**Kura Clover (*Trifolium ambiguum* M. Bieb) a Legume Crop with Prairie Cordgrass Improved Soil Health** Udayakumar Sekaran*, Sandeep Kumar, Sen Subramanian and Vance N. Owens
302-8	3:20 PM	**Composting Deactivation of CWD Prions - Preliminary Results** Robert C. Michitsch* and Susanna Baker
	3:35 PM	**Adjourn**

SESSION NO. 303—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

Symposium--Correctly Calculating Nitrogen Rates for Sustainable Crop Production and Environmental Protection: Advances in Nitrogen Management

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Fabian Fernandez, Janel Martin

	1:30 PM	**Introductory Remarks**
303-1	1:35 PM	**Nitrogen Management: Past, Present and Future** Raj Khosla*
303-2	2:15 PM	**Internal Cycling Processes and Their Influence on the Supply of Plant Available Nitrogen** Laurie E. Drinkwater*
303-3	2:55 PM	**Manure Application Strategies with a Whole Farm Approach: Dairy Farms** Shabtai Bittman*, Derek Hunt and Carson Li
	3:35 PM	**Adjourn**

SESSION NO. 304—1:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Astropedology and Space Exploration: Synergies between Planetary and Soil Sciences Oral

SSSA Division: Soil Mineralogy

Section or Division Cosponsor:
SSSA Division: Soil Chemistry, SSSA Division: Pedology, SSSA Division: Soil Biology and Biochemistry

Moderator: Rebecca Lybrand

	1:30 PM	**Introductory Remarks**
304-1	1:35 PM	**Examining Fe-Rich Soils Formed Under Varying Climates and Ages: Smectites Dominate Secondary Phases in Older Soils in Temperate Climates** Anthony Feldman*, Elisabeth Hausrath, Oliver Tschauner, Elizabeth Rampe and Tanya Peretyazhko
304-2	1:50 PM	**Organic Matter Preservation in Clay-Rich Paleosols of Earth and Mars** Adrian Broz*, Gregory Retallack, Briony Horgan, Matthew Polizzotto and Lucas C.R. Silva
304-3	2:05 PM	**JSC-Rocknest: A Large-Scale Mojave Mars Simulant (MMS) Based Soil Simulant for in-Situ Resource Utilization Water-Extraction Studies.** Joanna Hogancamp*, Doug Archer, John Gruener, Doug Ming and Valerie Tu
304-4	2:20 PM	**Chemical, Mineralogical, and Engineering Properties of Composites of Martian and Lunar Simulants As Extraterrestrial Construction Materials** Aditi Pandey*, Paul Schwab, Douglas W. Ming, Brad Sutter, John Gruener and Dallas Little
	2:35 PM	**Break**
304-5	2:45 PM	**Liquid Infiltration into Glass Bead Porous Media Under Low Gravity Conditions** Naoto Sato*, Yuichi Maruo, Natsumi Naganuma, Kento Nogawa and Kosuke Noborio
304-6	3:00 PM	**Gravity Dependence of Water Viscosity in Capillary Tube Analyzed with Lucas-Washburn Equation.** Yuichi Maruo*, Naoto Sato, Natsumi Naganuma, Kento Nogawa and Kosuke Noborio
304-7	3:15 PM	**Moon, Mars and Microgravity Design Considerations for Optimizing Plant Growth Medium Water and Oxygen Supply** Scott B. Jones*, Bruce Bugbee, Robert Heinse, Dani Or and Gail E. Bingham
304-8	3:30 PM	**Growing Plants on MARS-Potential and Limitations of Martian Regolith for in-SITU Resource Utilization** Laura Fackrell* and Paul A. Schroeder
	3:45 PM	**Adjourn**

SESSION NO. 305—1:30 PM–3:50 PM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

Applied Soybean Research General Oral

ASA Section: Agronomic Production Systems

Lead Community: Applied Soybean Research Community

Moderator: Josh Copes

	1:30 PM	**Introductory Remarks**
305-1	1:35 PM	**Effect of Nodumax Inoculant on Morpho-Physiological Parameters, Nutrient Content and Yield of Soybean (Glycine max.L)** Hyginus Chikaodi Ogbuehi*
305-2	1:50 PM	**Response of a Roundup Ready 2 Xtend® soybean Product to Planting Date and Irrigation Strategy** Brian L. Olson* and Mark Reiman
305-3	2:05 PM	**What Is the Fit for Early Maturing Soybeans in North Carolina?** Rachel A. Atwell Vann* and Ryan Heiniger
305-4	2:20 PM	**Combining Farmer Data and Remote Sensing to Assess Drivers Underlying Yield Improvements through Management Practices over a Large Agricultural Region** Juan I Rattalino Edreira*, George Azzari, Jose F. Andrade, Spyridon Mourtzinis, Shawn P. Conley, David Lobell and Patricio Grassini
	2:35 PM	**Break**
305-5	2:50 PM	**How Do Management Practices Impact Soybean and Protein Content? a Meta-Analysis.** Etone Etone Kenedy* and Anna Locke
305-6	3:05 PM	**Soybean Defoliation at R4 and R5: Canopy Recovery and Effects on Yield and Quality** Rasel Parvej*, Shaun Casteel and Mark A. Licht
305-7	3:20 PM	**Soybean Response to Sulfate-Sulfur and Elemental-Sulfur in Eastern North America** Ross Bender*, Curt Woolfolk, Kirandeep Mann and Kyle Freeman
305-8	3:35 PM	**Planting Date, Seeding Rates, Row Spacing and Nitrogen Management for Irrigated Soybean in Western Nebraska** Strahinja Stepanovic*
	3:50 PM	**Adjourn**

SESSION NO. 306—1:30 PM–3:50 PM

Henry B. Gonzalez Convention Center, 006A, River Level

Sensor-Based Nutrient Management for Greater Profitability and Healthier Environment Oral II (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Sensor-based Nutrient Management Community

	1:30 PM	**Introductory Remarks**
306-1	1:35 PM	**Managing Corn Nitrogen Fertility in Arkansas Based on Data from an Unmanned Aerial System** Caio dos Santos*, Trenton L. Roberts and Larry C. Purcell
306-2	1:50 PM	**Understanding the Spatial Variability of Optimum Nitrogen Rates Using Remote Sensing and on-Farm Precision Experimentation** Rodrigo Goncalves Trevisan*, David S. Bullock and Nicolas Federico Martin
306-3	2:05 PM	**Promoting Adoption of in-Season Canopy Sensor-Based Nitrogen Fertilization of Corn through the Nebraska on-Farm Research Network** Samantha Teten*, Joe D. Luck, Richard B Ferguson, Laila A. Puntel, Chelsea Wu, Laura Thompson, Brian T Krienke, Taro Mieno, Keith L. Glewen, Nathan D. Mueller, Troy Ingram and Dean Krull
306-4	2:20 PM	**Nitrogen and Irrigation Management in Cotton Based on the Normalized Difference Vegetation Index on the Texas High Plains** Amee Bumguardner*, Katie L. Lewis, Glen Lorin Ritchie, Kevin F. Bronson and Murilo M. Maeda
	2:35 PM	**Break**
306-5	2:50 PM	**Development of Rregional Dependency Component of Sbnrc in Oklahoma: Results from Year 1** Vaughn Reed* and Brian Arnall
306-6	3:05 PM	**Comparing Satellites and Vegetation Indices for Cover Crop Biomass Estimation** Michael Swoish*, Wade E. Thomason and Mark S. Reiter
306-7	3:20 PM	**Comparison on Unmanned Aerial System (UAS) and Active Crop Canopy Sensor Derived Vegetative Indices to Estimate Rice Grain Yield Potential** Anna Coker*
	3:50 PM	**Adjourn**

SESSION NO. 307—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 212A, 2nd Level

Airborne and Satellite Remote Sensing General Oral II (includes student competition)

ASA Section: Climatology and Modeling

Lead Community:
Airborne and Satellite Remote Sensing Community

Moderator: Michael Cosh, Song Cui

	1:30 PM	**Introductory Remarks**
307-1	1:35 PM	**Integration of Satellite and UAV Aerial Imagery to Characterize Spatial and Temporal Phenotypic Responses of Corn to Sulfur Fertilizer** Ana Gabriela Morales Ona*, Robert L. Nielsen and James J. Camberato
307-2	1:50 PM	**Unmanned Aerial Systems and Crop Modeling for Irrigation Scheduling in the Southern High Plains** Zhe Lin*, Wenxuan Guo, Yazhou Sun, Charles P. West and Fang Jin
307-3	2:05 PM	**Yield Prediction of Winter Wheat Genotypes Based on Unmanned Aerial Vehicle (UAV) Aerial Imagery** Mahendra Bhandari*, Amir M.H. Ibrahim, Shannon Baker, Anjin Chang, Jackie C. Rudd, Qingwu Xue, Haly L. Neely, Nithya Rajan, Jinha Jung, Juan Landivar and Murilo M. Maeda
307-4	2:20 PM	**Characterizing Grain Sorghum Senescence Patterns Using Unmanned Aviation and High-Resolution Multispectral Imaging** Isaac Barnhart*, Vara Prasad and Ignacio A. Ciampitti
307-5	2:35 PM	**Spectral Signature: An Approach to Study Disease Stress in Wheat Genotypes and Make Decisions on Crop Management** Rahul Raman*, Nithya Rajan, Mahendra Bhandari, Haly L. Neely and Amir Ibrahim
	2:50 PM	**Break**
307-6	3:00 PM	**Combining UAS and Sentinel-2 Data to Estimate Canopy Parameters and Yield of a Rice Crop Using Machine Learning** Akash Ashapure*, Jinha Jung, Sungchan Oh, Junho Yeom, Anjin Chang, Murilo M. Maeda, Andrea Maeda, Nothabo Dube, Juan Landivar, Thomas J. Gerik and Jaehak Jeong
307-7	3:15 PM	**Assessment of *Brassica Carinata* Growth and Development through Remote Sensing** Ian M Small*, James Clohessy, Rebecca Barocco, Ramdeo Seepaul and David L. Wright
307-8	3:30 PM	**Albedo Mapping from a UAS Platform Shows Impacts of Biochar Application** Claire L Phillips*, Chad V Hanson, Kristin Trippe and Sebastien Biraud
307-9	3:45 PM	**Assessment of Lettuce Plant Health Using Uav-Based Remote Sensing and Machine Learning Techniques** Subodh Bhandari*
	4:00 PM	**Adjourn**

SESSION NO. 308—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 008A, River Level

Crop Physiology and Metabolism Oral IV

C02 Crop Physiology and Metabolism

Moderator: Alvaro Sanz-Saez

	1:30 PM	**Introductory Remarks**
308-1	1:35 PM	**In Situ Root Growth in Lentil and Field Pea with Mini-Rhizotrons: Lessons from Elevated CO2 and Genotypic Variability Experiments.** Maryse Bourgault*
308-2	1:50 PM	**Selection for High Water Use Efficiency in Soybean Could Negate the Positive Effects of Elevated CO_2.** Alvaro Sanz-Saez*, David Soba, Iker Aranjuelo, Brett Runion, Felix B. Fritschi and Steve Prior
308-3	2:05 PM	**Root Morphological Traits of Switchgrass across a Latitudinal Gradient in the U.S.** Joel Reyes-Cabrera*, Matthew James Smith, Jason Bonnette, David Lowry, John Reilley, Robert B. Mitchell, Francis M. Rouquette Jr., Yanqi Wu, Philip Fay, Thomas E. Juenger and Felix B. Fritschi
308-4	2:20 PM	**Effect of Various Physiological Processes on EARLY Season CROP VIGOR in Cotton** Gurpreet Virk*, John Snider and Cristiane Pilon

308-5	2:35 PM	**Rice Chalkiness Detection with Deep Learning** Chaoxin Wang*, Doina Caragea, Raju Bheemanahalli, Nathan Hein and S.V. Krishna Jagadish
	2:50 PM	**Break**
308-6	3:00 PM	**Planting Date and Seeding Rate of Field Pea (*Pisum sativum* L.) Influence Seedling Emergence and Yield Components** Samuel Koeshall*, Cody Creech, Amanda Easterly, Rodrigo Werle and Strahinja Stepanovic
308-7	3:15 PM	**Effects of Low Temperature and Weak Light on Physiology of Tomato Seedlings** Yubo Yang, Lingdi Dong*, Linqi Shi, Jinghua Guo, Yonggang Jiao, Jun Qin, Ryan William Dickson and Ainong Shi
308-8	3:30 PM	**Measuring Cotton Variability Using a Blob-Based Approach** Andrew Young*, Will Dodge, James R. Mahan and Paxton Payton
308-9	3:45 PM	**Regulation of Secondary Metabolism in Medical Cannabis By Environmental Factors** Nirit Bernstein*
	4:00 PM	**Adjourn**

SESSION NO. 309—1:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 007C, River Level

Seed Physiology, Production and Technology Oral

C04 Seed Physiology, Production and Technology

Section or Division Cosponsor:
C02 Crop Physiology and Metabolism, C08 Plant Genetic Resources

	1:30 PM	**Introductory Remarks**
309-1	1:35 PM	**High Temperature and Ovule Development of Field Pea (*Pisum sativum* L.)** Evelyn Osorio*, Rosalind Bueckert and Arthur Davis
309-2	1:50 PM	**Cell Membrane Unsaturation Confers Cold Germination Ability in Upland Cotton Mutants with Higher Unsaturated Fatty Acid Profile** JungHyun Shim, Ritchel Bueno Gannaban, Puneet Kaur Mangat and Rosalyn B. Shim*
309-3	2:05 PM	**The Effect of Harvest Time on the Germination Rate of Cultivated Northern Wild Rice** Jacques Duquette* and Jennifer Ann Kimball
309-4	2:20 PM	**Breaking Buffalograss Bur Dormancy: Analyzing Hormone Profiles** Elizabeth Niebaum* and Keenan Amundsen
309-5	2:35 PM	**Bulked-Segregant Analysis of Exome-Sequence Identified *TaMKK3-a* As a Candidate for the Wheat ABA Hypersensitive *ERA8* Gene** Shantel A Martinez, Oluwaseyi Shorinola, Cristobal Uauy and Camille M. Steber*
	2:50 PM	**Break**
309-6	3:00 PM	**Greater Anatomical Differences of Pod Ventral Suture in Shatter-Susceptible and Shatter-Resistant Soybean Cultivars** Bingjie Tu, Qiuying Zhang, Xiaobing Liu* and Stephen J. Herbert
309-7	3:15 PM	**Spring-Applied Nitrogen and Plant Growth Regulator Effects on Orchardgrass Seed Yield** Nicole P. Anderson*, Thomas G Chastain, Amber D. Moore and Carol J. Garbacik
309-8	3:30 PM	**Assessment of New Techniques for the Storage of Northern Wild Rice and Their Effect on Seed Viability and Dormancy** Lillian McGilp*, Jacques Duquette, Dan Braaten, Jennifer Ann Kimball and Raymond A. Porter
	3:45 PM	**Adjourn**

SESSION NO. 310—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Turf Ecology and Management Oral III: Culture, Stress & Rhizosphere Ecology

C05 Turfgrass Science

Moderator: Marco Schiavon

	1:30 PM	**Introductory Remarks**
310-1	1:35 PM	**Evaluation of Turfgrass Clippings from Mulching Versus Side Discharge Mower Operation** Grady L. Miller*, Drew Pinnix and Ray McCauley
310-2	1:50 PM	**Improving Our Approach on How We Analyze Turfgrasses for Tolerance to Foliar Shade** Dominic P Petrella* and Eric Watkins
310-3	2:05 PM	**Revisiting Concepts on the Development of Soil Water Repellency** Stanley J. Kostka* and Michael Fidanza
310-4	2:20 PM	**Measurement of Turf Height Using a Laser Distance Device** Aaron J. Patton* and Ross C Braun
310-5	2:35 PM	**Drones and Data Collection: Generating Powerful, Data Driven Decisions in a More Efficient and Economical Manner** Christian M Baldwin*, John F Koehler, Craig Yendrick, Dana Sullivan, David S. McCall, ross clady and Samantha Burrell
	2:50 PM	**Break**
310-6	3:00 PM	**Integrating Sensor Data to Evaluate Performance of St. Augustinegrass Genotypes Under Differing Irrigation Regimes** John Erickson*, Todd Pirtle, Katherine Cox, Kevin E. Kenworthy, J. Bryan Unruh, Jason K. Kruse and Michael D Dukes
310-7	3:15 PM	**Water Use Rates of Warm-Season Turfgrasses Under Moderate Shade** Becky Cheary*, Charles Henry Fontanier, Naba Amgain and Dustin Harris
310-8	3:30 PM	**Effects of Synthetic Priming Compounds on Turfgrass Primary and Secondary Metabolism Under Drought Stress.** Jefferson Lu*, Nishanth Tharayil and Michelle DaCosta
310-9	3:45 PM	**Linking Growth Rate and Nitrogen Status to Brown Patch Incidence in Tall Fescue** William C. Kreuser*, James P. Kerns, Lee Butler and Michael Carlson
	4:00 PM	**Adjourn**

SESSION NO. 311—1:30 PM–4:00 PM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Forage and Grazinglands Oral II: Cool-Season Forages; Alfalfa; Technology

C06 Forage and Grazinglands

Moderator: Sutie Xu

	1:30 PM	**Introductory Remarks**
311-1	1:35 PM	**Genetic Assessments of Verticillium Wilt Resistance in Autotetraploid Alfalfa (Medicago sativa L.)** Long Xi Yu*, Yi Niu, Fan Zhang, Suresh Bhamidimarri and Mark Smith

311-2	1:50 PM	**Potassium and Harvest Time Affect Forage Production, Nutritive Value, and Potassium Uptake of Alfalfa** Anowar Islam* and Michael M. Baidoo
311-3	2:05 PM	**Distribution and Productivity of Naturalized Alfalfa on Rangeland in the Northern Great Plains** Arvid Boe*, Lan Xu and Patricia Johnson
311-4	2:20 PM	**Determining Genetic Factors That Influence Fiber Quality in Alfalfa** O. Steven Norberg*, Long Xi Yu, David K. Combs, Guojie Wang, Glenn E. Shewmaker, Don A. Llewellyn and Steve C. Fransen
311-5	2:35 PM	**Combined Impact of Irrigation, Fertilization, and Fall Dormancy Rating on Alfalfa Production** Amanda Shine*, Maryse Bourgault, Emily C Glunk and Jessica A Torrion
311-6	2:50 PM	**The Elevated Carbohydrate Concentrations of High Altitude-Grown Perennial Legume Forages** Jennifer W. MacAdam*
	3:05 PM	**Break**
311-7	3:15 PM	**Breeding for Summer-Dormant, Cool Season Perennial Grasses** Dariusz P Malinowski*, John Ford and William E Pinchak
311-8	3:30 PM	**Feed Quality of Ten Small Grain Silage Mixtures** Angela Post* and Ryan Heiniger
311-9	3:45 PM	**Estimating Forage Yield of Cool-Season Annual Grasses Using Unmanned Aerial Systems to Produce Structure from Motion Imaging** Bryan Simoneaux, Clark B. Neely*, Amir M.H. Ibrahim, Nithya Rajan, Sorin Popescu and Lonesome Malambo
	4:00 PM	**Adjourn**

SESSION NO. 312—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

CrossDiv Symposium--Soil, Water, Plant and Atmosphere Interactions and Soil Carbon Dynamics in Long Term Research Experiments II

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality,
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Chemistry,
SSSA Division: Forest, Range and Wildland Soils

Moderator: Maria Silveira, Jasmine Neupane

	1:30 PM	**Introductory Remarks**
312-1	1:35 PM	**Assessing Soil Organic C Stability at the Continental Scale: An Analysis of Soil C and Radiocarbon Profiles across the NEON Sites** Katherine Heckman*, Adrian C. Gallo, Tyler Weiglein, Lucas E. Nave, Brian D. Strahm, Jeff A. Hatten, Michael D. Sanclements and Christopher W. Swanston
312-2	2:05 PM	***Linkages between the Microbial Component and Soil Organic Matter Pools within Transitions to Dryland*** Veronica Acosta-Martinez*, Joseph A. Burke, Katie L. Lewis, Maysoon M. Mikha and Lumarie Perez-Guzman
	2:35 PM	**Break**
312-3	2:45 PM	**Envisioning a New Global Soil Information Service – the Role of LTE Data-Model Integration** Keith Paustian*
312-4	3:15 PM	**Cropping System Impacts on Soil Profile Carbon and Carbon Dioxide Emissions** David R. Huggins*, Qiuping Peng and Eric S. Russell
	3:45 PM	**Discussion**
	3:55 PM	**Concluding Remarks**
	4:00 PM	**Adjourn**

SESSION NO. 313—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

Soil Fertility and Plant Nutrition General Oral II

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: William Stevens, Larry Cihacek

	1:30 PM	**Introductory Remarks**
313-1	1:35 PM	**Maize Growth and YIELD As Affected By Combined Application of Inorganic Fertilizers and Winery SOLID Waste Compost Produced with and without Effective Microorganisms Inoculation** Manare Maxson Masowa*, Funso Raphael Kutu, Olubukola Oluranti Babalola and Azwimbavhi Reckson Mulidzi
313-2	1:50 PM	**Nutrient Uptake of Chickpea and Wild *Cicer* roots and Shoots Under Low pH with Increasing Concentration of Al** Shahana Sultana*, Richard Bell and Wendy Vance
313-3	2:05 PM	**Soil Acidity in View of Intensified Cropping Systems in Temperate / Subtropical Conditions** Juan Andres Quincke*
313-4	2:20 PM	**Zn Seed Treatment Effects on Plant Growth and Pathogen Tolerance** Isaac Madsen*
313-5	2:35 PM	**Comparison and Modelling of Extraction Methods to Assess Agronomic Effectiveness of Fertilizer Zinc** Fien Degryse*, Rodrigo Coqui da Silva, Roslyn Baird, Ismail Cakmak and Michael J. McLaughlin
	2:50 PM	**Break**
313-6	3:00 PM	**Evaluation of Boron Rates in the Soybean-Corn Rotation in Brazil** Cleiton De Sequeira* and Douglas Gitti
313-7	3:15 PM	**Boron Leaching in Sandy Soil from Microspheres of Alginate and Borate Intercaleted in Layered Double Hydroxides** Lincoln Zotarelli, Gustavo Castro*, Edson Mattiello and Jairo Tronto
313-8	3:30 PM	**Boron Release and Leaching from Layered Double Hydroxides Intercalated with Borate** Gustavo Castro*, Lincoln Zotarelli, Jader Ferreira, Edson Mattiello and Jairo Tronto
313-9	3:45 PM	**Agronomic Efficiency of a Novel Boron Source for Tropical Soils** Éder Lucas Corrêa Santos, Fábio A. D. Martins, Michael J. McLaughlin, Kyle Freeman, Kiran Mann, Rodrigo Coqui da Silva, Roslyn Baird, Fien Degryse, Marcos Vinícius Pires Silva, Ana Paula Leite Mendonça, Marcio José Santana and Luiz-Roberto G Guilherme*
	4:00 PM	**Adjourn**

SESSION NO. 314—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

Transdisciplinary Contributions and Opportunities in Soil Physical Hydrology Oral II

SSSA Division: Soil Physics and Hydrology

Moderator: Jirka Simunek, Keith Bristow

	1:30 PM	**Introductory Remarks**
314-1	1:35 PM	**Green Water, the Rhizosphere and Food Security – the Role of Soil Physical Hydrology** Yan Jin*
314-2	1:50 PM	**Simulation of Soil-Plant Processes: From Single Roots over 3D Root Architectures to Crops and Vegetation Types.** Jan Vanderborght*, Andrea Schnepf, Mathieu Javaux, Guillaume Lobet, Daniel Leitner, Valentin Couvreur, Felicien Meunier and Harry Vereecken
314-3	2:05 PM	**Effect of Long-Term Conservation Tillage on Soil Structure and Organic Carbon in Black Soil of Northeast China** Hongbing Zheng*, Wuren Liu, Jinyu Zheng, Yang Luo, Ruiping Li, Hao Wang and Hua Qi
314-4	2:20 PM	**Machine Learning Estimation of Van Genuchten-Mualem Parameters from Laboratory Measurements** Cristina P. Contreras*, Carlos J. Avila, Sara E. Acevedo and Carlos A. Bonilla
	2:35 PM	**Break**
314-5	2:45 PM	**Soil Temperature Conditioned By Cover Crops** Tamir Kamai*, Or Sperling, Gil Eshel and Arnon Dag
314-6	3:00 PM	**Development and Implementation of Pedotransfer Functions for Predicting Soil Hydraulic Properties Using R** Sara E. Acevedo*, Cristina P. Contreras, Carlos J. Avila and Carlos A. Bonilla
314-7	3:15 PM	**Soil Physics at the Groundwater-Agriculture Interface** Thomas Harter*, Hanna Ouaknin, Christina Stock, Iael Raij Hoffman, Isaya Kisekka, Patrick H Brown, John Dickey, Till Angermann and Anthony Toby O'Geen
314-8	3:30 PM	**Interactions between Water Regime and Chemical and Biological Conditions in the Root Zone Following Long-Term Irrigation with Treated Wastewater** Shmuel Assouline*
	3:45 PM	**Discussion**
	4:00 PM	**Adjourn**

SESSION NO. 315—1:30 PM–4:05 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 2, 3rd Level

Special Session Symposium--Sensors for the Soil: Remote and Real-Time Monitoring of Multiscale Soil Processes

Special Sessions

Section or Division Cosponsor:
SSSA Division: Soil Physics and Hydrology,
ASA Section: Climatology and Modeling,
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Teamrat Ghezzehei, Vanessa Bailey

	1:30 PM	**Introductory Remarks**
315-1	1:35 PM	**Sensors for Sustainable Intensification: A Look Ahead** Donald Roper*
315-2	1:55 PM	**Thermo-TDR Sensors - Measurement of Soil Properties and Processes** Robert Horton*, Tusheng Ren, Kosuke Noborio, Joshua L. Heitman, Tyson E. Ochsner, Yili Lu, Yuki Kojima, Zhengchao Tian and Gang Liu
315-3	2:25 PM	**An Autonomous Soil Nutrient Sensing System** Ziqian Dong*, Reza K Amineh, Fang Li and Shenglong Zhang
	2:55 PM	**Break**
315-4	3:05 PM	**Soil Health and Sensors - Remote and in-Place** Cristine L. S. Morgan*
315-5	3:35 PM	**Measurement of Tree Hydration for Precision Water Stress: Fifty Years of Research** Bruce Bugbee*
	3:55 PM	**Discussion**
	4:05 PM	**Adjourn**

SESSION NO. 316—1:30 PM–4:00 PM

Henry B. Gonzalez Convention Center, 221C, 2nd Level

Poster and 5 Minute Rapid--Environmental Soil Physics and Hydrology Student Oral (includes Society-wide student competition selection)

SSSA Division: Soil Physics and Hydrology

Moderator: Naftali Lazarovitch

	1:30 PM	**Introductory Remarks**
316-1	1:35 PM	**Integration of Remote Sensing and in-Situ Data to Estimate Soil Moisture across Mixed Land Cover Types** Briana M. Wyatt*, Tyson E. Ochsner and Chris B. Zou
316-2	1:40 PM	**Soil Moisture Mapping Using Landsat Data in a Frigid Glaciolacustrine Landscape with Agricultural Production** Umesh Acharya*, Aaron L.M. Daigh and Peter G. Oduor
316-3	1:45 PM	**Modeling of Spatial and Temporal Root Water Uptake of Cotton Under Deficit Irrigation in West Texas** Atinderpal Singh* and Sanjit K Deb
316-4	1:50 PM	**Estimating Root Water Uptake Depth of Rice Using Water Stable Isotope.** Yuma Ishii* and Kosuke Noborio
316-5	1:55 PM	**Comparison of Visible Near-Infrared and Fourier Transform Infrared Spectroscopy to Estimate Atterberg Limits for Soils** Hafeez Ur Rehman*, Maria Knadel, Reza Haghi, Jean Robertson, Nastaran Pouladi, Lis Wollesen de Jonge and Emmanuel Arthur
316-6	2:00 PM	**Evaluation of Laser Diffraction Method on Soil Particle Size Distribution of Five Typical Soils in the Water Erosion Region of China** Xue Bai*, Yang Yang, Tingting Huang, Yangzi Shi, Lijuan Wang and Baoyuan Liu
316-7	2:05 PM	**Near-Surface Soil Hydrological Properties Measured Using Computed Tomography and Classical Approaches Under Grazed Pasture and Croplands** Navdeep Singh*, Jashanjeet Kaur Dhaliwal, Sheela Katuwal, Sandeep Kumar, Lis Wollesen de Jonge, Ranjith P. Udawatta and Stephen H. Anderson
316-8	2:10 PM	**Measurement of Water Viscosity Using a Capillary Viscometer Under Microgravity** Kento Nogawa*, Naoto Sato, Yuichi Maruo, Maho Tsukano, Hayato Mizutani and Kosuke Noborio

316-9	2:15 PM	**Diving Down: *In Situ* Characterization of Clay, Carbon, and Bulk Density Using a Visnir-Mounted Penetrometer** Sarah E Hetrick*, Cristine L. S. Morgan, Jason P. Ackerson, Haly L. Neely and Yufeng Ge
316-10	2:20 PM	**The Impact of Reduced Tillage and Double Cropping on Soil Moisture Dynamics** Perejitei Ebikirifagha Bekewe*, Haly L. Neely, Clark B. Neely, Lauren Tomlin, Jamie Foster, Katie L. Lewis and Thomas W. Boutton
	2:25 PM	**Questions and Answers**
316-11	2:35 PM	**Relationships between Soil Cracks and Greenhouse Gas Emissions in Paddy Field** Toshihiro Doi* and Kosuke Noborio
316-12	2:40 PM	**Stochastic Soil Moisture Dynamics during Secondary Forest Rehabilitation in Eastern Amazonia** Matthew Amato* and Daniel Giménez
316-13	2:45 PM	**Soil Water Repellency of 117 South Greenlandic Soils** Peter Weber Jensen*, Per Moldrup, Mogens H. Greve and Lis Wollesen de Jonge
316-14	2:50 PM	**Experimental Setup for the Simulation of Wildfire Effects on Soil Hydraulic Properties** Sofía Martínez*, Cristina P. Contreras, Sara E. Acevedo, Carlos J. Avila and Carlos A. Bonilla
316-15	2:55 PM	**Analyzing the Impact of Transient River Stage on Soil Moisture Redistribution Using a Coupled System of Governing Equations** Minki Hong* and Binayak P. Mohanty
316-16	3:00 PM	**Evaluation of Indian Ocean Water Cycle Using Water Stable Isotope Ratio** Ryota Hirabayashi*, Yuma Ishii and Kosuke Noborio
316-17	3:05 PM	**Aggregate Carbon Dynamics As Affected By Landuse Using Scanning Electron Microscope Imagining and ^{13}c Natural Abundance** Ekrem Ozlu* and Francisco J. Arriaga
316-18	3:10 PM	**Effect of Naphthalene and Sulfamethazine on Surface Characteristics of Biochar Colloids and Its Implications for Transport in Porous Media** Wen Yang*, Jianying Shang, Baoguo Li and Markus Flury
316-19	3:15 PM	**Transport of Phytophthora Cactorum Zoospores in Unsaturated Sand Columns** Yingxue Yu* and Markus Flury
316-20	3:20 PM	**Effect of Salt Composition and Concentration on Unsaturated Hydraulic Conductivity** Yuki Sunakawa* and Kosuke Noborio
316-21	3:25 PM	**Compaction Impacts of Wind Turbine Installation on Indiana Soils** Chelsea Emenhiser* and Jason P. Ackerson
	3:30 PM	**Questions and Answers**
	3:40 PM	**Soil Physics Early Career Award Recipient Talk**
	3:50 PM	**Don & Betty Kirkham Soil Physics Research Award Recipient Talk**
	4:00 PM	**Adjourn**

SESSION NO. 317—1:30 PM–4:15 PM

Hilton Palacio del Rio, La Vista C, 22nd Floor

Cover Crop Management General Oral I (includes student competition)

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

Moderator: Denise Troxell

	1:30 PM	**Introductory Remarks**
317-1	1:35 PM	**Short-Term Effects of Cover Crops on Soil Health and Yield in Established No-till Systems** Savanna Crossman*, DeAnn R. Presley and Peter J. Tomlinson
317-2	1:50 PM	**The Benefits and Costs of Grazing Cover Crops in Dryland Semi-Arid Cropping Systems** Courtland Kelly*, Meagan E. Schipanski, Angela C. Moore, Norman Dalsted, Lucas A. Haag, Wilma Trujillo, Johnathon D. Holman and Steven J. Fonte
317-3	2:05 PM	**Integrating Cover Crops and Livestock in Irrigated Cropping Systems** Taylor Vance Bush* and Jay B. Norton
317-4	2:20 PM	**Impacts of Cover Crop Management on Soil Biochemical Properties** Hanxiao Feng*, Udayakumar Sekaran, Sandeep Kumar and Shannon L. Osborne
317-5	2:35 PM	**Interseeded Cover Crop Effects on Soil Health** Aaron Brooker*, Lisa K Tiemann and Karen A. Renner
	2:50 PM	**Break**
317-6	3:00 PM	**Assessing the Impacts of Cover Crops and Grazing Under Integrated Crop Livestock System on Soil Physical Quality** Navdeep Singh*, Jashanjeet Kaur Dhaliwal, Udayakumar Sekaran and Sandeep Kumar
317-7	3:15 PM	**Evaluation of Cover Crop Mixtures for Improving Soil Health in Ultisols** Anna Johnson*, Kipling S. Balkcom and Audrey V. Gamble
317-8	3:30 PM	**Grazing Triticale during Early Cover Crop Establishment** Elizabeth Widder*, Daren D. Redfearn and Robert B. Mitchell
317-9	3:45 PM	**Cover Crop Management Impacts on Soil Organic Carbon Stocks - a Global Meta-Analysis** Shelby C. McClelland*, Keith Paustian and Meagan E. Schipanski
317-10	4:00 PM	**Soil Health Indicators and Cotton Production on the Semi-Arid Texas High Plains** Joseph A. Burke*, Katie L. Lewis and Paul B. DeLaune
	4:15 PM	**Adjourn**

SESSION NO. 318—1:30 PM–4:15 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

Turfgrass Pest Management Oral II: Diseases, Insects, and Weeds

C05 Turfgrass Science

Moderator: Scott McElroy

	1:30 PM	**Introductory Remarks**
318-1	1:35 PM	**Advancing Use of Key Integrated Pest Management Practices in Schools** Tim Stock, Alexander R. Kowalewski* and Emily T Braithwaite
318-2	1:50 PM	**Adjusting Standard ANOVA Methods to Account for Heterogeneous Variances with an Application to Turfgrass Management** Michael Dumelle*, Clint Mattox, Emily T Braithwaite, Brian W. McDonald and Alec Kowalewski
318-3	2:05 PM	**Natural Weed Suppression of Crabgrass Varies By Genotype and Field Management Practices** Jon M. Trappe*, Eric Watkins, Dominic P Petrella and Florence Sessoms
318-4	2:20 PM	**The Effects of Dazomet on Annual Bluegrass Seed Viability** Thomas Okada Green*, John N Rogers III, James Crum, Eunice F. Foster and Jim Flore

318-5	2:35 PM	**Fairway Renovation with Fraze Mowing Cultivation and Basamid Fumigation: Their Combined Effect on Annual Bluegrass Suppression and Creeping Bentgrass Establishment** Ryan Bearss*
318-6	2:50 PM	**Rush (*Juncus*) Species Control in Maintained Turfgrass: Results and Knowledge Gaps** James D McCurdy*, Zachary D. Small, James T Brosnan and Gregory K Breeden
	3:05 PM	**Break**
318-7	3:15 PM	**Alternative Control Options for Annual Bluegrass in the Transition Zone** Robert A. Kerr*, Lambert B. McCarty, Scott McElroy, Jim Harris and Philip J. Brown
318-8	3:30 PM	**False-Green Kyllinga (*Kyllinga gracillima*) Freeze Tolerance Is Affected By Herbicide Treatment** Matthew T. Elmore*, Daniel P. Tuck and Katherine H. Diehl
318-9	3:45 PM	**Updates on Sdhi Resistance in Dollar Spot** Geunhwa Jung*, Jaemin Lee and Toshihiko Yamada
318-10	4:00 PM	**Nitrogen Fertilizer Influences Dollar Spot Severity through Manipulation of the Soil Microbial Community** Paul L Koch*
	4:15 PM	**Adjourn**

SESSION NO. 319—1:30 PM–4:15 PM

Henry B. Gonzalez Convention Center, 216A, 2nd Level

Emerging Contaminants in Soil, Water and Plant Systems Oral (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Chemistry

Moderator: Wei Zhang, Jasper Teboh, Yuanbo Li

	1:30 PM	**Introductory Remarks**
319-1	1:35 PM	**Wake up and Smell the Biochar:a Potential New Source of PM10 Emissions and Other Airborne Pollutants** Danielle L. Gelardi*, Sanjai J. Parikh and Chongyang Li
319-2	1:50 PM	**Biochar Mediated the Uptake of Silver Nanoparticles and Ions By Radish (*Raphanus sativus*)** Jianzhou He*, Yuanbo Li, Haonan Qi, Hui Li and Wei Zhang
319-3	2:05 PM	**Environmental Conditions Alter Soil Microbial Responses to Antibiotic and Manure Exposure** Sarah E. Shawver*, Michael Strickland, Kang Xia and Brian Badgley
319-4	2:20 PM	**Uptake and Accumulation of Antibiotics and Associated Impact on Bacterial Microbiome and *Salmonella* Survival in Greenhouse Lettuce** Yike Shen*, Wei Zhang, Hui Li and Elliot T. Ryser
319-5	2:35 PM	**Competitive Sorption of Pharmaceuticals to Soil** Clinton Williams*, Rebecca Muenich and Otakuye Conroy-Ben
319-6	2:50 PM	**Using a Portable X-Ray Fluorescence Spectrometer (pXRF) to Determine Phosphorus (P) Saturation of P Sorbing Materials in Edge-of-Field P Filters** Taylor Berkshire*, Reid Christianson, Laura Christianson and Andrew J. Margenot
	3:05 PM	**Break**
319-7	3:15 PM	**Reducing Soil P Release Under Spring Flooded Conditions Using Alum and Gypsum** Chamara Weerasekara*, Darshani Kumaragamage and Wole Akinremi
319-8	3:30 PM	**Phosphorus Release and Availability from Sewage Sludge Incinerator Ash in a Corn and Soybean Field Study** Persephone Ma* and Carl J Rosen
319-9	3:45 PM	**Effects of Soil Compost-Amendment on Mitigation of Pfas Uptake into Lettuce** Yuanbo Li*
319-10	4:00 PM	**Field-Based Analysis of Roadway Contaminant Impacts on Vineyard Soils in the New Jersey Coastal Plain** Jessica Favorito* and Stephanie Lugo
	4:15 PM	**Adjourn**

SESSION NO. 320—1:35 PM–3:25 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Symposium--Soil Diversity and Function in C and N Dynamics: Fungi, Bacteria, and Macro-Organisms

SSSA Division: Forest, Range and Wildland Soils

Section or Division Cosponsor:
SSSA Division: Soil Biology and Biochemistry

Moderator: Charlene Kelly

	1:35 PM	**Introductory Remarks**
320-1	1:40 PM	**Advancing Understanding of Soil C and N Dynamics Requires Distinguishing Particulate from Mineral-Associate Organic Matter Fractions** M. Francesca Cotrufo*
320-2	2:00 PM	**Effects of Fresh and Pyrogenic Organic Matter Additions on Soil Carbon Fluxes: Bacterial and Fungal Responses** Thea Whitman*
320-3	2:20 PM	**Anthropogenic N Deposition Increases Soil C Storage By Differentially Impacting Soil Bacteria and Fungi across a Northern Hardwood Forest Ecosystem** Zachary Freedman*, William Argiroff, Elizabeth Entwistle and Donald Zak
320-4	2:40 PM	**The "Who" and "How" of Microbial Control over Soil Carbon Dynamics: The Genomic Basis of Soil Microbial Growth and Efficiency** Serita D. Frey*, Kristen DeAngelis, Kevin M Geyer, Stuart Grandy, Emily Kyker-Snowman, Eric Morrison, Grace Pold and Shana Whitney
320-5	3:00 PM	**Alterations of Habitable Pore Space By Earthworms and Subsequent Effects on Soil Biogeochemistry** Josef Gorres* and Jose Adolfo Amador
	3:20 PM	**Concluding Remarks**
	3:25 PM	**Adjourn**

SESSION NO. 321—1:55 PM–4:00 PM

Henry B. Gonzalez Convention Center,
Cantilever Room, 2nd Level

Symposium--Soil Chemistry in the Face of Climate Change: Impacts of Geochemical Processes

SSSA Division: Soil Chemistry

Moderator: Sanjai Parikh, Jon Chorover

	1:55 PM	**Introductory Remarks**
321-1	2:00 PM	**Minimizing Soil Degradation Risks of Anthropogenic Climate Change** Rattan Lal*

321-2	2:30 PM	**Altered Fire Regime and Climate Strongly Impact Critical Terrestrial and Hydrological Biogeochemical Processes in Dryland Ecosystems in the Western US** Kathleen A Lohse*, Kayla Glossner, Mark S Seyfried, Gerald N. Flerchinger, Aaron W. Fellows, Fred Pierson, Jen Pierce and Jason Williams
321-3	3:00 PM	**Impacts of Climate Change on Forest Fires and Soil Processes** Matt D. Busse*
321-4	3:30 PM	**Climate Change Mitigation Potential of Agricultural Lands: Soil Carbon Sequestration and Greenhouse Gas Emissions Reduction** Whendee L. Silver*
	4:00 PM	**Adjourn**

SESSION NO. 322—2:00 PM–4:00 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 1, 3rd Level

Special Session Symposium--Science Breakthroughs to Advance Food and Agricultural Research By 2030

Special Sessions

Section or Division Cosponsor:
ASA Section: Agronomic Production Systems,
C01 Crop Breeding and Genetics,
C07 Genomics, Molecular Genetics and Biotechnology,
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Physics and Hydrology,
SSSA Division: Soil Fertility and Plant Nutrition

	2:00 PM	**Introductory Remarks**
322-1	2:10 PM	**Understanding the Interactions of the Food and Agricultural System: The Need for a Systems Approach** Jerry L. Hatfield*, Peter O'Brien, Christian Dold, Erica Kistner-Thomas and Ken Wacha
322-2	2:35 PM	**Soil Microbiomes: From Metagenomes to Metaphenomes** Janet Jansson*
322-3	3:00 PM	**The Application and Integration of Data Sciences, Software Tools, and Systems Models to Enable Advanced Analytics for Managing the Food and Agricultural System** Bruno Basso*
322-4	3:25 PM	**Farmbeats: Empowering Farmers with Affordable Digital Agriculture Solutions** Ranveer Chandra*
	3:50 PM	**Discussion**
	4:00 PM	**Adjourn**

SESSION NO. 323—2:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

William H. Patrick, Jr. Memorial Lectureship

SSSA Division: Wetland Soils

Moderator: Jacob Berkowitz

	2:00 PM	**Introductory Remarks**
323-1	2:05 PM	**Shifting Boundaries: The Intersection of Natural Resources, Science, and the Law** Royal C. Gardner*
	3:05 PM	**Concluding Remarks**
	3:15 PM	**Break**
	3:30 PM	**Division Business Meeting**
	4:30 PM	**Wetland Soils Mixer**
	6:00 PM	**Adjourn**

SESSION NO. 324—2:10 PM–4:00 PM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

Climatology and Modeling Oral I

ASA Section: Climatology and Modeling

Moderator: George Paul, Garry O'Leary, Saseendran Anapalli, Sotirios Archontoulis

	2:10 PM	**Introductory Remarks**
324-1	2:15 PM	**Multi-Location Response and Calibration Stability of Potato Models to Changes in Atmospheric Carbon Dioxide Concentration** David H. Fleisher*, Bruno Condori, Carolina Barreda, Berguijs Herman, Marco Bindi, Kenneth J. Boote, Jim Craigon, Frits K. Van Evert, Andreas Fangmeier, Roberto Ferrise, Sebastian Gayler, Gerrit Hoogenboom, Pascal Kremer, Paolo Merante, Claas Nendel, Johan Ninanya, Hakan Pleijel, Dirk Raes, David Ramirez, Joao Vasco Silva, Claudio O. Stockle, Iwan Supit, Tommaso Stella, Karine Vandermeiren, Eline Vanuytrecht, Virpi Vorne, Pepijn Vanoort and Joost Wolf
324-2	2:30 PM	**Regional Wind Pattern, Basis for Designing Policy Instruments to Reduce the Effect of Sugar Cane Burning on the Human Population in the Cauca Valley (Colombia)** Andrés J Peña Q*, Mónica Preciado V., Héctor A Chica R., Efraín Solarte R. and Javier Carbonell G.
324-3	2:45 PM	**AgMIP Soybean Phase 1: Multi-Model Sensitivity Analysis to CO_2, Temperature, Water, and Nitrogen** Kritika Kothari*, Montserrat Salmeron, Rafael Battisti, Kenneth J. Boote, Sotirios V. Archontoulis, Adriana Confalone, Santiago Cuadra, Philippe Debaeke, Delphine Deryng, Babacar Faye, Brian Grant, Yang Haishum, Gerrit Hoogenboom, Qi Jing, Soora Naresh Kumar, Michael van der Laan, Fernando Macena, Fabio R Marin, Alireza Nehbandani, Claas Nendel, Larry C. Purcell, Budong Qian, Alex C Ruane, Evandro da Silva, Ward Smith, Afshin Soltani, Amit Srivastava and Dennis Timlin
324-4	3:00 PM	**Climate and Environmental Analytics with Crop OS: A Cloud-Based Platform for Immediate Insights** Dylan C. Kesler, Rebecca Willison*, Caley Johns, RJ Waken, Kyung Kim, Craig Rolling, John Snyder and Paul Skroch
324-5	3:15 PM	**Estimating the Impact of Climate Change on Vegetable Soybean Production in Taiwan Using Glycim Model** Chu-Chung Chen*, Chi-Chieh Hu, Kuo-Lun Chou, Dennis Timlin, Chiling Chen, Dar-Yuan Lee and Vangimalla R. Reddy
324-6	3:30 PM	**Modeling Soybean Response to Waterlogged Field Conditions** Heather R. Pasley* and Sotirios V. Archontoulis
324-7	3:45 PM	**Projected Phenology and Rice-Wheat Productivity Under the Influence of Climate Change in Indo-Gangetic Plains of India through Multi-Modeling** Subash Nataraja*, Harbir Singh, Mohar Singh Meena, Sohanvir Singh, Balwinder Singh, Kenneth J. Boote, Peter J Thorburn, Cheryl H Porter, Cynthia Rosenzweig, Alex C Ruane, Sonali P. McDermid, Sonali P. McDermid and Guillermo Baigoria
	4:00 PM	**Adjourn**

SESSION NO. 325—2:40 PM–2:55 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

ASA Community Planning Session--Managing Denitrification in Agronomic Systems

ASA Section: Environmental Quality

Lead Community:
Managing Denitrification in Agronomic Systems Community

Moderator: Lordwin Jeyakumar

SESSION NO. 326—3:00 PM–4:00 PM

Henry B. Gonzalez Convention Center, 213B, 2nd Level

SSSA Business Meeting--Soil Education and Outreach

SSSA Division: Soil Education and Outreach

	3:00 PM	**Introductory Remarks**
	3:05 PM	**Discussion**
	4:00 PM	**Concluding Remarks**

SESSION NO. 327—3:00 PM–4:10 PM

Henry B. Gonzalez Convention Center, 213A, 2nd Level

Pedology General Oral I (includes student competition)

SSSA Division: Pedology

Moderator: Darrell Schulze

	3:00 PM	**Introductory Remarks**
327-1	3:05 PM	**Properties and Drivers of Microaggregation across the Southeastern United States** Julio C. Pachon*, Sabine Grunwald, Jason G. Vogel, Eric J. Jokela, C. Wade Ross, Rosvel Bracho, Timothy A. Martin, Marshall Laviner and Allan R. Bacon
327-2	3:20 PM	**Between- and within-Field Soil Spatial Variability Explaining Variation Among Wheat Genotypes** Rahul Raman*, Haly L. Neely, Mahendra Bhandari, Nithya Rajan, Amir Ibrahim, Annalee Fearing, Julie A Howe and Peyton Smith
327-3	3:35 PM	**Continental-Scale Patterns in Pedodiversity: The Role of Soil Forming Factors on Meso-Scale Soil Variability** Jason P. Ackerson*
327-4	3:50 PM	**Climate Change Influence on Soil Organic Carbon Pools Determined By Incubation** Zamir Libohova*, Phillip R. Owens, Kabindra Adhikari and Diane E. Stott
327-5	3:55 PM	**Translating Soil Survey Data into Practical Information and Knowledge - a Case Study for the Arequipa Region, Peru** Darrell G. Schulze*, Martín Juan Carlos Villalta Soto and Zachary Brecheisen
327-6	4:00 PM	**Rapid Bulk Density Measurement Using Mobile Device Photogrammetry** Michael Whiting*, Shawn Salley and Colby Brungard
	4:05 PM	**Questions & Answers**
	4:10 PM	**Adjourn**

SESSION NO. 328—3:05 PM–3:20 PM

Hilton Palacio del Rio, La Corona, 2nd Floor

ASA Community Planning Session --By-Product Gypsum Uses in Agriculture

ASA Section: Environmental Quality

Lead Community:
By-product Gypsum Uses in Agriculture Community

SESSION NO. 329—3:05 PM–4:10 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

Nutrients and Environmental Quality General Oral II (includes student competition)

ASA Section: Environmental Quality

Lead Community: Nutrients and Environmental Quality Community

Moderator: Heidi Peterson

	3:05 PM	**Introductory Remarks**
329-1	3:10 PM	**Characterization of Phosphorus(P) in Poultry Litter and Determination of P Extraction Efficiency of Extractants** Poulomi Dey*, Debolina Chakraborty, Rishi Prasad, Audrey V. Gamble, Yucheng Feng and Brendan Higgins
329-2	3:25 PM	**Effects of Poultry Litter Application on Soybean Yield and Quality** Joseph M. Burns*, Stephanie Kulesza, Rachel A Atwell Vann and Alex L. Woodley
329-3	3:40 PM	**Repurposing Municipal and Agricultural Waste Products to Benefit Water Quality, Ecosystems, and Agricultural Sustainability** Travis Banet*
329-4	3:55 PM	**Quantifying the Ability of Detainment Bunds to Attenuate Sediments and Nutrients By Temporarily Ponding Surface Runoff in the Lake Rotorua Watershed, New Zealand** Brian Levine*, Lucy Burkitt, David Horne, Chris Tanner, Leo Condron and John Paterson
	4:10 PM	**Adjourn**

SESSION NO. 330—3:15 PM–4:15 PM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

SSSA Business Meeting --Consulting Soil Scientists

SSSA Division: Consulting Soil Scientists

SESSION NO. 331—3:20 PM–4:00 PM

Henry B. Gonzalez Convention Center, 006D, River Level

CSSA Business Meeting --Plant Genetic Resources

C08 Plant Genetic Resources

SESSION NO. 332—3:20 PM–4:20 PM

Henry B. Gonzalez Convention Center, 301B, 3rd Level

Environmental Nanotechnology: Preventing and Solving Current and Future Problems - Panel Discussion

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Physics and Hydrology,
SSSA Division: Soil Mineralogy,
SSSA Division: Soils and Environmental Quality

Moderator: Salini Sasidharan, Devin Rippner

3:20 PM **Introductory Remarks**
3:25 PM **Invited Panel Discussion with Moderators**
3:50 PM **Oral Presenters and Panel Discussion - Open to General Audience**
4:15 PM **Concluding Remarks**
4:20 PM **Adjourn**

SESSION NO. 333—3:25 PM–3:40 PM

Henry B. Gonzalez Convention Center, 006C, River Level

ASA Community Planning Session --Precision Agriculture Systems

ASA Section: Agronomic Production Systems

Lead Community: Precision Agriculture Systems Community

SESSION NO. 334—3:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 007B, River Level

ASA Community Planning Session --Organic Management Systems

ASA Section: Agronomic Production Systems

Lead Community: Organic Management Systems Community

SESSION NO. 335—3:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 007A, River Level

ASA Community Planning Session --Semi-Arid Dryland Cropping Systems

ASA Section: Agronomic Production Systems

Lead Community: Semi-arid Dryland Cropping Systems Community

SESSION NO. 336—3:30 PM–3:45 PM

Henry B. Gonzalez Convention Center, 210B, 2nd Level

ASA Community Planning Session --Soil-Plant-Water Relations

ASA Section: Climatology and Modeling

Lead Community: Soil-Plant-Water Relations Community

SESSION NO. 337—3:35 PM–3:50 PM

Henry B. Gonzalez Convention Center, 008B, River Level

ASA Community Planning Session --Biochar: Agronomic and Environmental Uses

ASA Section: Environmental Quality

Lead Community:
Biochar: Agronomic and Environmental Uses Community

3:35 PM **Introductory Remarks**
3:40 PM **Discussion**
3:50 PM **Adjourn**

SESSION NO. 338—3:30 PM–3:45 PM

Hilton Palacio del Rio, La Vista AB, 22nd Floor

ASA Community Planning Session --Agricultural Experiment Station Management

ASA Section: Land Management and Conservation

Lead Community:
Agricultural Experiment Station Management Community

SESSION NO. 339—3:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

SSSA Business Meeting--Wetland Soils

SSSA Division: Wetland Soils

SESSION NO. 340—3:35 PM–3:50 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

ASA Community Planning Session --Spatial Statistics and On-Farm Research

ASA Section: Biometry and Statistical Computing

Lead Community:
Spatial Statistics and On-Farm Research Community

SESSION NO. 341—3:45 PM–4:45 PM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

SSSA Business Meeting--Nutrient Management and Soil and Plant Analysis

SSSA Division: Nutrient Management and Soil and Plant Analysis

SESSION NO. 342—3:45 PM–4:45 PM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

SSSA Business Meeting--Soil Fertility and Plant Nutrition

SSSA Division: Soil Fertility and Plant Nutrition

SESSION NO. 343—3:45 PM–4:45 PM

Henry B. Gonzalez Convention Center, 212B, 2nd Level

SSSA Business Meeting --Urban and Anthropogenic Soils

SSSA Division: Urban and Anthropogenic Soils

SESSION NO. 344—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

General Precision Agriculture Systems Poster

ASA Section: Agronomic Production Systems

Lead Community: Precision Agriculture Systems Community

1320 **Constructing Decision Supporting System for High Quality Sweet Corn Production in Semi-Tropical Climate** Chi-Hung Lin and Huu-sheng Lur*

1321 **Using Soil Electrical Conductivity and Yield Maps to Define Soil Fertility Management Zones** Charles Macaulay White*, John T. Spargo and Zachary P. Sanders

1322 **Estimation of Vegetation Growth Model Using Multi-Spectral Sensor Equipped with Quadrocopter in Soybean** Chan-Seok Ryu, Si-Hyeong Jang, Kunyan Zou, Dong-Woo Kang and Taehwan Jun*

1323 **Phenomics in the Age of Digital Agriculture** Amanda Ramcharan*

1324 **Uav Multi-Sensor for High Throughput Phenomics Applications** Kyle H. Holland and Michael R. Schlemmer*

1325 **Uav-Based in-Season Assessment of Fruit Trees.** Olga S. Walsh* and Sanaz Shafian

1326 **Machine Learning Applications for Modeling Miscanthus Production across the Farm Landscape** Paul R. Adler* and Yanan Xin

1327 **Detecting Wheat Planting Rates at Multiple Heights Using Drone Imagery** Jarrod O. Miller* and James Adkins

1328 **Assessment of Fusarium Head Blight in Small Grains Using Aerial Methods** Joseph Oakes*, Joshua Fitzgerald and Carl A. Griffey

1329 **Precision Management Approaches for Increasing Field-Level Profitability in Salt-Affected Annual Crop Fields** Caley Gasch* and Alec Deschene

1330 **Evaluating the Performance of UAS Multispectral and Thermal Sensors for Monitoring Zea Mays Biophysical Parameters through the Growing Season** Andrew L. Russ*, Craig S. T. Daughtry and E. Raymond Hunt Jr.

1331 **Identifying Areas with Different Risk of Aflatoxin Contamination within Fields for Precision Management** Ruth Kerry*, Ben Ingram, Brenda V. Ortiz and Damianos Damianidis

1332 **Exploring Relationships between Remotely Sensed Thermal Imagery, Soil Electrical Conductivity, and Corn Yield.** John Sulik* and Adam W Gillespie

1333 **Effectiveness of Weed Classification and Spray Application Using an Unmanned Aerial System** Vijay Singh*, Daniel Martin, Zhaohui Chi, Da Huo, Mohamed Latheef, Bishwa Sapkota, Michael P. Bishop and Muthukumar Bagavathiannan

SESSION NO. 345—4:00 PM–6:00 PM

**Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level**

Legume & Alternate Crops Agronomy Poster--Agronomic Production Systems

ASA Section: Agronomic Production Systems

1255 **Evaluation of Cassava Genotypes Grown during the Off–Season of Paddy Rice** Nateetip Sawatraksa*, Poramate Banterng, Sanun Jogloy, Nimitr Vorasoot and Gerrit Hoogenboom

1256 **Canola Production in the Province of Quebec (Canada) : What Are the Major Diseases and Insects ?** Denis Pageau*

1257 **Nitrogen Application Timing and Winter Canola Seasonal Biomass Production and Seed Yield** Sultan Begna*, Sangamesh Angadi, Rajan Ghimire, Abdel O. Mesbah and Murali Darapuneni

1258 **Tuber Yield and Nitrogen Use Efficiency of Potato Varieties in Response to Nitrogen Application** Emerson Souza*, Sanjay K. Gupta and Carl J Rosen

1259 **Field Assessment of Pesticide Effects on Potato Psyllids** Michael Scott Lass*, Charlie M. Rush and Fekede Workneh

1260 **Using Ground Penetrating Radar to Detect Root Biomass of Grafted Tomato** Xuejun Dong*, Shane Sieckenius, Bin Peng, Desire Djidonou and Daniel I. Leskovar

1261 **Quality Control Techniques and Related Factors for Hydroponic Leafy Vegetables** Jinghua Guo, Yan Yan, Lingdi Dong*, Yonggang Jiao, Haizheng Xiong, Linqi Shi, Yu Tian, Yubo Yang and Ainong Shi

1262 **Producing Egyptian Spinach Microgreens Under Different Light Regimes** Eric Obeng*, Jose Ernesto Olvera-González, Peter A. Y. Ampim, Aruna Weerasooriya and Godson Osuji

1263 **Establishing the Cash Cover Crop Pennycress Following Grain Corn** Nicholas Heller*

1264 **Growing Vegetable Amaranth Microgreens Using Different Light Regimes** Peter A. Y. Ampim*, Jose Ernesto Olvera-González, Eric Obeng, Aruna Weerasooriya and Godson Osuji

1265 **Root Nodulation in Guar: Impacts of a Range of Static and Dynamic Soil Moisture Regimes** Rajan Shrestha*, Curtis Adams, Philip Hinson and Jennifer MacMillan

1266 **In Vitro Studies of Herbicides and Surfactants on Bradyrhizobium Growth.** Joy Amajioyi*, Sen Subramanian, Jesus Loya, David Clay, Sharon A. Clay and Bhanu Petla

1267 **Nodulation and N Fixation Progress of Fava Bean in Two Fields with Different Soil Conditions** Jocelyn Prieto-Garcia*, Kyle Brasier and Hossein Zakeri

1268 **Modeling Cadmium Transfer from Soils to Cacao (*Theobroma cacao* L.) Beans: A First Approach in Two Contrasting Edaphoclimatic Areas.** Eduardo Esteban Gutiérrez Brito*, Eduardo Chavez and David Marcelo Arguello

1269 **The Effect of Different Planting Dates on Safflower Yield Components** Aaron Becerra-Alvarez*

1270 **Winter Camelina Response to Nitrogen for the Intensification of Corn-Soybean Production in the Upper Midwest** Stephen Gregg*, Jeffrey S. Strock, Russell W. Gesch, Jeffrey A. Coulter and Axel Garcia y Garcia

1271 **Effect of Winter Cover Crops on a Peanut - Cotton Rotation System** Ana Julia Azevedo*, R. Scott Tubbs, William F. Anderson and Alisa Coffin

1272 **Navy and Black Bean Is Flexible for Seeding Date and Plant Population in Ontario Canada.** Chris Gillard*, Stephen Boersma and Donald Depuydt

1273 **Response of Large Seeded Dry Bean Cultivars to Narrow Rows and Reduced Seed Rates** Stephen Boersma* and Chris Gillard

1274 **Using on Farm Research to Evaluate Pinto Bean Varieties for Direct Harvest** John Thomas* and Laura Thompson

1275 **Effect of High Temperatures in the Agronomic Performance of Common and Tepary Bean in Puerto Rico** Angela M. Linares* and Diego M. Viteri

1300 **Effects of Dry Bean Seeding Rates and Row Spacing on Yield Under Full and Deficit Irrigation** Eric Oleson*, Vivek Sharma and Jim Heitholt

1301 **Nitrogen Availability and Sugar Beet Yield Affected By Rotation and Crop Residue Removal** William B. Stevens*, Jalal D Jabro, William M. Iversen, Upendra M. Sainju and Brett L. Allen

SESSION NO. 346—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Organic Management Systems Poster (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Organic Management Systems Community

1302 **Farm Management and Forage Resources for Organic Grass-Fed Livestock Production** Myra Van Die* and Martin H. Entz

1303 **Cover Crop and Rotational Grazing Effects on Soil Fertility and Enzymatic Activity** Lee Klossner*

1304 **Morphology and Decomposition of Roots in Forage Mixtures Under Organic Management in the Southeastern U.S.** Karen Leu*, Gary E. Bates, S. Ray Smith Jr., Sindhu Jagadamma and David M. Butler

1305 **Effectiveness of Using Organic Mulches on Soil Fertility, Corm Yield and Nutritive Quality for Taro Cultivations** Chin-Jin Hou, Men-Ching Lin and Kai-Wei Juang*

1306 **OSU Organic Fertilizer & Cover Crop Calculator:Predicting Plant-Available Nitrogen** Dan M. Sullivan*, Nick Andrews, Clare Sullivan and Linda Joan Brewer

1307 **Nitrogen Isotopes As a Screening Tool to Differentiate Organically and Conventionally Grown Fruits and Vegetables** Xia Zhu-Barker*, Eshan Toosi and William R. Horwath

1308 **Cover Crop Effects on Soil Health in Organic High Tunnels** Miriam F. Gieske*, Fucui Li, Anne Pfeiffer, Debendra Shrestha, Ammar Al-Zubade, Cary L. Rivard, Krista Jacobsen, Jessica L Gutknecht and Julie M. Grossman

1309 **Biodegradable Mulch Loss and Legacy Effects on Vegetable Crop Yield, Soil Microbial Communities and Soil Properties** Rhae A. Drijber*, M. Ben Samuelson, Elise Reid, Elizabeth S. Jeske, Humberto Blanco, Martha Mamo and Sam Wortman

1310 **Biological Indicators of Soil Health on Organic Grain Farms** Miranda C. Sikora*, Léa Vereecke, Teal S. Potter, Richard A. Lankau, Erin M. Silva and Matthew D. Ruark

1311 **Effects of Altered Light Transmission Environments on Quality and Anthocyanin Content of Bagged Peaches.** David Neil Campbell*

1312 **Gauging Agronomic, Social and Economic Benefits of Iowa's Immigrant Community Gardens/Farms** Thanh Nguyen*, Kathleen Delate, Cynthia Haynes, Shannon Coleman and Craig Chase

1313 **Green Manures for Organic Small Grains: Can We Do Better Than Medium Red Clover?** Ellen Mallory*

1314 **New Bean Varieties for Organic Farming** Carmelo Maucieri*, Pietro Sica, Carlo Nicoletto, Fabio Palumbo, Flavio Da Ronch, Paolo Sambo, Maurizio Borin and Gianni Barcaccia

1315 **Agronomic Strategies to Improve Seed Set in Organic Quinoa** Chet Loveland*, Earl Creech, Jennifer R Reeve, Matt A. Yost and Kristine Buckland

1316 **Impact of Non-Chemical Management Practices on Weed Population Dynamics in Organic Grain Production** Spencer L. Samuelson*, Nithya Rajan, Ronnie W. Schnell and Muthukumar Bagavathiannan

1317 **Evaluating Leguminous Nitrogen Contributions to Flue-Cured Tobacco Systems in Eastern North Carolina** Samuel Hahn*, Alex Woodley and Matthew Christopher Vann

1318 **Options for Organic Tobacco Sucker Control: Screening Suckercide Alternatives for Efficacy and Injury Potential** David Suchoff*, Matthew Christopher Vann and Maggie Short

1319 **Development of Strategies for Organic Cotton Production in Texas** Martin Costa*, Steve Hague, Jane Dever and Julie A Howe

SESSION NO. 347—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Precision Agriculture Systems Graduate Student Poster (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community: Precision Agriculture Systems Community

1334 **Estimating Root Biomass Using Low Field Magnetic Resonance Imaging** Walker Crane*

1335 **Spatial Nitrogen (N) Rich Strip Approach to Evaluate the N Demand for Cotton Based on Satellite Remote Sensing** Luciano Shozo Shiratsuchi*, Ziany Brandao, Carlos Antonio Silva Junior, Felippe Hoffmann Silva Karp, Murilo de Santana Martins and Thanos Gentimis

1336 **Use of Unmanned Aerial Vehicle (UAV) to Improve Management Practices in Sugarcane** Chiranjibi Poudyal*

1337 **Using Deep Learning to Predict Optimum Crop Management Decisions** Rodrigo Goncalves Trevisan*, David S. Bullock and Nicolas Federico Martin

1338 **Effects of Removing Background Soil Reflectance Pixels from Vegetative Index Maps for Characterization of Corn Responses to Experimental Treatments** Ana Gabriela Morales Ona*, Robert L. Nielsen and James J. Camberato

1339 **Unmanned Aerial Remote Sensing for Assessing Cotton Yield Variability** Jeff Siegfried* and Nithya Rajan

1340 **Relative Thermal Changes Associated with Brown Patch Symptoms in Tall Fescue** Caleb A. Henderson*, David S. McCall and David Haak

1341 **Integration of Soil and Plant Measurements Using Crop Sensor Information to Improve Maize-N Model Predictions** Mohammed A Naser*, Richard B Ferguson, Brian Krienke, Suat Irmak, Daran R. Rudnick, Tim Shaver, Charles A. Shapiro and Keith L. Glewen

1342 **Evaluating Maize Variable Rate Seeding Methods** Nicholas Upah* and Mark A. Licht

1343 **Identifying Key Factors Influencing Soybean Yield and Optimal Seeding Density within Farmers' Fields in Minnesota** Leanna Leverich*, Yuxin Miao and Seth L. Naeve

1344 **Modeling Economic Implication Scenarios for Sense and Spray Weed Management** Joshua DeGroot*

1345 **Impact of Variable Rate Seeding and Delay in Emergence on Corn Yield** Susana Albarenque*, Olivia Davidson and Bruno Basso

SESSION NO. 348—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Semi-Arid Dryland Cropping Systems Poster (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community:
Semi-arid Dryland Cropping Systems Community

1346 **Evaluating the Performance of Winter Pea Cultivars at Different Seeding Dates, Seeding Rates and Fertilizer Application in Dryland Systems of the Pacific Northwest** Saugat Baskota*, David White and Kurtis L. Schroeder

1347 **Evaluation of Soybean (*Glycine max*) Pod Recovery from Imposed Drought Stress** Sarah Kezar*, Josh Lofton, Anna Zander and Chase Harris

1348 **Rotational Benefits of Replacing Chemical Summer Fallow with Yellow Field Pea (*Pisum sativum* L.) in Cereal-Based Dryland Crop Production** Samuel Koeshall*, Cody Creech, Amanda Easterly, Rodrigo Werle and Strahinja Stepanovic

1349 **Dispersal of Wheat Curl Mite (*Aceria tosichella* Keifer) and Virus Spread within Volunteer Wheat** Lindsay Overmyer* and Gary L. Hein

1350 **Characterization of Hard Winter Wheat Stubble Residue and Its Persistence** Luana Simão*, Cody Creech, Amanda Easterly, Samuel Koeshall, Guilherme Chudzik and Matheus Gonçalves

1351 **Cover Crops Suitability for Dryland Winter Wheat (Triticum aestivum)-Fallow in Semi-Arid Region: Nitrogen, Water Use and Competition with Weedy Species** Urszula Norton* and Elizabeth Moore

1352 **Implementing Cover and Double Crops in Annual Wheat Systems** Marie Schirmacher*, Paul B. DeLaune, Terry J. Gentry and Partson Mubvumba

1353 **Long-Term Cover Crop Effects on Soil Organic Carbon, Nitrogen Stocks, and Water Stable Aggregates in the Semiarid Central Great Plains** Logan Simon*, Augustine K Obour, Johnathon D. Holman and Kraig L. Roozeboom

1354 **Source-to-Sink Translocation of Carbon and Nitrogen Is Regulated By Fertilization and Plant Population in Maize-Pea Intercropping** Yanhua Zhao*, Zhilong Fan, Falong Hu, Wen Yin, Cai Zhao, Aizhong Yu, Qiang Chai and Yantai Gan

1355 **Dual Purpose Winter Canola for Stand Establishment and Late Season Forage** Isaac Madsen*

1356 **Cover Crops Replace Summer Fallow in Semi-Arid Durum Cropping Systems** Brett L. Allen* and Jalal D Jabro

1357 **Yields of First and Second Wheat Crops in Two Four-Year Dryland Rotations** David C. Nielsen* and Merle F. Vigil

1358 **Evaluation of Field Bean and Chickpea Varieties for Yield at Northern Nevada** Maninder K. Walia*

1359 **Evaluation of Fall-Sown Lentil As a Crop Rotation Option to Winter Wheat in the Southern Plains** Emi Kimura*, Paul B. DeLaune and Jourdan M. Bell

1360 **Response of Soil Properties in Short-Term and Long-Term Conservation Management in Dryland Cropping Systems** Paul B. DeLaune*, Partson Mubvumba, Katie L. Lewis and R.Louis Baumhardt

1361 **Water Use and Productivity of Corn and Grain Sorghum in Long-Term Crop Sequences.** Robert M. Aiken*

SESSION NO. 349—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil, Surface Water and Groundwater Smart Management Using Digital Products and Decision Support Systems Poster (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community:
Soil and Water Management Professionals Community

1362 **Effect of Three Irrigation Strategies on Groundwater Level in a Lower Mississippi River Basin Watershed** Yiwen Han*, Gary Feng, Ying Ouyang, Zhong Liu, Wei Jin, Fei Gao and Johnie N. Jenkins

1363 **Developing a Process-Based Remote Sensing Crop Yield Model to Enhance the Understanding of the Spatial Variations in Maize Yield over the Northeast China Plain** Yun Bai*, Jiahua Zhang, Sha Zhang, Fengmei Yao and Shahzad Ali

1364 **Development of a Spatial Decision Support System for Effective Site Selection for Solar Facilities.** Cindy Faul*

1365 **Long-Term Effect of Biochar Application on Soil Hydrological Properties in Mississippi** Yuanyuan Li*, Gary Feng and Haile Tewolde

1366 **Genotype Response to Irrigation Using an Unmanned Aircraft System Based High Throughput Phenotyping System** Juan Landivar*, Jinha Jung, Murilo M. Maeda, Nothabo Dube, Josh McGinty, Anjin Chang, Akash Ashapure and Sungchan Oh

SESSION NO. 350—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Strategies & Management for Optimizing Crop Irrigation Poster (includes student competition)

ASA Section: Agronomic Production Systems

Lead Community:
Crop Irrigation Strategies and Management Community

1367 **Irrigation Timing Determination on Two Alabama Corn Fields Using Aquaspy® and Acclima Sensors** Burno Lena*, Brenda V. Ortiz, Luca Bondesan and Thorsten Knappenberger

1368 **Remote Sensing Approaches for Maximizing Productivity of Variable-Rate Irrigation Systems** Austin P. Hopkins*, Neil C. Hansen, Bryan G. Hopkins, Elisa A. Woolley, Ruth Kerry and Ryan Jensen

1369 **Comparing Spatial Variation of Crop Water Productivity and Moisture Relations in Potato and Wheat** Elisa A. Woolley*, Jeffrey D. Svedin, Ruth Kerry, Neil C. Hansen, Ryan Jensen, Austin P. Hopkins and Bryan G. Hopkins

1370 **Physiological Screening for Limiting Transpiration Rate Among Industrial Hemp (*Cannabis sativa* L.) Cultivars** Avat Shekoofa, Kendall Sheldon* and Eric R. Walker

1371 **Variable Rate Irrigation Scheduling for Soybean Plants: Large Plot Evaluation** Avat Shekoofa, Sam Purdom*, Angela McClure and Brian Leib

1372 **Optimized Strategies for Maize Production Under Limited Irrigation Capacities** Robert C. Schwartz*, Jourdan M. Bell, R.Louis Baumhardt and Paul D. Colaizzi

1373 **Effect of Irrigation Rate and Planting Population on Corn Yield on a Coarse-Textured Soil** Vasudha Sharma*, Jeppe H. Kjaersgaard, Fabian G. Fernandez and Joshua David Stamper

1374 **The Occurrence of *Fusarium Verticilloides* in Limited Irrigated Maize** Jourdan M. Bell*, Robert C. Schwartz, Edsel D. Bynum, Thomas Isakeit and Kevin D. Heflin

1375 **Yield Response and Irrigation Requirements of Maize at Various Plant Densities and Tillage Methods** Anna Orfanou*, Dimitrios Pavlou, George Vellidis and Wesley M Porter

1400 **Role of Irrigation and Nitrogen Fertilizer Stress on Lettuce Growth and Development** Breana R Garcia*

1401 **Effect of Deficit Irrigation and Nitrogen Treatments on Corn Forage and Grain Yield Component** Sharafat Khan*

1402 **Management Practices Impact on Soybean Yield and Irrigation Water Use.** Gurpreet Kaur*

1403 **Delineation of Field Management Zones Using Soil Moisture and Temporal Spatial Analysis** Pedro Rossini*, Ignacio A. Ciampitti, Trevor Hefley and Andres Patrignani

SESSION NO. 351—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Biometry and Statistical Computing Poster

ASA Section: Biometry and Statistical Computing

1404 **Genome-Wide Association Mapping of Leaf Parameters in Diverse Soybean (*Glycine max*) Genotypes.** Avjinder Singh Kaler, Sumandeep Bazzer* and Larry C. Purcell

1405 **HVI Fibrogram: A Better Measurement of Cotton Fiber Length to Improve Yarn Quality Predictions** Md Abu Sayeed*, Eric Hequet and Brendan Kelly

1406 **Estimating the Significant Threshold for Genome-Wide Association Mapping** Avjinder Singh Kaler* and Larry C. Purcell

1407 **Using Deep Learning to Discover Cassava Roots on GPR Radargrams** Henry Alonso Ruiz Guzman*, Brody L Teare, Iliyana Dobreva, Michael Gomez Selvaraj, Dirk B. Hays and Peter A. Kulakow

SESSION NO. 352—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Global Climate Change General Poster (includes student competition)

ASA Section: Climatology and Modeling

Lead Community: Global Climate Change Community

1408 **Simulation-Based Spatio-Temporal Biomass Estimation for Oklahoma Climate Divisions Using DSSAT** Andrew Baird* and Phillip Alderman

1409 **Measuring Water and Carbon Dioxide Fluxes in Non-Ideal Agricultural Fields Using Eddy Covariance and Data Synthesis** Joel Oetting*, Neal Samuel Eash and Bruce B. Hicks

1410 **The Influence of Moisture Content Variation on Microbial Mineralization of Soil Organic Carbon** Shikha Singh*, Sindhu Jagadamma, Avat Shekoofa and Melanie Mayes

1411 **Developing a Low-Cost, Open-Source Reflectometer to Directly Measure Soil Carbon at Scale** Dan TerAvest*, Greg Austic, Xinyi Tu and Sieglinde S. Snapp

1412 **Significant Shift of Ambient Night-Time Air Temperature during Rice Growing Season in Major US Rice States** Arlene Arlene Adviento-Borbe, Kharla Mendez*, Wenceslao Larazo, Joseph H. Massey and Argelia Lorence

1413 **Genetic Strategies for Adapting *Eucalyptus* Plantations to Climate Change in Tropical Environments** Elvis Felipe Elli* and Paulo Cesar Sentelhas

1414 **Tomato Response to Increasing Ambient Temperature: A Simulated Approach** Ibukun Timothy Ayankojo* and Kelly T. Morgan

1415 **Climate Change Study Using Craft: A Case Study for the West Africa** Vakhtang Shelia*, Babacar Faye, Heidi Webber and Gerrit Hoogenboom

1416 **Soil Carbon and Nitrogen Fractions in Response to Integrated Crop-Livestock System in South Dakota** Jashanjeet Kaur Dhaliwal*, Gandura Omar Abagandura, Navdeep Singh, Udayakumar Sekaran, Sandeep Kumar and David Clay

1417 **Assessing Impacts of Climate Extremes on Nitrogen Use of a Maize-Soybean Cropping System: The Mitigation of Cover Crops** YIZHUO LI, Di Tian, Gary Feng* and Liping Feng

1418 **Soil N Dynamics and N2O Emissions in Dryland Sorghum Field with Compost and Fertilizer Nitrogen Application.** Sk. Musfiq-Us- Salehin*, Rajan Ghimire and Abdelaziz Nilahyane

1419 **How ENSO Affects Rice Yield and Water Consumption in Northeast China** Erjing Guo*, Xiaoguang Yang, Tao Li, Lloyd T Wilson and Yubin Yang

1420 **Preliminary Analyses of Yield Formation Parameters of 20 Winter Wheat Genotypes in Response to Water Depleted Conditions** Marcela Hlaváčová*, Karel Klem, Jaromír Pytela, Barbora Rapantová and Miroslav Trnka

SESSION NO. 353—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Plant Water Relations Poster (includes student competition)

ASA Section: Climatology and Modeling

Lead Community: Soil-Plant-Water Relations Community

1421 **Effect of Cover Crops and Tillage Practices on Weed Prevalence and Cotton Performance in East Central Texas** Dorothy Menefee* and Nithya Rajan

1422 **Quantification of Water in Crop Canopy and Development of Vegetation Gravimetric Water Content Model** Kaitlin Togliatti*, Timothy Arkebauer, Andrew E. Suyker and Brian K. Hornbuckle

1423 **Determination of Frost Forms By Water Vapor Pressure** Kazuki Shibuya*

1424 **A Process-Based Model for Global Simulations of Agave Production on Arid and Semi-Arid Lands** Murilo S Vianna*, Jaiswal Deepak, Yu Wang, Leonardo Monteiro, Johnny R Soares, Julianne C Oliveira, Andrew Allee, Eleanor E Campbell, David LeBauer, Sarah Davis, Gleyce K D A Figueiredo, Rubens A.C. Lamparelli, John Sheehan, Lee Lynd and Stephen P. Long

SESSION NO. 354—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Biochar: Agronomic and Environmental Uses Poster I (includes student competition)

ASA Section: Environmental Quality

Lead Community: Biochar: Agronomic and Environmental Uses Community

1425 **Solubility and Dissolution Kinetics of Wood Ash in Acid Soils of Mozambique** Luis Casimiro Savanguane*, Ieyasu Tokumoto, Tsutomo Sato and Hiroyuki Cho

1426 **Cotton Root and Arbuscular Mycorrhizae Association Response to Additions of Bio-Char and Compost** Binita Thapa*, Jake E. Mowrer and Ginette Dembélé

1427 **Phosphorus Availability When Converting Biosolids into Biochar** Andressa Freitas*, Vimala D. Nair, Willie Harris and María Rosa Mosquera-losada

1428 **Effects of Pre-Enriched Manure and Cellulosic Biochars on Soil Physiochemical Properties and Forage Growth** Lauren Selph*, Donald G. McGahan, James P. Muir and Eunsung Kan

1429 **Activation of Persulfate By N-Doped Rice Husk Biochar for the Removal of Contaminants** Aneesh Chandel*, Hem Sharma and Hao Chen

SESSION NO. 355—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

By-Product Gypsum Use Poster

ASA Section: Environmental Quality

Lead Community: By-product Gypsum Uses in Agriculture Community

1430 **Synergy of Grass Buffer and Amendment with Flue Gas Desulfurizaton Gypsum for Improving Edge-of-Field Runoff Quality** Dinku Endale*, Timothy Strickland, Oliva Pisani, David D. Bosch, Alisa Coffin and Harry H. Schomberg

1431 **Polysulphate As an Emerging Soil Conditioner and Fertilizer** Michael T. Aide* and Indi S. Braden

SESSION NO. 356—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Carbon and Greenhouse Gas Emissions -General Poster I (includes student competition)

ASA Section: Environmental Quality

Lead Community: Soil Carbon and Greenhouse Gas Emissions Community

1432 **Nitrous Oxide Emissions from Perennial Legume and Grass Pastures** Tanka P Kandel*, Twain J. Butler, Jimmy D. Stein and Sindy Interrante

1433 **Impact of Long-Term Nitrogen Fertilization in Maize (*Zea mays* L.) on Soil Carbon and Soil Nitrogen** Allison Bailey*, Bill Deen and Joshua Nasielski

1434 **Effects of Fire on Soil Carbon Dioxide and Methane Emission in Cold Desert Rangeland of Northern Nevada.** Christina T Igono*

1435 **Impact of 4R Nutrient Management on Crop Production and Nutrient Loss** Savannah Burnett*, Kelly A. Nelson and Peter Motavalli

1436 **Influence of Maturity Level of Oat and Grass Pea Based Cover Crops at Soil Incorporation on Emissions of CO_2 and N_2o** Hardeep Singh*, Tanka P Kandel, Prasanna H. GOWDA, Brian K. Northup, Vijaya Gopal Kakani and Gurjinder S. Baath

1437 **Long-Term Influence of Phosphorus Fertilization and Soil Aggregation on Soil Organic Carbon and Nitrogen Under No-Tillage Production Systems** Sangeeta Bansal*, Xinhua Yin, Hubert J. Savoy Jr., Sindhu Jagadamma, Jaehoon Lee and Virginia R. Sykes

1438 **Crop Sequence Diversity and Bio-Covers Under No-Tillage Affect Greenhouse Gas Emissions** Sangeeta Bansal*, Xinhua Yin, Shikha Singh, Sindhu Jagadamma, Virginia R. Sykes and Jaehoon Lee

1439 **Quantifying Nitrous Oxide Emissions from Grain Sorghum Cropping Systems in the Southern Great Plains** Katharine Gehl*, Sumit Sharma, Peter J. Tomlinson, Jason G. Warren and Lucas A. Haag

1440 **Do No-till and Vetch Cover Crop Decrease Nitrous Oxide Emissions in a Corn-Soybean Rotation?** Amir Sadeghpour*, Pawan Kumar, Ashani M. Thilakarathne, Jon E. Schoonover, Karla L. Gage, Gurbir Singh and Karl W.J. Williard

1441 **Linking Soil Physical and Chemical Properties to Find Hot Spots of Biogeochemical Activity in Deep Soils** Amir Sedaghatdoost* and Binayak P. Mohanty

1442 **Responses of Soil C in Tropical Pastures Under Intensive and Diversified Management Systems** Júnior Melo Damian*, Keith Paustian and Carlos Eduardo Pellegrino Cerri

SESSION NO. 357—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Perennial Grains Poster (includes student competition)

ASA Section: Global Agronomy

Lead Community: Perennial Grain Development Community

1443 **What Are the Critical Phenological Periods in the Annual Development of Intermediate Wheatgrass for Sustainable Perennial Grain Production?** Douglas J. Cattani*, Olivier Duchene, Florian Celette and Christophe David

1444 **Strip-Tillage As a Tool for Maintaining Yield in Mature Intermediate Wheatgrass Stands.** Eugene P Law*, Christopher J Pelzer and Matthew R. Ryan

1445 **Kura Clover As a Perennial Companion Legume** Abigail Han*

1446 **Genetic Control of Threshability in Wheatxwheatgrass Hybrids** Piyush Labhsetwar*, Jamie Bugel, Kathryn Turner and Shuwen Wang

1447 **Searching for Herbivory Resistance during a De Novo Domestication** Kelsey Peterson*, David L. Van Tassel, Ebony G. Murrell and Edy Cheremond

1448 **Source of Disease Resistance Genes across Rainfall Gradients in a Perennial Oil Seed, Silphium (Silphium integrifolium)** Eric Cassetta*, Kathryn Turner and David L. Van Tassel

1449 **Genotypic Response of *Silphium Integrifolium* to Fungal Communities from Established *Silphium* Field** Alexandra J. Griffin*, Ebony G. Murrell and David L. Van Tassel

SESSION NO. 358—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Health: Integrated Approaches Towards Sustainable Agriculture Poster I (includes student competition)

ASA Section: Land Management and Conservation

Lead Community: Soil Health Community

1450 **Cover Crop and Compost Effects on Soil Organic Matter Dynamics: Examples from the Southern Great Plains Region** Pramod Acharya*, Rajan Ghimire and Young Cho

1451 **Toxicity Biomarkers in Roots of Cultivated Allium Cepa L. to Assess Soil Health** Jorge Luis Gallego Zapata*

1452 **Role of Agroforestry in Enhancing Soil Health and Crop Production** Lee Jones*, Leonard Kibet, Girish K. Panicker and Jacqueline Mccomb

1453 **Nematode Communities As Indicators of Soil Health across Land-Use Intensity** Hannah Arseneault*, Tandra Fraser, Derek H. Lynch, Lindsey Clairmont and Judith Nyiraneza

1454 **Soil Property and CO_2 Efflux Responses to Integrated Crop-Livestock Management in the Northern Great Plains** Kacey Aukema*, Marcelo Wallau and Mark A. Liebig

1455 **Effect of Mustard and Sunflower Seed Meals on Soil Physical Properties and Yield in Pumpkin** Atinderpal Singh*, Rupinder Saini, Sukhbir Singh and Sanjit K Deb

1456 **Landscapes in Transition: Building Soil Health on the Palouse through Alternative Crop Rotations & Grazing** Jodi Johnson-Maynard, Kendall Kahl and Daniel Nessly*

1457 **Seasonal Effects of Cover Crops and Phosphorus Fertilizer Management on Soil Health Parameters in a No-till Corn-Soybean Cropping System in North Eastern Kansas** Laura Starr*, Catherine Stewart, Peter J. Tomlinson, Nathan O. Nelson, DeAnn R. Presley, Gerard J. Kluitenberg and Kraig L. Roozeboom

1458 **Seasonal Effects of Cover Crops and Phosphorus Fertilizer Management on PLFA and Microbial Biomass in a No-till Corn-Soybean Cropping System in North Eastern Kansas** Catherine Stewart*, Laura Starr, Peter J. Tomlinson, Nathan O. Nelson, DeAnn R. Presley, Gerard J. Kluitenberg and Kraig L. Roozeboom

1459 **Do Soil Health Metrics Influence Soil-Test Fertilizer Recommendations: Project Outline and Preliminary Results.** Jeffrey D. Svedin*, Kristen Sloan Veum and Newell R Kitchen

1460 **Comparisons of Soil Health Assessments between Different Transitions to Soil Health Management Systems in Nebraska** Fernanda Souza Krupek*, Nilovna Chatterjee, Aaron Hird, Daren D. Redfearn and Andrea Basche

1461 **Evaluating Soil Health Assessment Approaches for the Diverse Agroecosystems of Tennessee** Surendra Singh*, Sindhu Jagadamma, Forbes R. Walker, Xinhua Yin and Daniel C. Yoder

1462 **Impact of Long-Term Biochar Amendment on Soil Chemical Properties and Nutrient Accumulation in Cotton Fields.** Yuanyuan Li*, Gary Feng, Haile Tewolde and Mingyi Yang

1463 **Integrating Bayesian Analysis in Assessing Labile and Stable C Pool on Malawi Smallholder Farm Soils** Xinyi Tu*, Sieglinde S. Snapp and Frederi Viens

1464 **A Soil Tool Kit to Evaluate Soil Properties and Monitor Soil Health Change in Smallholder Farming Contexts.** Blessing Magonziwa*, Steven J Vanek, John O Ojiem and Steven J Fonte

SESSION NO. 359—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Crop Breeding and Genetics Poster II (includes student competition)

C01 Crop Breeding and Genetics

1465 **De Novo Generation of Doubled Haploid Texas Native Wildflowers** Nathaniel Turner*, Rosalyn B. Shim and Russell Plowman

1466 **Assessing Ground Penetrating Radar Use for High-Throughput Root Biomass Estimation in Cereal Crops** Ilse Barrios Perez*, Richard Bruton, Matthew Wolfe, Sheryl Strauch, Iliyana Dobreva and Dirk B. Hays

1467 **Genomic Regions Associated with Grain Weight Retention during Terminal Heat Stress in Hard Winter Wheat** Nicholas Schuh*, Mary Guttieri, Alan Fritz, Robert L. Bowden, Jianming Fu and Guihua Bai

1468 **The DNAM Population: Understanding the Impact and Potential of the D-Genome in Wheat** Nikayla Strauss*

1469 **Genetic Dissection of Heat-Responsive Physiological Traits to Improve Yield Potential in Soft Winter Wheat** Sumit Pradhan Shrestha*, Md A. Babar, Guihua Bai, Jahangir Khan, Dipendra Shahi, Muhsin Avci and Jia Guo

1470 **Developing High Throughput Phenotyping Tools to Estimate in-Season Genetic Variations for Heat Tolerance in Wheat** Jordan McBreen, Dipendra Shahi, Jahangir Khan, Sumit Pradhan Shrestha, Jia Guo, Sri Kakarla, Aditya Singh and Md Babar*

1471 **Understanding Genetic Basis of Spike Partitioning Index and Fruiting Efficiency to Increase HI and Yield through Genome Wide Association Studies in Wheat (*Triticum aestivum* L.)** Dipendra Shahi*, Jahangir Khan, Muhsin Avci, Sumit Pradhan, Jordan McBreen, Jia Guo, Guihua Bai, John Foulkes, Gemma Molero, Matthew P. Reynolds and Md Babar

1472 **Spike Fertility, a Potential Traits for Wheat Grain Yield Improvement Under Post Anthesis Drought Stress Conditions** Jahangir Khan*, Sumit Pradhan Shrestha, Muhsin Avci, Jia Guo, Jordan McBreen and Md A. Babar

1473 **Identification of Genetic Sources of Restorability in Arkansas Restorer RICE Plants** Ozgur Azapoglu*

1474 **Identification of Candidate Genomic Regions for Rice Grain Quality and Nutrition Traits By Genome-Wide Association Mapping** A.S.M. Faridul Islam*, Ming-Hsuan Chen, Rodante E. Tabien, Wardah Mustahsan and Michael J. Thomson

1475 **Evaluation of Pollen Travel in Cultivated Northern Wild Rice** Clare Gietzel*, Jacques Duquette, Amanda Monson and Jennifer Ann Kimball

1500 **QTL Mapping of Panicle Architecture and Yield Related Traits in Two US Rice Cultivars 'Lagrue' and 'Lemont'.** Adam Rice*, Karen Moldenhauer, Andy Pereira, Ainong Shi and Ehsan Shakiba

1501 **The Rice Transcription Factor OsMYB102 Delays Leaf Senescence By Downregulating Abscisic Acid Accumulation and Signaling** Suk-Hwan Kim, Chaemyeong Lim and Nam-Chon Paek*

1502 **Phenotypic Characterization and Genome-Wide Association Studies on Agronomic Traits Influencing Rice Grain Yield** Darlene L Sanchez*, Stanley Omar P Samonte, Jasper B Alpuerto, Leon C Holgate, Peyton A Croaker, Michael J. Thomson, Karina Morales, Yubin Yang, Rodante E. Tabien, Lloyd T Wilson, Zongbu Yan, Eric F Christensen, Leanna N Martin, Endang M. Septiningsih and Jean-Philippe Pellois

1503 ***Heterosis in Rice Hybrids Produced from Genomically-Distant Versus -Near Parents*** Stanley Omar P Samonte*, Darlene L Sanchez, Jasper B Alpuerto, Leon C Holgate, Peyton A Croaker, Lloyd T Wilson, Zongbu Yan, Eric F Christensen, Rodante E. Tabien, Chersty L Harper and Michael J. Thomson

1504 **Resilience of Oat Cultivars to Climate Variability** Sarah Bullock*, Lucia Gutierrez and Valentin D Picasso

1505 **Breeding Winter Peas for Cover Crop: Genotype x Environment Interactions** Lais Bastos Martins* and Chris Reberg-Horton

1506 **Heterosis and Combining Ability of Traits Inducing Early Season Chilling Tolerance in Grain Sorghum** Troy Ostmeyer*, S. V. Krishna Jagadish, Christopher R Little and Ramasamy Perumal

1507 **Agronomic Evaluation of Elite Hybrid Combinations between US Public Sorghum Breeding Programs** Jales Fonseca*, Ramasamy Perumal and William L Rooney

1508 **Characterization of Novel, Perennial, Tetraploid *Sorghum Bicolor* x *S. Propinquum* hybrids** Nick Porter*, Byron Burson, David M. Stelly, Tyler Foster and Russell W. Jessup

1509 **Analysis of Effects of Trifluoromethyanesulfonamide on Sorghum Inbreds and Their Derived Hybrids** Ammani Naidu N. Kyanam*, George Hodnett and William L Rooney

1510 **Predicting Heterosis in Grain Sorghum [*Sorghum Bicolor* (L.) Moench] Hybrids for Multiple Agronomic Traits Using Genetic Similarity Derived from Genome-Wide SNP Data** Daniel Crozier*

1511 **Phenotyping Commercial Varieties of Industrial Hemp (*Cannabis sativa* L.) for Disease, Maturity, and Yield in the Southeastern U.S.** Maryjo Valle*, John Erickson, Zachary T Brym, Josh Freeman, Esteban F. Rios and William Wadlington

1512 **Genetic Variability of Spring Greenup and Drought Response in Interspecific Hybrid Bermudagrass Selections** Shuhao Yu*, Yanqi Wu, Liuling Yan, Dennis L. Martin, Justin Quetone Moss and Charles Henry Fontanier

1513 **Associations of Forage Production and Seed Yield with Key Morphological Traits of Bermudagrass** Ryan Bryant-Schlobohm*

1514 **Genome-Wide Family Prediction for Agronomic Traits in Alfalfa** Janam Acharya*

1515 **Utilizing Remote Sensing in Alfalfa Breeding** Anju Biswas*, Janam Acharya, Shubham Shirbhate, Aditya Singh and Esteban F. Rios

1516 **Development of an Early Generation Marker-Assisted Selection Strategy for Virginia-Type Peanuts** Katelyn Fritz*, Cassondra Newman, Andrew Oakley, Jeffrey C Dunne and Ryan James Andres

1517 **Enhancing Drought Tolerance in Virginia Type Peanut** Naveen Kumar*, Maria Balota, David Haak, Brice Cazenave, Jeffrey C Dunne and Thomas G. Isleib

1518 **Identification of Quantitative Trait Loci (QTL) for Plant Nitrogen Isotope Ratio ($\delta^{15}N$) in Soybean (*Glycine max*).** Sumandeep Bazzer*, Avjinder Singh Kaler, Jeffery D. Ray, James R. Smith, Felix B. Fritschi and Larry C. Purcell

1519 **Decipher Genetic Mechanisms Controlling Seed Number per Pod in Soybean** Liyang Chen*

1520 **Effect of Flooding on Soybean Physiological Stages in the Field and Correlation between Field-Screening and a New Hydroponic Greenhouse Screening Methodology** Maria de Oliveira*, Marlovi Andrea Acuna Galindo, Chengjun Wu, Derrick Harrison, Francia Ravelombola, Sandra Liliana Florez-Palacios, Marcos da Silva and Leandro Mozzoni

1521 **High-Throughput Phenotyping Applications in Kansas Wheat Breeding** Byron Evers*, Paula Silva, Xu Wang, Alan Fritz and Jesse Poland

SESSION NO. 360—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Crop Physiology and Metabolism Poster II

C02 Crop Physiology and Metabolism

1522 **Iraqi Rice Varieties: Potential Source for High Night Temperature Tolerance** Abdul R. Mohammed*, Hussam F. Najee Alawadi, Chersty L Harper, Rodante E. Tabien and Lee Tarpley

1523 **Yield Potential and Grain Quality of the High-Yield and High-Palatable Japanese New Rice Variety, Tsukiakari.** Tsutomu Ishimaru*, Satoshi Yoshinaga, Akihiro Ohsumi, Masaki Okmaura, Yo-ichi Odaira, Masami Furuhata and Taiichiro Ookawa

1524 **^{13}c Labeling Flow-Metabolome Analysis for Clarifying Grain Filling Property of High-Yielding Rice Cultivars** Masaki Okmaura*, Masami Yokota Hirai, Yuji Sawada, Mami Okamoto, Yumiko Arai Sanoh, Takehiro Mukouyama, Shunsuke Adachi, Nobuya Kobayashi and Motohiko Kondo

1525 **Comparative Assessment of Chamber and Field Grown Wheat to High Night Temperature** Raju Bheemanahalli*, Impa M Somayanda, Nathan Hein and S.V. Krishna Jagadish

1526 **Cold Temperature Tolerance of Maize and Sorghum Seedlings** Reshma Moolakkal Antony and Mary Beth Kirkham*

1527 **Transpiration and Physiological Characteristics of Trees during Prolonged Drying out Periods** Jhonathan E. Ephrath*, Pedro R. Berliner, Jiftah Ben-Asher, Bich-Thao Nguyen and Adit Arazi

1528 **Cotton Genotypic Variability for Transpiration Decrease with Progressive Soil Drying** Jyostna Devi Mura* and Vangimalla R. Reddy

1529 **Drought Response Modeling of Leaf Photosynthetic Parameters in Two *Gossypium* Species** Daryl Chastain*, Bhupinder Singh and John Snider

1530 **Effects of Waterlogging on the Early Growth of Pea and Lentil** Qi Zhang*, Kevin Rue, Thomas R. Stefaniak, Hannah Worral and Nonoy Bandillo

1531 **Responses of Pulse Crops to Salt Type and Salt Concentration at the Early Growth Stage** Qi Zhang*, Kevin Rue, Thomas R. Stefaniak, Hannah Worral and Nonoy Bandillo

1532 **Nitrogen Response, Uptake and Use Efficiency of Spring Wheat Cultivars** Olga S. Walsh*, Sanaz Shafian, Juliet Marshall, Katherine O'Brien and Jordan McClintick-Chess

1533 **Evaluating the Impacts of Multiple Climate Change Factors (elevated CO2, UVB and salinity) on *Chenopodium Quinoa*** Mohammed Salem* and Karthishwaran Kandhan

1534 **Sucrose and Total Sugars Content Relations in Maturing Sugarcane Internodes** Murilo S Vianna*, Fabio R Marin, Jose Magalhaes Filho, Eduardo Caruso Machado and Rafael Vasconcelos

1535 **Genotypic Variation of Sugarcane Juice Brix and Pol Values and Their Relationships** Duli Zhao*

1536 **Source-Sink Manipulation Study to Investigate Seed Growth Dynamics in Soybean** Anuj Chiluwal*, Tomokazu Kawashima and Montse Salmerón

1537 **A Universal Protocol for High-Quality RNA Extraction in Wheat Seeds and Roots** Amaranatha Vennapusa*, Impa M Somayanda and S.V. Krishna Jagadish

SESSION NO. 361—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Crop Ecology, Management and Quality Poster I

C03 Crop Ecology, Management and Quality

1538 **Mixed Species Cover Crop Management for Effective Establishment of Corn (*Zea mays* L.) and Soybeans (*Glycine max* L.)** Angela McClure*

1539 **Grazing Management Effects on Long-Term Pasture Species Composition** Eric Billman*, Danielle Andreen, Jessica Williamson and Kathy Soder

1540 **Rhizobium Inoculant Placement Methods for Soybean in Mozambique** Stephen Kyei-Boahen*, Canon EN Savala and David Chikoye

1541 **Industrial Hemp Seed Treatment Affect on Stand Establishment** Burton L. Johnson* and Kutay Yilmaz

1542 **Comparing Growth Stage and Forecasting Model Based Fungicide Application to Manage Phomopsis Stem Canker of Sunflower (*Helianthus annuus*)** Renan Guidini*, Sam Markell, Robert Harveson, Marina Johnson, Roger Magarey, Scott Isard, Nathan Braun, Clay Carlson, Michelle Gilley, Bryan Hansen, Jessica Halvorson, Tyler Patrick, Allison Rickey and Febina Mathew

1543 **Wheat Variety Response to Nitrogen Rate and Timing: Grain Yield, Grain-N Concentration, and N Uptake Dynamics** Romulo Pisa Lollato*

1544 **Yield and Quality Response of Corn Silage Hybrid Types to Seeding Rate across Michigan Environments** Maninder Pal Singh* and Bill Widdicombe

1545 **Corn Growth and Development: Ear Formation Issues** Osler Ortez*, A. Justin McMechan, Tom Hoegemeyer and Roger W. Elmore

1546 **Variation Among Commercial Corn Hybrids in Response to Agronomic Management** Eric T. Winans* and Frederick E. Below

1547 **Optimizing Seeding Rate to Maximize Winter Malting Barley Grain Yield and Quality** Greg McGlinch*, Laura E. Lindsey, Matt Hankinson and Raj K. Shrestha

1548 **Does the Management System for Corn Production Influence the Response to Plant Growth Regulators and Biostimulants?** Connor N. Sible* and Frederick E. Below

1549 **Assessment of Yield Gaps in High-Yielding Rice Systems in Uruguay Using Field-Level Data** Meng-Chun Tseng*, Alvaro Roel, Muzio Marella, Gonzalo Zorrilla, Jose A. Terra and Cameron M. Pittelkow

1550 **Potassium Fertigation with Deficit Watering Improves Nutritive and Reduces Anti-Nutritive Quality of Cassava** Daniel Wasonga*, Jouko Kleemola, Laura Alakukku and Pirjo S. A. Makela

1551 **Historical Changes in Plant Density Tolerance in Sweet Corn** Daljeet Dhaliwal*

1552 **Optimum Nitrogen Fertilizer Rate and Timing for Corn Following a Rye Cover Crop** Daniel Quinn*, Hanna Poffenbarger and Chad D Lee

1553 **Crop Rotation and Cover Cropping: Impacts on Soil Bacterial Communities** Lindsay Chamberlain*, Marian Lund Bolton, Jean-Michel Ané and Shawn P. Conley

1554 **Wheat Genotypes Recruiting Disease Suppressive Microbiomes** Christine Jade Dilla Ermita*, Ricky S. Lewis, Tarah S. Sullivan and Scot H. Hulbert

1555 **Double Cropping Field Pea with Short Season Crops, Forages, and Cover Crops in Eastern Nebraska** Alexandre Tonon Rosa*, Samuel Koeshall, Cody Creech, Keith L. Glewen, Daren D. Redfearn, Mary Drewnoski, Rodrigo Werle and Strahinja Stepanovic

1556 **Agronomic and Economic Challenges of the Emerging Soybean-Pennycress Cropping System** Julija A. Cubins*, M. Scott Wells, Roger L. Becker, Gregg A. Johnson, Maninder K. Walia, William Lazarus and Russ Gesch

1557 **Microwave Absorption through a Corn Canopy with Crop Development** Richard Cirone*, Brian K. Hornbuckle and Anton Kruger

1558 **Evaluation of Fungicide Seed Treatments on Hrsw Under Different Tillage, Crop Rotations and Soil Conditions** Ryan Buetow*, Joel Ransom, Andrew Friskop and John Rickertsen

1559 **Development of a Technique to Estimate Stand in Peanut (Arachis hypogaea L.) for Replant Decisions Using an Unmanned Aerial System.** Sara E. Pelham*, W. Scott Monfort and Vasileios Liakos

1560 **Nitrogen and Phosphorus Stoichiometry in Maize Kernels during Grain Filling** Lia B. Olmedo Pico* and Tony J. Vyn

1561 **Quantifying Corn Root Growth and Development in Relation to Leaf Nitrogen Levels** Charles Hunt Walne* and K. Raja Reddy

SESSION NO. 362—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Golf Turf Management Poster (includes student competition)

C05 Turfgrass Science

1562 **Optimum Seeding Rate and Biomass Removal Timing for No-Mow Fine Fescue Golf Course Roughs** Ryan Schwab*, Eric Watkins, Andrew Hollman, Brian Horgan and Samuel Bauer

1563 **Do Wetting Agents Influence Putting Green Speed?** Travis W. Shaddox* and J. Bryan Unruh

1564 **Precision Irrigation for Golf Courses Using Sensor and Mapping Technologies** Chase M. Straw*, Joshua Friell and Brian Horgan

1565 **Water Conservation on Bermudagrass Fairways (Cynodon dactylon x. C. transvaalensis) in Golf Courses Using Soil Moisture Sensors** Sean P McLaughlin*

1566 **Physiological Effects of Chemical Priming on Improving the Heat Tolerance of Creeping Bentgrass** Stephanie Rossi* and Bingru Huang

1567 **Fate of Foliar N As Influenced By Civitas Turf Defense** Nathaniel Leiby* and Maxim J. Schlossberg

1568 **Best Management Practices for Golf Courses** Emily Fuger*

1569 **Evaluation of Late-Season and Winter Applications of Trinexapac-Ethyl on Ultradwarf Bermudagrass Putting Greens.** Jordan Booth*, Xunzhong Zhang, David S. McCall, James M. Goatley and Shawn D. Askew

1570 **Irrigation Scheduling Techniques for Sand-Capped Turf Systems** Reagan Hejl*, Benjamin Wherley, Kevin J. McInnes, Rebecca Grubbs, Charles Henry Fontanier and Troy D. Carson

1571 **Annual Bluegrass Suppression with Plant Growth Regulators in Creeping Bentgrass Putting Greens** Pawel Petelewicz*, Pawel Orlinski and James H. Baird

1572 **Integrating Canopy Dynamics, Soil Moisture, and Soil Physical Property Data to Improve Irrigation Scheduling in Turfgrasses** Don W. Dyer*, Dale J. Bremer, Andres Patrignani, Jack D. Fry and Jared A. Hoyle

1573 **Increasing Winter Soil Temperatures with Air Gaps on Ultradwarf Bermudagrass Putting Greens** Eric DeBoer*, Michael D. Richardson and John H. Mccalla

1574 **'Tahoma 31' Bermudagrass: A New Cold Hardy, Drought Resistant and Traffic Tolerant Turf Cultivar** Yanqi Wu*, Dennis L. Martin, Justin Quetone Moss, Charles Henry Fontanier, Nathan Walker, Meghyn Meeks, Benjamin Wherley, Kevin E. Kenworthy, Bryan Unruh, Patricio R. Munoz, Brian M. Schwartz, Paul L. Raymer, Freddie Clinton Waltz Jr., Susana R. Milla-Lewis and Grady L. Miller

1575 **Turfgrass Plant Water Status Influence on Herbicide Phytotoxicity and Efficacy** Jackson Powers* and Ryan M Goss

1600 **Effects of Deficit Irrigation on Warm Season Turfgrasses Under Fairway Maintenance** Christopher Reid*, Charles Henry Fontanier, Tyson E. Ochsner and Yanqi Wu

1601 **Creation of a 2019 Bentgrass Putting Green Sod Source Directory** Dennis L. Martin*

SESSION NO. 363—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Turfgrass Management and Ecology Poster (includes student competition)

C05 Turfgrass Science

1616 **Clover Inclusion in Seeded Kentucky Bluegrass Turf** Paige Boyle*, Kelly L. Kopp, Paul G. Johnson, Shaun Bushman and Steve Young

1617 **Effects of Integrated Pest Management Practices on Weed Populations in Pacific Northwest Turfgrass** Emily T Braithwaite*, Alexander R. Kowalewski and Tim Stock

1618 **Irrigated Turfgrass Reduces Surface Temperatures of Urban Buildings** Ahmed Kanaan*, Igor Sevostianov, Matteo Serena, Elena Sevostianova and Bernhard Leinauer

1619 **Fluxapyroxad and Pyraclostrobin Containing Fungicide Effects on Bermudagrass Transplantation Success Under Various Storage Conditions** Nikolay Minaev*, James D McCurdy, Casey Barickman, Te-Ming Paul Tseng, Maria Tomaso-Peterson and Daniel Chesser

1620 **Kentucky Bluegrass Response to Traffic during Autumn** Bradley S. Park* and James A. Murphy

1621 **Effects of Plant Growth Regulators and Nitrogen on Post-Drought Recovery in Creeping Bentgrass** Cathryn Chapman* and Bingru Huang

1622 **Environmental Impacts of Smart Irrigation and Mowing Height in Kentucky Bluegrass Lawns.** Daniel Sandor*, Brian Horgan and Brian Davis

1623 **Identification of Wetting Agents for Water Conservation on Golf Course Fairways** Marco Schiavon*, Pawel Orlinski, Chiara Toniatti, Alessio Forconi and James H. Baird

1624 **Soil Microbial Community Dynamics Under Urban Turfgrass in a Semiarid Climate** Manish Sapkota*, Joseph Ronald Young, Lindsey C. Slaughter, Veronica Acosta-Martinez and Jon Cotton

1625 **Turfgrass Rooting Response to Humic Acid Fertilizers.** Alex Lindsey*, Adam Thoms and Nick E. Christians

1626 **Supplemental Irrigation Requirements of Various Kentucky Bluegrass and Tall Fescue Blend Ratios Subjected to Deficit Irrigation** Jada Powlen*, Cale Bigelow, Aaron J. Patton, Yiwei Jiang and Melodee Fraser

1627 **Effect of Temporal Shade on Light Response Curves of Creeping Bentgrass** Naba Amgain* and Charles Henry Fontanier

1628 **Comparing Installation Techniques of Zoysiagrass for North Carolina Roadsides** Benjamin Gragg*, Grady L. Miller, Susana R. Milla-Lewis and Drew Pinnix

1629 **Evaluation Late-Season Nitrogen Fertilizer Application for Effects on Autumn Color and Winter Survival of Riviera Bermudagrass** Anthony Goldsby, Jack D. Fry, Manoj Chhetri* and Megan M. Kennelly

1630 **Effect of Long-Term Irrigation of Creeping Bentgrass Putting Greens with Water Oxygenated Using Nanobubble Technology** Eric DeBoer*, Michael D. Richardson, Douglas E. Karcher and John H. Mccalla

1631 **Minnesota Regional Roadside Seed Bank Analysis** Dominic Christensen*, Joshua Friell, Jacob Jungers, Jon M. Trappe and Eric Watkins

1632 **Soil Microbiome and Greenhouse Gas Emissions of Tall Fescue Turf Fertilized with Organic or Synthetic Nitrogen Sources** Kaitlyn Goodridge*, Karl Guillard and John Charles Inguagiato

1633 **Pesticide Phytoremediation Capacity of Southeastern US Native Plant Species** Alayne McKnight*

1634 **Performance of New Bermudagrass Genotypes Under Drought Stress** Christian S. Bowman*, Marta Pudzianowska and James H. Baird

SESSION NO. 364—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Turf Physiology, Molecular Biology, and Genetics Poster (includes student competition)

C05 Turfgrass Science

1602 **Breeding for Large Patch Disease Tolerance and Cold Hardiness in Zoysiagrass** Anthony Dennis Genovesi*, Meghyn Meeks, Jack D. Fry, Megan M. Kennelly, Aaron J. Patton, Mingying Xiang, Ross C Braun and Manoj Chhatri

1603 **Growth and Physiological Effects of *Burkholderia* on Drought Stress Tolerance and Post-Drought Recovery in Creeping Bentgrass** William Errickson* and Bingru Huang

1604 **Across and within-Species Genotype-By-Environment Interaction for Turf Quality Using Germplasm from Five Turfgrass Breeding Programs in the Southeastern United States** Beatriz Gouveia, Esteban F. Rios*, Jose Airton Rodrigues Nunes, Salvador Gezan, Patricio R. Munoz, Kevin E. Kenworthy, J. Bryan Unruh, Susana R. Milla-Lewis, Grady L. Miller, Brian M. Schwartz, Paul L. Raymer, Ambika Chandra, Benjamin Wherley, Yanqi Wu, Dennis L. Martin and Justin Quetone Moss

1605 **Genetic Variability in Yellow Nutsedge (*Cyperus esculentus* L.)** Luqi Li*, Keenan Amundsen and Roch E. Gaussoin

1606 **Multi-Environment Evaluation of Turfgrass Species for Turf Quality in Drought** Dev Paudel*, Ivone de Bem Oliveira, Kevin E. Kenworthy, Bryan Unruh, Meghyn Meeks, Susana R. Milla-Lewis, Yanqi Wu, Brian M. Schwartz, Jing Zhang, Patricio R. Munoz and Esteban F. Rios

1607 **Effect of Leaf Cell Size on Kentucky Bluegrass Traffic Tolerance** Benjamin Pease*, Adam Thoms and Nick E. Christians

1608 **Chemical-Sniffers: Detection of Toxic Chemicals in Soils Using Synthetic Microbes** Li Chieh Lu*, Ilenne Del Valle, Caroline A Masiello and Jonathan J Silberg

1609 **Molecular Mechanism of Carbon Dioxide and Nitrogen Interaction Mediated By Hormones in Regulating Leaf Growth in Tall Fescue** Jingjin Yu* and Bingru Huang

1610 **FaTB1, a Teosinte Branched1 Ortholog, Plays a Vital Role in Regulating Tillering in *Festuca Arundinacea*** Lili Zhuang* and Zhimin Yang

1611 **Transcriptome Profiling of Creeping and Colonial Bentgrass Under Water Deficit Stress.** Scott E. Warnke*, Shaun Bushman and Matthew D. Robbins

1612 **Screening St. Augustinegrass Germplasm for Southern Chinch Bug Resistance** Rocio R Van der Laat, Adam G Dale, Consuelo Arellano and Susana R. Milla-Lewis*

1613 **Spring Seedhead Suppression in Putting Green Zoysiagrass Using Ethephon** Siew Teck Kong, Meghyn Meeks and Ambika Chandra*

1614 **Shade Tolerance of Diploid and Interploid Hybrids of St. Augustinegrass** Meghyn Meeks* and Dennis Genovesi

1615 **Subsurface Drip Irrigation and Minimum Irrigation Requirements to Maintain Bermudagrass and Seashore Paspalum** Matteo Serena*, Elena Sevostianova and Bernhard Leinauer

SESSION NO. 365—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Forage and Grazinglands Poster I: Warm-Season Forages

C06 Forage and Grazinglands

1635 **Fast Growing Forage Annuals for Hay Production in Puerto Rico** Elide Valencia*, Mayra Velasco-Yaselga, Alfredo Aponte Zayas and Alina Lema-Solis

1636 **Harvest Management Effects on 'Russell' and 'Tifton 44' Bermudagrass Nutritive Value and Phosphorus Removal** John Read*, David J. Lang and Ardeshir Adeli

1637 **Weed Management Systems in Imidazolinone Tolerant Sorghum (*Sorghum bicolor*) in South Texas** Alvaro Garcia*, Joshua McGinty, Jamie Foster, Greta Schuster and Alinna Umphres

1638 **The Potential Role of Florida Soils in Mycotoxin Activity Found in Perennial Grasses** Cheryl L Mackowiak* and Ann Blount

1639 **Effect of Potassium and Phosphorus Deficiencies on Bermudagrass Hay Yields and on Weed Encroachment** Matthew Bertucci*, Dirk Philipp, John Jennnings and Robert T Rhein

1640 **Forage Production of Continuously Stocked Ipyporã and Mulato II Brachiariagrasses in the Brazilian Amazon** Bruno Carneiro Pedreira*, Isadora Paraiso, Débora Silva, Ana Paula Carvalho, Lynn E. Sollenberger and Dalton Pereira

1641 **Silvopastoral and Crop-Livestock Systems: An Alternative for the Sustainable Intensification of Tropical Forage-Based Systems** Bruno Carneiro Pedreira*, Leandro Domiciano, Lynn E. Sollenberger and Dalton Pereira

1642 **Growth Temperature and Rhizome Propagule Characteristics Affect Rhizoma Peanut Sprout Emergence and Biomass Partitioning Patterns** Parmeshwor Aryal*, Lynn E. Sollenberger, Diane L. Rowland and Jason A. Ferrell

1643 **Tiller Population Stability Index in Zuri Guineagrass Pastures in Response to Grazing Frequency and Severity** Carlos G. S. Pedreira*, Patricia Luizão Barbosa, Andre Sbrissia and Lynn E. Sollenberger

1644 **Ecophysiological Responses of Tetraploid Bahiagrass to Nitrogen Fertilization** Roberto Ramon Schulz, Alex Leonel Zilli* and Carlos Alberto Acuna

1645 **Conopy Green Cover, Forage Accumulation, and Nutritive Value of Tifton 85 Bermudagrass Harvested at Fixed and Variable Rest Periods and Harvest Intensities** Valdson José Da Silva*, Mateus Alves Gonçalves, Antonia Samire Sipaúba Farias, Luiz Carlos Oliveira de Sousa, Luiz Henrique Souza Nenem, Eveline Lira Lima Moreira, Joás José da Silva and Ana Flavia Gouveia De Faria

1646 **Cultivar and Soil Incorporation Effects on Sunnhemp Organic Matter Decomposition** Jaime Garzon Alfonso, Joao M.B. Vendramini*, Maria Lucia A. Silveira, Lynn E. Sollenberger, Jose C.B. Dubeux Jr., Hui-Ling Liao, Hiran da Silva and Vitor Miranda

1647 **Changes in Rhizoma Peanut Shoot and Root-Rhizome Characteristics during a Planting Season and Their Relationship with Rhizome Establishment Performance** Gabriel Baracat Pedroso*, Lynn E. Sollenberger, Marcelo Wallau, Jose C.B. Dubeux Jr., John Erickson, Bruno Carneiro Pedreira, Fabiane Quevedo Rosa, Patricia Luizão Barbosa, Orlando Lucato Neto and Leonardo Felix

1648 **Propionic Acids Effects on Nutritive Value and Fermentation Characteristics of Sunn Hemp Silage** Joao M.B. Vendramini*, Hiran M. S. da Silva and Victor Miranda

1649 **Effects of Tannin-Rich Legume on *in Vitro* Organic Matter Digestibility and Methane Production of Beef Cattle** Flavia van Cleef*, Jose C.B. Dubeux Jr., Fabio Pinese, Erick Rodrigo da Silva Santos, David M. Jaramillo, Martin Ruiz-Moreno, Harley D. Naumann and Nicolas DiLorenzo

1650 **Short-Term Sward Responses of Bahiagrass Under Different Grazing Intensities** Erick Rodrigo da Silva Santos*, Jose C.B. Dubeux Jr., David L. Wright, Cheryl L Mackowiak, Michelle Siqueira, Liza Garcia, Luana Mayara Dantas Queiroz and Nicolas DiLorenzo

1651 **Assessing Nitrification Inhibition on Different Bahiagrass Varieties** Carlos Cristobal Vela Garcia*, Jose C.B. Dubeux Jr., Hui-Ling Liao, Martin Ruiz-Moreno, Erick Rodrigo da Silva Santos, David M. Jaramillo, Vanessa Zirondi Longhini and Bruno Grossi Costa Homem

1652 **Endophyte and Mycotoxin Presence in Southern Forages** Ann Blount*, Glen Aiken, Cheryl L Mackowiak, Jennifer Duringer, Sunny liao and Koko Chen

1653 **Silage Quality and Forage Potential of Sesbania [*Sesbania Roxburghii*]** Shyh-Rong Chang* and Chi-Hsin Lu

1654 **Simulating Diverse Eastern Gamagrass Ecotypes in Texas** Angela Avila*, Sumin Kim, Jianzhong Su, Amber Williams and Jim Kiniry

SESSION NO. 366—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Plant Genetic Resources Poster

C08 Plant Genetic Resources

1655 **Effect of Limited Irrigation on *Lolium Perenne* Turfgrass Germplasm** Joseph G. Robins*

1656 **Characterization of a and B Sub-Genomes within the Allotetraploid *Eleusine Coracana* (finger millet)** Nathan Hall*, Jinesh Patel, J. Scott McElroy and Leslie R Goertzen

1657 **Development and Characterization of Hardy-Cob Corn Inbreed Lines** Cody Vavra*, Brendan Kelly, Matt Jones, Thomas H. Marek and Wenwei Xu

1658 **The Analysis of Genetic Variance Among Different Peanut Varieties in Taiwan Using Kasp Makers** Yu-Chien Tseng* and Hung-Yu Dai

1659 **Characterization of *Gossypium hirsutum* Accessions from Africa in the US National Cotton Germplasm Collection** Lori L. Hinze*, Fatimata Bintou Hassedine DIOUF and James Frelichowski

1660 **Exploration for Coastal Dune Sunflower from the Barrier Islands Off the Gulf Coast of Florida** Gerald J. Seiler* and Laura Fredrick Marek

1661 **Estimating the Phenotype Plasticity Based on the Allelic Effects** Avjinder Singh Kaler* and Larry C. Purcell

1662 **Proso Millet Crop Vulnerability Review** David Brenner*, Dipak K. Santra and J. Bradley Morris

1663 **Biochemical Trait Variability Among 8 Sesame (Sesamum indicum L.) Accessions** J. Bradley Morris*, Ming Li Wang and Brandon Tonnis

1664 **Pea Seed Protein Concentration: GWAS Approach Utilizing Pea Core Plus Collection** Clarice J. Coyne*, Deus Mugabe, Ping Zheng, Jamin Smitchger, Yu Ma, Dorrie Main and Rebecca J. McGee

1665 **Usefulness of Regional Maize Diversity in Conservation and Genetic Improvement Strategies** Froylan Rincon* and Norma Ruiz

1666 **Evaluating Efficiencies in Regeneration Nurseries Using GRIN-Global Inventory Actions** Vivian M. Bernau*, Mark J. Millard and Candice A. Gardner

1667 **Use of Optical Seed Sorters for Optimizing Some Plant Genetic Resource Seed Lots** Candice A. Gardner*, Jesse Perrett, Allen LeRoy, Ursula Frei and David W. Peters

1668 **Agronomic Traits Analysis of Wheat Germplasm Collected from Several Countries for Development of Core Collection in Korea** Changhyun Choi*, Jae-Han Son, Young Mi Yoon, Kyeong-Hoon Kim, Kyeong-Min Kim, Han-Yong Jeong, Young-Jin Kim, Jinhee Park, Jinwoo Yang, Chon-Sik Kang and Tae-Il Park

1669 **Molecular Characterization of Alpha-Tubulin in Dinitroanaline Resistant Annual Bluegrass (*Poa annua*)** Eli C Russell*, Nathan Hall, Jinesh Patel, Jim Harris and J. Scott McElroy

1670 **Guess: Exploiting Unadapted Sorghum Germplasm for Crop Improvement** Nikhil Y. Patil*, Leo Hoffmann Jr., William L Rooney, Patricia E. Klein and Robert R Klein

SESSION NO. 367—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soils in Ecological Restoration Poster (includes student competition)

SSSA Division: Forest, Range and Wildland Soils

Section or Division Cosponsor:
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Pedology, SSSA Division: Wetland Soils,
SSSA Division: Soils and Environmental Quality,
SSSA Division: Urban and Anthropogenic Soils,
SSSA Division: Soil and Water Management and Conservation

1000 **Evaluating Soil Organic Matter Pools and Earthworm Counts in Response to Land Restoration** Mackenzie Hoffman*, Iin P. Handayani and Alyx Shultz

1001 **Hydrogel Banding for Increased Soil Moisture and Seedling Establishment for Rangeland Restoration** Shannon V. Nelson*, Matthew D. Madsen, Neil C. Hansen, Val J. Anderson and Bryan G. Hopkins

1002 **Chemical and Physical Controls to the Pheretimoid Earthworm, *Amynthas Tokioensis*** Bradley M Herrick* and Marie R Johnston

1003 **Immediate Effects of Fire on Fungi and Bacteria Abundance and Community Diversities Under and between Sagebrush Canopies in Semi-Arid Ecosystem of Northern Nevada.** Christina T Igono*

1004 **Soil Properties of Wisconsin Temperate Forests upon *Amynthas* Earthworm Invasion** Marie R Johnston* and Bradley M Herrick

1005 **Accelerating Maturation of Thornscrub Habitat for Ocelots** Jose Cortez*, Sandra Rideout-Hanzak, Michael Tewes, David B. Wester and David E. Ruppert

1006 **Prescribed Fire Effects on Forest Floor and Upper Mineral Soil Mercury Concentrations and Stocks during Barren's Restoration** Randall K. Kolka*, Kathleen Quigley, Jessica Miesel, Brian Sturtevant and Thomas M. DeSutter

SESSION NO. 368—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Nutrient Management and Soil and Plant Analysis General Poster

SSSA Division: Nutrient Management and Soil and Plant Analysis

1007 **Sulfur Management in Corn Using 4R Nutrient Stewardship Principles** Kirandeep Mann*, Ross Bender, Curt Woolfolk and Kyle Freeman

1008 **Soil Health Assessments in Biofuel Cropping Systems** Michael L. Thompson*, Fritzie Rivas, Mostafa A. Ibrahim and Ala Khaleel

1009 **Corn Yield Response to Phosphorus in Mexico** Cesar Venegas, Oscar G. Perez*, Kenneth Hylton, Kirandeep Mann and Kyle Freeman

1010 **Carryover Effects of Combined Starter Mineral P and Manure P on Silage Corn Yield and Soil P** Aime Jean Messiga* and Carine S. Bineng

1011 **Economic Phosphorus Fertilization Based on Two Intrinsic Phosphorus Pools in Tropical Soils** Xiufu Shuai*

1012 **Using Portable Visible/Near Infrared Spectroscopy to Compliment Legacy Soil Data in Armenia** M. Scott Demyan*, Gevorg Tepanosyan, Leonardo Deiss and Armen Saghatelyan

1013 **Assessing Soil Phosphorus Extractants with Various Soil Properties in the United States** Biswanath Dari* and Debjani Sihi

1014 **Effect of Manure Treatment Plans and Nitrification Inhibitors on Nitrous-Oxide Gas Emissions** Kari Wolf*, Christen Duus Børgesen, Finn Plauborg and Søren O Petersen

1015 **Field Portable Nutrient Diagnostics and Heavy Metal Screening for Healthy Soil and Crops** Kimberley Russell*

1016 **Predicting Soil Organic Matter in Wisconsin Soils** Ella Aspenson*, Krista Bryan, Emma Schmidt, Trace Miller and Bryant Scharenbroch

1017 **Does Placement of Liquid Cattle Manure at Different Distances from Corn Seeds Influence Early Growth and Phosphorus Uptake in Corn?** Khagendra Raj Baral*, Peter Sørensen, Ingeborg Frøsig Pedersen and Gitte Holton Rubæk

1018 ***Changes in Soil Phosphorus Fractions Due to Cover Crop Rotation with Row Crops*** Justin Clarke*, Rishi Prasad and Debolina Chakraborty

1019 **Determining Growing Conditions for Industrial Hemp in Piedmont North Carolina** Arnab Bhowmik*, Jared Via, John Ivey, Matthew Todd and Abolghasem Shahbazi

1020 **Soil Sample and Chamber Size Effects on Measured CO2 Burst** Jason G. Warren, Glenn Arthur Garcia*, Shiping Deng, Hailin Zhang and Sumit Sharma

1021 **Assessment of the Accuracy and Precision of Soil Chemical Analysis Performed By Eight Commercial Laboratories** Andre Biscaro*, Robert O. Miller, Dirk Holstege, Tim K Hartz and Steve B. Orloff

1022 **Early Sensor Based NDVI Readings for Detecting Early Changes in Plant Biomass and Potential Nitrogen Response in Winter Wheat.** Eva Nambi*

1023 **Lasso or Dris: Understanding the Nutrient Balances of North Carolina Corn Growers.** Janel Martin*

1024 **Relative Abundance of Ureides and Protein Concentration in Soybean Seeds** Luiz H. Moro Rosso, Rachel L. Veenstra, Adalgisa R. Torres* and Ignacio A. Ciampitti

1025 **Will Improving Soil Health Require Estimation of N Mineralization As Part of Soil Testing for Fertilizer Recommendation?** Larry J. Cihacek*, Shiny Matthews and Rashad Alghamdi

1026 **Soil Silicon Extraction with Calcium Chloride in Differents Shaking Speeds** Dirceu Maximino Fernandes*, Guilherme Constantino Meirelles, Angélica Cristina Fernandes Deus, Katerine Andrade De Almeida and Leonardo Theodoro Büll

1027 **Comparison of Citric Acid Reactivity and Calcium Carbonate Equivalent of Agricultural Liming Materials** James Berkey*, John L. Kovar, Daniel C. Olk, Amy J. Morrow and Andrew Hoiberg

1028 **Development of a Rapid in-Field Soil pH Test Using Cell Phone Imaging** Brady Trexler* and Judith Fitzpatrick

1029 **High Accuracy of Nitrogen, Carbon and Sulfur Analysis for Agronomy Applications** Michael Stalker and Rick Hancock*

SESSION NO. 369—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Pedology General Poster I (includes student competition)

SSSA Division: Pedology

1030 **A Subaqueous Soil Survey: South River, Maryland** Cedric Park*, Barret M. Wessel and Martin C. Rabenhorst

1031 **Benchmark Soil Landscapes and Landscape Evolution on the Southern High Plains of Texas** Susan M. Casby-Horton*, Dwain Daniels, Carmen Castañeda, Craig Byrd, Todd Carr and Alain Basurco

1032 **Field-Ready Methods for Casting Soil Macropores** Kim Drager*, Pranjal Vachaspati and Andrew Suarez

1033 **Predicting Saturated Hydraulic Conductivity with Rapid Estimates of Soil Microaggregation** Julio C. Pachon*, Daniel Richter, Daniel Markewitz, Aaron Thompson, Anna Wade, Rachel Ryland and Allan R. Bacon

1034 **Texture of Organic Soil Material: Optimizing Actual Quantifications of Particle Size with Laser Diffraction.** Daniel J Colopietro* Jr. and Allan R. Bacon

1035 **Lateral Variability and Soil Formation in Alluvial Coal Deposits within the Schuylkill River Basin, Pennsylvania** Sophia Maffie*, A. Rueben Willson and Matthew C Ricker

1100 **Prying the Lid Off the "Garbage Can": Evaluating the Chewacla Soil Series** Matthew C Ricker* and Shannon Bradley

1101 **Andisols As a Product of Climatic Forces, Not Parent Material** Kristopher Osterloh*

1102 **Effects of Climatic Shifts on Pedogenic and Geomorphic Processes in Playa Wetland Soils, Nebraska, USA** Aubrey G. Kemper*

1103 **Soil Genesis across a Climo-Lithosequence of Western Haleakalā** Ryan Hodges* and Janis L. Boettinger

1104 **Translating Soil Survey Data into Practical Information and Knowledge - a Case Study for the Arequipa Region, Peru** Darrell G. Schulze*, Martín Juan Carlos Villalta Soto and Zachary Brecheisen

SESSION NO. 370—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Agricultural Practices to Improve Nitrogen-Use Efficiency Poster

SSSA Division: Soil and Water Management and Conservation

1105 **Ohio Experience with NDVI Tools** Harold D. Watters*

1106 **Optimizing Nitrogen and Precipitation Recovery in a No-till Winter Wheat with Winter Pea Cover Crop** Hero T. Gollany* and Robert W. Polumsky

1107 **Using a Network of Networks (AgCROS) to Assess Conservation Practices' Effects on Yield Responses and Nutrient Use Efficiencies across the USA** Jorge A. Delgado*, Bruce Vandenberg, Robert D'Adamo, Donna Neer, Nicole Kaplan, Jennifer Carter, Dan Arthur and Greg Wilson

1108 **Can Nitrate Nitrogen Concentrations from Deep Soil Cores be Used to Evaluate That Growing Years Nitrogen Management?** David D. Tarkalson* and David Bjorneberg

SESSION NO. 371—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Management Impacts on Soil Properties and Soil C and N Dynamics Poster

SSSA Division: Soil and Water Management and Conservation

1109 **Analyzing Soil Health Under Cover Crops and No Cover Crops in Western Kansas Dryland Farming** Ammar B Bhandari*

1110 **Use of Apparent Electrical Conductivity and Directed Soil Sampling to Improve Management of Cool Season Pastures.** Brian J. Wienhold*, Tala Awada, Andy Suyker and Bryan L. Woodbury

1111 **The Impact of Mixed Winter Cover Crops and Nitrogen Addition on Biomass Production, Degradation and Nitrogen Cycling** Kritsanee Iamjud*, Lisa M. Fultz, Kathleen Bridges and Paola Carolina Muela Negrete

1112 **Impacts on Soil Health Resulting from Use of Double Crops or Cover Crops Instead of Fallow Management in Dryland Winter Wheat Production in the Semi-Arid Southern Great Plains** Brian Hux*, Terry J. Gentry, Paul B. DeLaune and Partson Mubvumba

1113 **Effects of 5-Year Field Experimental Warming on Crop Litter Decomposition Depending on Tillage Systems** Ruixing Hou*

1114 **Assessing the Benefits of Cover Crop-Based Organic No-till Practices on Soil Health** Yichao Rui*, Jessica Lang, Andrew Smith, Emmanuel Omondi, Matthew D. Ruark, Erin M. Silva, Kathleen Delate and Brian Luck

1115 **How Does Tillage Intensity Affect Soil Health in the USA?** Márcio Renato Nunes*, Thomas B. Moorman and Cynthia A. Cambardella

1116 **Strategic-Grazing for Improving Spatial Distribution of Nitrogen and Carbon in Beef-Pastures of Southern Piedmont, Georgia** Subash Dahal*, Dorcas H. Franklin, Anish Subedi, Miguel L. Cabrera, Dennis W. Hancock and Lawton Stewart

1117 **Intercropping Switchgrass with Hybrid Poplar Increases Carbon Sequestration on a Sand Soil** Harold P. Collins*, Emi Kimura, Wayne Polley, Philip Fay and Steve C. Fransen

1118 **Reduction in Compaction By Strategic Rotational Grazing; Evidence from Depth Correlation of Organic Carbon** Anish Subedi, Dorcas H. Franklin*, Subash Dahal and Miguel L. Cabrera

1119 **Chemical, Mineralogical Characteristics and Aggregates Stability in Oxisol Under Intensive Cultivation and Irrigated in Long-Term** Marcel Thomas Job Pereira, Raphael Bragança Alves Fernandes, Mauricio Paulo Ferreira Fontes, Jakeline Rosa de Oliveira and Teogenes Senna Oliveira*

SESSION NO. 372—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Biology and Biochemistry General Poster Session II

SSSA Division: Soil Biology and Biochemistry

1120 **The Effects of Drought and Subsequent Wet up on Microbial Communities and Soil Organic Carbon in Soils from Humid Tropical Forest in Panama** Stephany Chacon*, Aizah Khurram and Nicholas Bouskill

1121 **Identification and Tracking of *Enterococcus Species* and Their Antimicrobial Activities with Specific Pollutant Sources** Abasiofiok M. Ibekwe*

1122 **Effects of Tillage and Cover Crop on Soil Health in a Mississippi Soybean Field** Heather L. Tyler*

1123 **The Influence of Root Decomposition on N_2o Production: Tracking the Fate of N through Isotopic Labeling and Enzyme Distribution** Kyungmin Kim*, Jenie Gil-Lugo, Hasand Gandhi, Nathaniel Ostrom and Alexandra Kravchenko

1124 **Linkages between Indicators of Soil Restoration in Agroforestry Systems of Sapucaia (RJ), Brazil** Priscila Matos*, Steven J Fonte, Everaldo Zonta, Marcos Gervasio Pereira, Felipe Brazil, Ricardo Tarre, Julia Barra Netto-Ferreira and Douglath Alves Fernandes

1125 **The Influence of Root Decomposition on N2o Production: Distinguishing N2o Microbial Production Pathways on the Basis of Site Preference (SP) Analysis** Jenie Gil Lugo*, Kyungmin Kim, Gandhi Hasand, Nathaniel Ostrom and Alexandra Kravchenko

1126 **Management Legacy and Nitrogen Source Interact to Affect Soil Organic Matter Dynamics and Plant Nitrogen Acquisition** Huijie Gan* and Laurie E. Drinkwater

1127 **Mechanisms of Iron Mobilization By Phenazine-1-Carboxylic Acid-Producing** *Pseudomonas Synxantha* **2-79 in Dryland and Irrigated Wheat Rhizospheres** Melissa LeTourneau*, Matthew Marshall, Patrick M. Freeze, Michael Grant, Barry Lai, Daniel G. Strawn, James B. Harsh, David Weller and Linda Thomashow

1128 **Current Season Nitrogen Fertilization Rate, Not Prior N History, Dictates Extramatrical Hyphal Biomass of Arbuscular Mycorrhizal Fungi in Soil at Maize Reproduction** Morgan McPherson*, Ashley Stengel, Elizabeth S. Jeske, Kari Dunfield, Micaela Tosi, Bill Deen and Rhae A. Drijber

1129 **Crop Rotation and Nitrogen Management History Influences Abundance of Extramatrical Arbuscular Mycorrhizal Fungi in Maize Cropping Systems** Morgan McPherson*, Ashley Stengel, Josh Herr, Elizabeth S. Jeske, Virginia L. Jin and Rhae A. Drijber

1130 **Bacterial Community Composition in Triclosan-Irrigated Soils in the Presence and Absence of Onion Crops** Priscilla Carlo*, Ashley M Garcia, Oscar D. Gonzalez and Monica O. Mendez

1131 **Effect of Mycorrhizae Amendment on Three Cypress Genotypes Grown in Hurricane Impacted Soils** Stephen Wagner*, Josephine Taylor and David Creech

1132 **Evaluate the Use of Os Staining in Identifying Soil Organic Matter in Intact Soil Via X-Ray Computed Micro-Tomography Scanning** Hongbing Zheng*, Kyungmin Kim and Alexandra Kravchenko

1133 **16S rRNA Gene-Based Metagenomic Analysis of Rhizosphere Soil Microbiome in Arkansas Rice Fields** Ehsan Shakiba*, Cassia Oliveira, Dustin North, Madison McGraw, Marissa Barrett, Ethan Ballard, Galina Glazko and Yasir Rahmatallah

1134 **First Insights into the Rhizosphere Microbiomes of Four Native Chihuahuan Desert Shrubs: Creosote, Mariola, Mesquite, and Tarbush.** Nicole Pietrasiak*, Mariela Estrada, Niall Hanan, Andrew Dominguez and David Burke

1135 **Soil Moisture Variations Affect the Chemical and Biological Stability of Mineral-Associated Organic Matter** Andrea Jilling*, Noah Sokol, Karen Moran Rivera and Stuart Grandy

1136 **Soil Microbiome Analysis of Hops in the US Pacific Northwest** Alison Hamm* and Daniel K. Manter

1137 **Microbiometer® Now Estimates Fungal:Non-Fungal Ratio As Well As Microbial Biomass.** Brady Trexler and Judith Fitzpatrick*

1138 **Living Cover Crops for Banana Farms and Their Short Terms Effects on Soil Health** Zoelie Rivera Ocasio*, Yaniria Sánchez de León, Carlos Ortiz, Jose A Dumas and Charles Macaulay White

1139 **Impacts of Dairy Manure on Soil Structure, Carbon Dynamics, and Water Characteristics in a Corn-Wheat System.** Daoyuan Wang*, Jordan M. Sayre, Daniel Geisseler, Amelie CM Gaudin, Jorge L.M. Rodrigues and Kate M. Scow

1140 **Microbial Exudate Production in Response to Toxic Metals in Soils** Martha Guerrero*, Chris Hahne, Vineeta Rai and Oliver Baars

1141 **Direct Oomycete DNA Extraction from Soils Using Modified Shorty Buffer** Emma Gray, Maribel Perez Espinal, Darina Trendafilova, Chris Lee, David S. Baston and Susan B. Edinger-Marshall*

1142 **Optimization of Bench-Scale in-Vessel Composting of Retail Food Waste** Ayawovi Ametepe*, Mary Cathleen Savin, Thomas Yeargin and Kristen Gibson

1143 **Temporal Fluctuations of PLFA-Derived Microbial Community Structures within the Crop Growing Season** Aaron L.M. Daigh*, Zachery Leitner, Caley Gasch and Jodi DeJong-Hughes

1144 **Quantification of Bacterial Nitrogen-Cycling Genes and Archaeal *Nosz* in Soils Subjected to Conservation Agriculture Practices** John Boswell*, Mark McDonald, Katie L. Lewis and Terry J. Gentry

1145 **Impacts of Long-Term Fertilization on Microbial Activity and Carbon Cycling** Annalee Fearing*, Julie A Howe, Peyton Smith and Nicole Shigley

1146 **Composting Deactivation of CWD Prions** Susanna Baker* and Robert C. Michitsch

1147 **Soil Microbial Communities and Nutrient Availability after Flooded Rice Cultivation in South Florida** Rachelle Berger*, Samira H. Daroub and Willm Martens-Habbena

1148 **Soil Microbial Community Composition after 53-Years of Tillage and Nitrogen Fertilization in the Central Great Plains** Marcos Vinicius Mansano Sarto*, Carlos Augusto Bonini Pires, Charles W. Rice and Augustine K Obour

1149 **Impact of Soil and Manure Management on Nitrate Ammonifying Bacteria and Greenhouse Gas Emissions** Arnab Bhowmik*, Mara Cloutier, Terrence Bell, Heather D. Karsten, Curtis J. Dell and Mary Ann V. Bruns

SESSION NO. 373—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Coupling and Feedbacks of Phosphorus and Nitrogen in Soil and Ecosystems: Missing Gaps and Future Directions Poster (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality,
SSSA Division: Soil Fertility and Plant Nutrition

1150 **The Influence of Long-Term N and P Fertilization on Soil P Forms and Enzyme Activities in Wheat/Fallow Cropping** Shuo Chen, Barbara J. Cade-Menun*, Luke D. Bainard, Mervin St. Luce and Qing Chen

1151 **Phosphorus Sorption and Distribution: The IMPACT of Long-Term Cover Crop Management and Species** Adebukola O Dada*

1152 **Distribution and Speciation of Phosphorus in Granite Weathering Profiles Ofdifferent Climatic Zones** Zhuojun Zhang*, Congqiang Liu, Zhiqi Zhao, Yongfeng Hu and Mengqiang Zhu

1153 **Enzyme-Catalyzed Inorganic Pyrophosphate Hydrolysis Reveals Position-Specific Oxygen Isotope Exchange** Spencer Moller*, Yuriy Sakhno and Deb P. Jaisi

1154 **The Effects of Native Carbon Constituents on Soil Phosphorus Mineralization in an Illinois Floodplain Soil** Mary Arenberg*, Danling Ma and Yuji Arai

SESSION NO. 374—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Topics in Soil Chemistry Poster (includes student competition)

SSSA Division: Soil Chemistry

1155 **Organochloride Pesticide Residues in Sediments Derived from an Agricultural Watershed** Michael E. Essington*, Erin A. Essington, Andrea L. Ludwig and Forbes R. Walker

1156 **Characterizing Binder-Stabilized Composites Synthesized from a Martian Soil Simulant for Extraterrestrial Construction** Aditi Pandey*, Paul Schwab, Douglas W. Ming, Brad Sutter, John Gruener and Dallas Little

1157 **Understanding P Dynamics of Delmarva Peninsula Legacy P Soils By X-Ray Absorption Near Edge Structure Spectroscopy (XANES)** Lauren Mosesso*, Amy L. Shober and Kirk G. Scheckel

1158 **Transport of Conservative and Reactive Tracer through Undisturbed Soil Columns** Martina Sobotkova*, Steffen Beck-Broichsitter, Jaromir Dusek, Michal Snehota and Horst H. Gerke

1159 **Using Soil Nutrient Pools to Explain Ecosystem Processes** Alexandrea Rice*, Matthew Vadeboncoeur and Ruth Yanai

1160 **Contaminant Reactivity Along a Chronosequence in the Oregon Coast Range** Chelsea S. Obeidy* and Matthew Polizzotto

1161 **Effect of Terminal Electron Acceptor on Redox Potential of Reclaimed Mine Site Soil** Amir Hass*, Jeff Skousen, Robert Cantrell and Randall Lester

1162 **Selection of Internal Standards for ICP-MS Analysis of As in Soils** Taylor Alvarado*, Paul Schwab, Andrew Lee and Bryan Tomlin

1163 **Atmospheric Vs Geogenic: Using Long-Term Soil Experiments to Delineate between Lead (Pb) Sources in the Southern Piedmont** Anna Wade*, Daniel Richter and Paul Heine

1164 **Competitive Sorption Mechanism of Boron (B) and Selected Veterinary Antibiotics on Iron Oxide Minerals** Christopher Anuo*

SESSION NO. 375—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Education and Outreach General Poster II

SSSA Division: Soil Education and Outreach

1165 **Beyond Jeopardy: The Gamification of Soil Science** Charlotte I Lee*, Erica Lott and Michael L. Mashtare Jr.

1166 **Teaching Water Movement through Soil Using Experiential Learning Techniques** Julie A Howe* and Ana Barrientos

1167 **Animating Soil: Using Storytelling and Digital Graphics to Bring Soils Education to Life** Jessica Chiartas* and Toby O'Geen

SESSION NO. 376—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Enhanced Nutrient Availability from the Soil Poster

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis

1168 **Effects of Long-Term No-till on Optimal Nitrogen Fertilization Practices for Corn** Hanna Poffenbarger* and John H. Grove

1169 **Biosolid Treatment Effects on P Availability in Soil from Wisconsin Biosolids As Measured By Chemical Extractions and 31P Solution NMR.** Angela M. Ebeling*, Amelia Lauth, Wynonah Filla, Sarah Whitson, Colin Sheahan, Heather McLain, Allee Klug and Shelby (Schaal) Spaciel

1170 **The Optimal Biochar Application Rate for Maximizing Nitrogen Retention in the Soil** Riad Eissa, Jianghua Wu, David B. McKenzie and Lordwin Jeyakumar*

1171 **Nitrogen Benefits When Interseeding Red Clover into Continuous Corn** Hannah R. Francis*, Matthew D. Ruark, Chelsea Zegler, Jaimie R West and Dan Smith

1172 **A Single High Volume Compost Application Increased Soil and Crop Outcomes in No-till Dryland Wheat** Carol R. McFarland*, Rachel J Zuger, Nicole Tautges, Earl Creech, Jennifer R Reeve and Ian C. Burke

1173 **In-FIELD Assessment of Phosphorus and Potassium Mineralization from Winery SOLID Waste Compost in Sandy Loam Ferric Luvisol** Manare Masowa, Olubukola Oluranti Babalola, Azwimbavhi Reckson Mulidzi and Funso Raphael Kutu*

1174 **Utilizing 15N to Determine the Synchrony of the Timing and Quantity of Cover Crop Residue Nitrogen Release and Corn and Soybean Nitrogen Demand** Michael D. Ruffatti*, Shalamar D. Armstrong and Corey Lacey

1175 **Effect of Cover Crop Mixing and Application Rate on Soil Nitrogen Mineralization in an Incubation Study** Xiufen Li*, Andrew Tan and Fugen Dou

1200 **Improving Dryland Organic Winter Wheat (Triticum aestivum, L.) Performance By the Inclusion of Composted Cattle Manure and Cover Crops in the Fallow** Christina Helseth* and Urszula Norton

1201 **A Proprietary Carbon Technology Enhanced P Availability** Mostafa A. Ibrahim*, Mike Lawrinenko and John L. Breen

1202 **AR-034 Applied with Nitrogen Increased Almond Yield** Mostafa A. Ibrahim, Michael Dustan, David Hernandez and John L. Breen*

1203 **Impact of Katalyst on Yield, Uptake, and Plant Availability of Potassium from Soil** Michael Lawrinenko*

1204 **Spatial Variability of Asymbiotic N-Fixer Activity in No-till Soils** David W. Franzen*, Patrick W. Inglett, Abby Wick and Caley Gasch

1205 **Increase in Non-Exchangeable Ammonium after Cover Crop Rye and Forage Radish** David W. Franzen*, Marisol T. Berti, Shiny Mathews and Abby Wick

1206 **Comparison of Soil-Test Extractants for Potassium, Secondary, and Micronutrients in Idaho Soils** Christopher W. Rogers*, Biswanath Dari and Kurtis L. Schroeder

1207 **Nitrogen Uptake By Rapeseed Varieties from Organic Matter and Inorganic Fertilizer Sources** Candace Carter* and Meagan E. Schipanski

1208 **Effect of Long-Term Management of Organic Vs. Conventional Cropping Systems on Soil Organic Carbon and Nitrogen at the USDA-ARS Farming Systems Project** Kathryn E. White*, Michel Cavigelli and Gwendolyn Bagley

1209 **Nitrogen Mineralization from Peanut Residue Components Under Simulated Conservation and Conventional Tillage on a Major Peanut-Producing Soil Series** Arun D Jani*, Michael J. Mulvaney, Kipling S. Balkcom, C Wesley Wood, David L. Jordan and Brenda Wood

SESSION NO. 377—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Astropedology and Space Exploration: Synergies between Planetary and Soil Sciences Poster

SSSA Division: Soil Mineralogy

Section or Division Cosponsor:
SSSA Division: Soil Chemistry, SSSA Division: Pedology, SSSA Division: Soil Biology and Biochemistry

1210 **Mineralogical Indicators of Soil Formation: A Curiosity Payload Perspective** Cherie Achilles*, Elizabeth Rampe, Thomas Bristow, Doug Ming, Richard Morris, David Blake, David Vaniman, Brad Sutter, Amy McAdam, Shaunna Morrison, Steve Chipera, Robert Downs, Albert Yen, Allan Treiman, Patricia Craig, Robert Hazen, Valerie Tu, Nicholas Castle, Gordon Downs, Richard Walroth and Michael Thorpe

1211 **Evolved Gas Analyses of Sedimentary Rocks in Gale Crater, Mars By the Curiosity Rover's Sample Analysis at Mars Instrument: Results of the Murray Sediments from the Naukluft Plateau to the Glen Torridon Clay Unit.** Brad Sutter*, Amy McAdam, Doug Archer, Jennifer Stern, Douglas W. Ming, Elizabeth Rampe, Jennifer Eigenbrode, Paul Mahaffy, Heather Franz, Caroline Freissinet, Christopher House, Charles Malespin, Rafael Navarro-González and Daniel Glavin

1212 **Composites of Martian Simulants As Extraterrestrial Construction Materials. Part II: Rheology, Hardness, and Compressive Strength** Arthur P. Schwab*, Aditi Pandey, Brad Sutter, Cole Fincher, Douglas W. Ming and David Truong

1213 **A Novel Method for Imaging Pedon-Scale Arrangements of Soil Minerals, Organic Matter, and Macropores** Xiaoyang Cao, Daniel R Hirmas*, Pamela L Sullivan and Matthew G Sena

1214 **The Role of Microscopy Techniques in Whole-Regolith Pedology: Linking Methods to Evaluate Mineral Weathering across Lateral Gradients in Forest Soils** Jennifer Bower*, Donald S. Ross, Scott W. Bailey, Kevin J. McGuire, Brian D. Strahm, Madeline Schreiber, Amanda Pennino, Stephanie Duston and Joshua Benton

SESSION NO. 378—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Physics and Hydrology General Poster II

SSSA Division: Soil Physics and Hydrology

1215 **Observation of Water and Temperature Redistribution in Initially Frozen Sand during Intermittent Infiltration.** Fumiya Sato* and Kunio Watanabe

1216 **Effect of Soil Roughness on Evaporation Rates** Jana Schneider*, Stefanie Kiemle, Jan Vanderborght and Youri Rothfuss

1217 **A Simple Method to Identify the Presence of Water Vapor Buoyancy** Sunny Eng Giap Goh*, Alif Asyraf, Joshua L. Heitman and Kosuke Noborio

1218 **Modeling Pressure Wave Propagation in the Liquid-Phase of Variably-Saturated Porous Media for Displacement of Solutes in the Vadose Zone.** Doron Kalisman*, Alex Yakirevich, Shaul Sorek and Tamir Kamai

1219 **Vertical Upward Imbibition in Porous Media Under Low Gravity Conditions.** Naoto Sato*, Yuichi Maruo, Natsumi Naganuma, Kento Nogawa and Kosuke Noborio

1220 **Near Surface Soil Moisture and Temperature Dynamics in a Young Alley Crop Based Agroforestry System** Mounika Pudota*, Michelle Mbia, Srinivasa R. Mentreddy and Dedrick D. Davis

1221 **Column Study Shows Plant Growth Promoting Rhizobacteria (PGPR) and Its Mutants Change Physical Properties of Fine Sand.** Fatema Kaniz*, Yan Jin and Harsh P Bais

1222 **Evaluation of Interactive Effects of Soil Moisture and Temperature on the Growth and Development of Early-Planted Cotton** Atinderpal Singh, Sanjit K Deb*, Ritchel Bueno Gannaban, Rosalyn B. Angeles-Shim, Puneet Kaur Mangat and Joshua Singleton

1223 **Integration of Remote Sensing and in-Situ Data to Estimate Soil Moisture across Mixed Land Cover Types** Briana M. Wyatt*, Tyson E. Ochsner and Chris B. Zou

1224 **Effect of Naphthalene and Sulfamethazine on Surface Characteristics of Biochar Colloids and Its Implications for Transport in Porous Media** Wen Yang*, Jianying Shang, Baoguo Li and Markus Flury

1225 **Transport of Phytophthora Cactorum Zoospores in Unsaturated Sand Columns** Yingxue Yu* and Markus Flury

1226 **Compaction Impacts of Wind Turbine Installation on Indiana Soils** Chelsea Emenhiser* and Jason P. Ackerson

1227 **Analyzing the Impact of Transient River Stage on Soil Moisture Redistribution Using a Coupled System of Governing Equations** Minki Hong* and Binayak P. Mohanty

1228 **Effect of Salt Composition and Concentration on Unsaturated Hydraulic Conductivity** Yuki Sunakawa* and Kosuke Noborio

1229 **Measurement of Water Viscosity Using a Capillary Viscometer Under Microgravity** Kento Nogawa*, Naoto Sato, Yuichi Maruo, Maho Tsukano, Hayato Mizutani and Kosuke Noborio

1230 **Estimating Root Water Uptake Depth of Rice Using Water Stable Isotope.** Yuma Ishii* and Kosuke Noborio

1231 **Relationships between Soil Cracks and Greenhouse Gas Emissions in Paddy Field** Toshihiro Doi* and Kosuke Noborio

1232 **Comparison of Visible Near-Infrared and Fourier Transform Infrared Spectroscopy to Estimate Atterberg Limits for Soils** Hafeez Ur Rehman*, Maria Knadel, Reza Haghi, Jean Robertson, Nastaran Pouladi, Lis Wollesen de Jonge and Emmanuel Arthur

1233 **Soil Moisture Mapping Using Landsat Data in a Frigid Glaciolacustrine Landscape with Agricultural Production** Umesh Acharya*, Aaron L.M. Daigh and Peter G. Oduor

1234 **Near-Surface Soil Hydrological Properties Measured Using Computed Tomography and Classical Approaches Under Grazed Pasture and Croplands** Navdeep Singh*, Jashanjeet Kaur Dhaliwal, Sheela Katuwal, Sandeep Kumar, Lis Wollesen de Jonge, Ranjith P. Udawatta and Stephen H. Anderson

1235 **Diving Down: *In Situ* Characterization of Clay, Carbon, and Bulk Density Using a Visnir-Mounted Penetrometer** Sarah E Hetrick*, Cristine L. S. Morgan, Jason P. Ackerson, Haly L. Neely and Yufeng Ge

1236 **Experimental Setup for the Simulation of Wildfire Effects on Soil Hydraulic Properties** Sofía Martínez*, Cristina P. Contreras, Sara E. Acevedo, Carlos J. Avila and Carlos A. Bonilla

1237 **Stochastic Soil Moisture Dynamics during Secondary Forest Rehabilitation in Eastern Amazonia** Matthew Amato* and Daniel Giménez

1238 **Modeling of Spatial and Temporal Root Water Uptake of Cotton Under Deficit Irrigation in West Texas** Atinderpal Singh* and Sanjit K Deb

1239 **The Impact of Reduced Tillage and Double Cropping on Soil Moisture Dynamics** Perejitei Ebikirifagha Bekewe*, Haly L. Neely, Clark B. Neely, Lauren Tomlin, Jamie Foster, Katie L. Lewis and Thomas W. Boutton

1240 **Soil Water Repellency of 117 South Greenlandic Soils** Peter Weber Jensen*, Per Moldrup, Mogens H. Greve and Lis Wollesen de Jonge

1241 **Aggregate Carbon Dynamics As Affected By Landuse Using Scanning Electron Microscope Imagining and ^{13}c Natural Abundance** Ekrem Ozlu* and Francisco J. Arriaga

1242 **Evaluation of Laser Diffraction Method on Soil Particle Size Distribution of Five Typical Soils in the Water Erosion Region of China** Xue Bai*, Yang Yang, Tingting Huang, Yangzi Shi, Lijuan Wang and Baoyuan Liu

1243 **Evaluation of Indian Ocean Water Cycle Using Water Stable Isotope Ratio** Ryota Hirabayashi*, Yuma Ishii and Kosuke Noborio

SESSION NO. 379—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Transdisciplinary Contributions and Opportunities in Soil Physical Hydrology Poster

SSSA Division: Soil Physics and Hydrology

1244 **Ion Uptake Responses to Evapotranspiration and Gas Exchange in Alfalfa and Triticale** Vanaja Kankarla and Manoj K. Shukla*

1245 **Soil Hydraulic Properties of Stony Soils** Ole Wendroth*, Jin Cho, Nerea Arias, Iñigo Virto and Jason Walton

1246 **An Analysis of Cover Crop Treatment Impacts on Infiltration in a No-till Corn-Soybean Rotation System of Tennessee** Adam A. Zimmerman*, Forbes R. Walker and Neal Samuel Eash

1247 **Numerical Simulation of Soil Water and Heat Transport in a Soybean Field Based on the Soil Surface Energy Balance Using Hydrus-1D** Yuna Takahashi* and Masaru Sakai

SESSION NO. 380—4:00 PM–6:00 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil-Based Wastewater Treatment: Impacts and Mechanisms Poster (includes student competition)

SSSA Division: Soils and Environmental Quality

1248 **Soil Factors Influencing Mobility of Ciprofloxacin in the Environment** Amber Pasket*, Hailin Zhang and Shiping Deng

1249 **Multi-Soil-Layering Systems for the Removal of Antibiotics, Antibiotic Resistant Bacteria, and Antibiotic Resistance Genes from Wastewater.** Daniel Ashworth* and Mark Ibekwe

1250 **Woodchip-Derived Bioreactor Amended with Biochar and Silage Leachate to Attenuate NO^3-N and Veterinary Antibiotics** Yuchuan Fan*, Jaehoon Lee, Michael E. Essington, Jie Zhuang and Sindhu Jagadamma

1251 **Using Multi-Component Denitrifying Bioreactors to Address Greenhouse Gas Emissions Associated with the Removal of Nutrients from Agricultural Tile Drainage** David Geuder*, Carol Ptacek, David Blowes and David Lapen

1252 **Assessing Greenhouse Gas Emissions from Advanced Onsite Wastewater Treatment Systems in Charlestown, RI** Bianca Ross*, Jose Adolfo Amador and George Loomis

1253 **Greenhouse Gas Emissions from Septic Systems** Jan Knappe*, Celia Somlai and Laurence Gill

1254 **Groundwater Fluctuations Beneath Three Onsite Wastewater Systems in North Carolina in Response to Hurricane Florence** Charles P Humphrey* Jr., Danielle Carter, Guy Iverson and Mike O'Driscoll

SESSION NO. 381—4:15 PM–5:15 PM

Henry B. Gonzalez Convention Center, 007C, River Level

CSSA Business Meeting--Seed Physiology, Production and Technology

C04 Seed Physiology, Production and Technology

SESSION NO. 382—5:15 PM–8:00 PM

Henry B. Gonzalez Convention Center, Stars at Night Ballroom 1, 3rd Level

Leo M. Walsh Soil Fertility Distinguished Lectureship

Sponsored by The Mosaic Company

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Dorivar Ruiz Diaz, Kyle Freeman

5:15 PM **Introductory Remarks**

382-1 5:20 PM **Honoring the Legacy of Prof. Leo M. Walsh: Translating Soil Fertility Research for Practitioners and Policymakers** Andrew N. Sharpley*

6:15 PM **Reception After Program**

8:00 PM **Adjourn**

SESSION NO. 383—6:00 PM–6:45 PM

Henry B. Gonzalez Convention Center, Stars at Night Ballroom 3-4, 3rd Level

Trivia Night Social

Graduate Student Sessions

Wednesday, Nov. 13

Crop Science
SOCIETY OF AMERICA

SESSION NO. 384—7:00 AM–9:00 AM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 3-4, 3rd Level

CSSA Breakfast, Awards, and Plenary (Betty Klepper Endowed Lectureship)

Keynote/Plenary Sessions

Moderator: Elizabeth Guertal, Mark Westgate, Shawn Kaeppler

	7:00 AM	**CSSA Breakfast**
	7:30 AM	**Introductory Remarks**
384-1	7:35 AM	**CSSA Awards** Sara Uttech*
	8:05 AM	**Presidential Award**
	8:20 AM	**Presidential Address**
384-2	8:40 AM	**Finding Voice and Purpose as a Scientist in the Age of Digital Agriculture** Kimberlee K. Kidwell*
	9:00 AM	**Adjourn**

SESSION NO. 385—9:30 AM–4:30 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

CSSA Society-Wide Student Poster Competition

Graduate Student Sessions

SESSION NO. 386—9:30 AM–4:30 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

SSSA Society-Wide Student Poster Competition

Graduate Student Sessions

SESSION NO. 387—7:45 AM–11:00 AM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Agronomy & Crop Production --Agronomic Production Systems Oral

ASA Section: Agronomic Production Systems

Moderator: Ronnie Schnell

	7:45 AM	**Introductory Remarks**
387-1	7:50 AM	**Determining Optimum N Application Rate for Sorghum Production Systems in the Southern Great Plains in the Presence of Johnsongrass.** Josh Lofton*, Anna Zander, Chase Harris and Sarah Kezar
387-2	8:05 AM	**Impact of Timing and Severity of Stand Reduction on Grain Sorghum Yield** Ronnie W. Schnell*, Ryan Rakowitz, Jackson Nielsen, james Houx and Mark E. Zarnstorff
387-3	8:20 AM	**Transforming Agriculture: Adopting Cropping Systems That Enhance Productivity, Promote Yield Stability, and Increase Resilience** Andry Ranaivoson*, Jeffrey S. Strock, Axel Garcia y Garcia and Gregg A. Johnson
387-4	8:35 AM	**Potential of Using Hsd for Harvest Weed Seed Control in US** Lovreet Shergill*, Kreshnik Bejleri, Lauren Lazaro, Adam Davis and Steven B Mirsky
387-5	8:50 AM	**Unpredictable Nature of Environment on Nitrogen Supply and Demand** William R. Raun*
387-6	9:05 AM	**Fine Fescues As Living Mulch in Minnesota Cropping Systems** Florence Sessoms*, Eric Watkins, M. Scott Wells, Nancy Jo Ehlke, Dominic P Petrella, Donn Vellekson and Alexander Hard
	9:20 AM	**Break**
387-7	9:30 AM	**Building a Farmer-Controlled Database to Benefit Farmers, Their Service Providers, and Research Institutions** Bruce J. Erickson*
387-8	9:45 AM	**Appropriate Residue Management Facilitates No-till Adoption in Surface-Irrigated Corn** Reza Keshavarz Afshar* and Perry Cabot
387-9	10:00 AM	**Growth, Grain Yield, Quality, Root Lodging of Maize and Work Efficiency Using Plowing Systems in Crop Rotation of Paddy Fields in Japan** Yoshiya Shinoto*, Toshinori Matsunami, Hirotake Miyaji and Ryuji Otani
387-10	10:15 AM	***Assessing Water and Temperature Stress Patterns within Major Maize, Soybean, and Wheat US Producing Areas*** Antoine Couedel*, Juan I Rattalino Edreira, Romulo Pisa Lollato, Sotirios V. Archontoulis and Patricio Grassini
387-11	10:30 AM	**Crop Rotation and Bio-Cover Impact on No-Tillage Corn, Soybean, and Cotton Profitability in Tennessee** Xia "Vivian" Zhou*, James A. Larson, Virginia R. Sykes, Amanda J. Ashworth and Fred L. Allen
387-12	10:45 AM	**Effect of Row Spacing and Irrigation on Cotton Lint Yield and Fiber Properties** Srinivasa Rao Pinnamaneni*, Saseendran Anapalli, Krishna Reddy, Daniel K. Fisher, Ruixiu Sui, Nacer Bellaloui and Debbie L. Boykin
	11:00 AM	**Adjourn**

SESSION NO. 388—7:50 AM–9:35 AM

Henry B. Gonzalez Convention Center, 007B, River Level

Symposium--Collaborations at the National, Regional and State Levels to Facilitate Transfer of Knowledge: Cover Crops and Soil Health Networks I

ASA Section: Land Management and Conservation

Section or Division Cosponsor:
ASA Section: Agronomic Production Systems,
ASA Section: Environmental Quality,
SSSA Division: Soil and Water Management and Conservation,
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soils and Environmental Quality

	7:50 AM	**Introductory Remarks**
388-1	7:55 AM	**Midwest Cover Crops Council: Regional Synergies for Cover Crop Adoption** Anna Lee Morrow*

388-2	8:20 AM	**Update on Northeast Cover Crops Council Collaborations and Opportunities to Get Involved** Victoria J. Ackroyd* and Steven B Mirsky
388-3	8:45 AM	**Regional, State, and Community-Level Networks Advance Cover Crop Interest and Action in the South** Danielle D. Treadwell*, Jose Perez, David Neil Campbell, Joel C. Love, Stuart A. Weiss and Duamed Colón-Carrión
388-4	9:10 AM	**WCCC Presentation** Linda Schott*
	9:25 AM	**Discussion**
	9:35 AM	**Transition Remarks**

SESSION NO. 389—7:55 AM–9:00 AM

Henry B. Gonzalez Convention Center, 008A, River Level

Biometry and Statistical Computing Oral

ASA Section: Biometry and Statistical Computing

	7:55 AM	**Introductory Remarks**
389-1	8:00 AM	**A Comparison of Machine Learning Classifiers for the Determination of Mitochondrial Gene Presence** Nathan Hall*, Andrea Hernandez, Ally Schumacher and J. Scott McElroy
389-2	8:15 AM	**Adaptive Experimental Design Using Bayesian Optimization to Improve the Cost Efficiency of Small Plot Field Trials** Yuji Saikai*, Vivak Patel, Lucia Gutierrez, Paul Mitchell, Shawn P. Conley, Jed Colquhoun and Brian Luck
389-3	8:30 AM	**Going Beyond Mean Effect Size; Assessing the Risk of Having a Negative Effect in Trial Network** Anabelle Laurent*, Peter M. Kyveryga, Fernando Miguez and David Makowski
389-4	8:45 AM	**CropOS™ Leverages the Power of Diverse Datasets through Machine Learning and Cloud Computing to Accelerate Genomic Predictive Breeding** Avjinder Singh Kaler*, Xinshuai Qi, Dylan C. Kesler, Jay Brown, Shailaja Suresh, David Larson, and Paul Skroch
	9:00 AM	**Adjourn**

SESSION NO. 390—7:55 AM–12:00 PM

Hilton Palacio del Rio, Salon del Rey A, 2nd Floor

Climatology and Modeling Oral II

ASA Section: Climatology and Modeling

Moderator: George Paul, Garry O'Leary, Saseendran Anapalli, Sotirios Archontoulis

	7:55 AM	**Introductory Remarks**
390-1	8:00 AM	**Evaluation of the Apsim Model in Conservation Agriculture Practices of the Rice-Wheat-Mungbean System in the Eastern Gangetic Plains (EGP) of Rajshahi, Bangladesh** Apurbo K. Chaki*, Donald S. Gaydon, Ram C. Dalal, William B. Bellotti and Neal W. Menzies
390-2	8:15 AM	**Photonic Device for the Detection of Nitrous Oxide (N_2O) and Ammonia (NH3)** Gautam Das* and Joshua O. Trevisanutto
390-3	8:30 AM	**Calibration Coefficient Stability and Influence on Climate Impact Predictions on Potato** David H. Fleisher*, Dennis Timlin and Kathleen G. Haynes
390-4	8:45 AM	**Performance Evaluation of CERES-Rice and Oryza for Rice-a Case Study in the U.S. Mississippi Delta** Sanai Li*, David H. Fleisher, Dennis Timlin and Vangimalla R. Reddy
390-5	9:00 AM	**Improving Soil Temperature Simulation with the Epic Model** Luca Doro*, X. Wang, M. Norfleet and Jimmy R. Williams
390-6	9:15 AM	**Modeling Perennial Groundcover Effects on Annual Maize Grain Crop Growth with Apsim** Cynthia Bartel*, Sotirios V. Archontoulis, Andrew W. Lenssen, Kenneth J. Moore, Isaiah L. Huber, David A. Laird and Philip Dixon
390-7	9:30 AM	**Evaluation of DSSAT Model in Estimating Soybean Growth and Yield Responses to Different Rooting Depths** Uvirkaa Akumaga*, Noel Aloysius and Felix B. Fritschi
	9:45 AM	**Break**
390-8	9:55 AM	**Forecasting Regional Sugarcane Yield Using Time Series Modeling Approach As a Management Decision Tool in the Cauca Valley (Colombia)** Héctor A Chica R.*, Andres J Pena Q, Luis F. Gómez G., Javier Carbonell G. and Juan J. Bravo B.
390-9	10:10 AM	**Crop Modelling Based Analysis for Site-Specific Yield Response to Nitrogen of Maize in Argentina** Laila A. Puntel*, Rafael A Martinez-Feria and Sotirios V. Archontoulis
390-10	10:25 AM	**Declarative Framework for Crop Modeling** Kyungdahm Yun* and Soo-Hyung Kim
390-11	10:40 AM	**Modeling Source Sink Partitioning in Wheat UNDER Varying Nitrogen Regimes and Climatic Conditions** Mukhtar Ahmed*, Muhammad Bilal, Fayyaz ul Hassan and Rifat Hayat
390-12	10:55 AM	**Integration of Genomics with Crop Modeling for Prediction of Rice Heading Date** Yubin Yang*, Lloyd T Wilson, Tao Li, Livia Paleari, Roberto Confalonieri, Yan Zhu, Liang Tang, Fulu Tao, Yi Chen, Gerrit Hoogenboom, Kenneth J. Boote, Yujing Gao, Akio Onogi, Hiroshi Nakagawa, Hiroe Yoshida, Shiori Yabe, Michael Dingkuhn, Tanguy Lafarge and Jing Wang
390-13	11:10 AM	**Classifying Irrigated Rice Regions in Brazil According the Favorability for Blast Disease** Michel Rocha da Silva*, Nereu Augusto Streck, Haishun Yang, Claudio Ogoshi, Alencar Junior Zanon, Ioran Guedes Rossato, Geter Alves Machado, Lorenzo Dalcin Meus, Tuira Barcellos, Francisco Tonetto, Vladison Fogliato, Pablo Mazzuco de Souza, Luciano Alegre, Isabela Bulegon Pilecco, Moisés de Freitas do Nascimento, Ary Jose Duarte Jr., Giovana Ghisleni Ribas, Isadora Hubner Brondani, Lucas Adilio Sari, Anderson Haas Poersch and Lorenzo Sartori
390-14	11:25 AM	**The Agroclimate-NASS Platform: Monitoring Climate Risk for Improved Crop Forecasting** Clyde W. Fraisse*, Noemi Guindin, Vinicius Cerbaro and Mauricio Karrei
390-15	11:40 AM	**A Modeling Approach to Determine Optimum Irrigation Termination Periods for Cotton** Srinivasulu Ale*, Sushil K Himanshu, Nina Omani, James P. Bordovsky, Kelly R. Thorp and Edward M. Barnes
	11:55 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 391—7:55 AM–12:00 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

Soil Carbon and Greenhouse Gas Emissions-General Oral II

ASA Section: Environmental Quality

Lead Community:
Soil Carbon and Greenhouse Gas Emissions Community

Moderator: Virginia Jin, Debjani Sihi

	7:55 AM	**Introductory Remarks**
391-1	8:00 AM	**Long-Term Carbon Losses from Silage Corn (*Zea mays* L.)-Based Forage Production Systems** Joshua D. Gamble*, Gary Feyereisen, Tim Griffis, Chris Wente and John M. Baker
391-2	8:15 AM	**Separation of Soil Respiration; Comparison of Partition Methods** Louis-Pierre Comeau*, Mohammad Monirul Islam and Derrick Lai
391-3	8:30 AM	**Payment for Carbon Sequestration: Possible Mechanisms and Challenges in the Scottish Context** Jagadeesh Yeluripati*, Mike Rivington, Allan Lilly, Nikki Baggaley, Blair McKenzie, Matt Aitkenhead and Keith Matthews
391-4	8:45 AM	**Tools to Manage Nitrogen Organically for Crops, Soils and the Environment** Michelle Wander*, Heather M. Darby, Emily Marriott, Lindsey Ruhl, Hoyoung Kwon and Yushu Xia
391-5	9:00 AM	**A Novel Application of Machine Learning in Predicting Long-Term Soil N_2o Fluxes** Debasish Saha*, G Philip Robertson, Bruno Basso, Stephen Hamilton, Kevin Allen Kahmark and Sven Bohm
391-6	9:15 AM	**Utilization of Iot and Cloud-Edge Technologies for the Continuous Measurement of Emissions from Fertilized Fields** Richard H. Grant*, Cheng-Hsien Lin, Clifford T Johnston, Stephen L Harrell, Brian Zuelly, Amiya K Maji and Charles B Smith
391-7	9:30 AM	**Limited Effects of Irrigation on 7-Year Soil Nitrous Oxide Emissions from No-till Continuous Corn** Virginia L. Jin*, Marty R. Schmer, Brian J. Wienhold, Daniel N. Miller, Bryan L. Woodbury and Richard B Ferguson
	9:45 AM	**Break**
391-8	10:00 AM	**Greenhouse Gas Emissions from Tall Fescue Plots Following Soil Surface Application of Excreta from Ruminants Fed Alternative Foraged-Based Diets** Samuel Park*, Mary Cathleen Savin, Dirk Philipp, Ken Coffey, Valens Niyigena and Jianghchao Zhao
391-9	10:15 AM	**Greenhouse Gas Emissions with Low Disturbance Liquid Dairy Manure Incorporation into a Live Rye Stubble** Jess Sherman*, Eric O. Young and Jason Cavadini
391-10	10:30 AM	**Greenhouse Gas Emissions of a Saline Soil and Non-Saline Soil Under Corn and Perennial Grass Cover Crop** Douglas Fiedler*, David Clay, Stephanie Bruggeman, Cheryl Reese, Samuel Thies, Andrew Engel and Sharon A. Clay
391-11	10:45 AM	**An Investigation of Chamber Closing Times for Measuring Greenhouse Gas Fluxes from Agricultural Soils Using Automated Chambers** Nithya Rajan*, Diana Zapata and Kenneth D. Casey
391-12	11:00 AM	**Soil Organic Carbon in Agroecosystems: Obtaining Baseline Measure for Future Carbon Storage** Yun-Ya Yang* and Gurpal Toor
391-13	11:15 AM	**Nitrogen and Rotation Complexity Effect on Soil Organic Carbon** Marty R. Schmer*, Virginia L. Jin, Brian J. Wienhold and Gary E. Varvel
391-14	11:30 AM	**Carbon Footprint and Sustainability Index of Major Cropping Sequence and Bio-Cover Systems Under No-Tillage** Xinhua Yin*, Sangeeta Bansal, Virginia R. Sykes, Sindhu Jagadamma, Jaehoon Lee and Christopher Boyer
391-15	11:45 AM	**Soil Greenhouse Gas Fluxes from Prairie Cordgrass and Kura Clover Mixture Under Different Nitrogen Fertilizer Rates** Udayakumar Sekaran*, Gandura Omar Abagandura, Shikha Singh, Mostafa A. Ibrahim, Vance N. Owens, Sen Subramanian, Jose Gonzalez-Hernandez and Sandeep Kumar
	12:00 PM	**Adjourn**

SESSION NO. 392—8:00 AM–9:15 AM

Henry B. Gonzalez Convention Center,
Cantilever Room, 2nd Level

Symposium--Advancements in Pedology Colloquium

SSSA Division: Pedology

Moderator: John Galbraith

	8:00 AM	**Introductory Remarks**
392-1	8:05 AM	**Pedogenesis in Appalachian Coal Mine Spoils and Other Eastern USA Mine Soil Environments** Walter Lee Lee Daniels* and John M. Galbraith
	9:15 AM	**Adjourn**

SESSION NO. 393—8:00 AM–9:20 AM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

Fertilizers in the Environment Oral

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Savannah Burnett, Alexandre Rocateli

	8:00 AM	**Introductory Remarks**
393-1	8:05 AM	**Zinc Fertilization Can Address Crop Productivity, Nitrogen Use Efficiency and Human Nutrition Concerns Associated with Environmental Events** Christian Dimkpa*
393-2	8:20 AM	**What Determines How Dairy Farmers Manage Manure?** Meredith T Niles*, Catherine Horner, Rajesh Chintala and Juan Tricarico
393-3	8:35 AM	**Benchmarking the Reactive Nitrogen Loss for Global Agricultural Products** Shu Kee Lam*, Deli Chen and Xia Liang
393-4	8:50 AM	**Factors Affecting the Losses of P in Runoff from Surface-Applied Phosphate Fertilizers** Rodrigo Coqui da Silva*, Fien Degryse, Roslyn Baird and Michael J. McLaughlin
393-6	9:05 AM	**Soil-Type Differences on Alfalfa (Medicago Sativa) Growth Response to Azomite Trace Element Fertilizer** Nana Yaw Kusi*, Vitalis Wilbald Temu, Maru K. Kering and Asmare Atalay
	9:20 AM	**Adjourn**

SESSION NO. 394—8:00 AM–10:00 AM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

Crossdiv Symposium--Linking Soil and Environmental Health: Indicators and Outcomes I

Sponsored by OCP North America, Inc.

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis,
SSSA Division: Soil Biology and Biochemistry,
ASA Section: Land Management and Conservation,
SSSA Division: Soil Fertility and Plant Nutrition,
SSSA Division: Soil and Water Management and Conservation

Moderator: Jennifer Moore-Kucera

8:00 AM **Introductory Remarks**

394-1 8:05 AM **Stimulating Soil Health: What We Know about Environmental Outcomes and the EQIP Conservation Program** Andrea Basche*, Katherine Tully, Tabitha T. Brown, Jennifer Moore Kucera, Laura Lengnick, Maria Bowman, Nora Alvarez-Berrios, Stefan R. Gailans, J. Arbuckle, Julian Reyes, Rachel Schattman, Erich Seamon and Gabrielle Roesch-McNally

394-2 8:30 AM **Research Partnerships for Soil Health: Preliminary Insights on Soil Health, Agronomic, and Economic Outcomes from Farms Implementing Soil Health Practices over a Multi-Year Period** Maria Bowman*

394-3 9:00 AM **Public Private Investment in Soil Health Human Health- a Perspective from the Foundation for Food and Agriculture Research** LaKisha Odom*

394-4 9:30 AM **Cultivating Climate Solutions with Voluntary Conservation Incentives** Laura Lengnick*

10:00 AM **Adjourn**

SESSION NO. 395—8:00 AM–10:35 AM

Hilton Palacio del Rio, El Mirador West, 22nd Floor

Extension Education in Agronomy Oral

ASA Section: Education and Extension

Lead Community: Extension Education Community

Moderator: John Heard

8:00 AM **Introductory Remarks**

395-1 8:05 AM **Increasing the Impact of on-Farm Research through Digital Engagement with Farmers** Elizabeth M. Hawkins*, Jenna Lee, John Fulton, Eric Richer, Chris Zoller, Sam Custer, Jason Hartschuh, Aaron Wilson, Laura E. Lindsey and Ben Brown

395-2 8:20 AM **On-Farm Soybean Research & Field Days - an Effective Technology Transfer Tool** Keith L. Glewen*

395-3 8:35 AM **Unl Testing Ag Performance Solutions (UNL-TAPS): Two Years of Engagement and Impact** Charles Burr*, Daran R. Rudnick, Matt Stockton and Robert Tigner

395-4 8:50 AM **Drone Certification Training Program for Extension Agents.** Jason P. de Koff*

395-5 9:05 AM **Extension Education Program Overview: North Carolina Industrial Hemp Pilot Program** Angela Post*, Jeanine Davis and Keith Edmisten

9:20 AM **Break**

395-6 9:35 AM **Using the Fieldprint Platform to Measure and Document Environmental Impacts of Extension Field Crops Programs** Kelly Murray Murray Young*, Allison M. Thomson and Eric Coronel

395-7 9:50 AM **Moving the Needle: Successes, Challenges, and Lessons Learned from 30 Years of Collaborating with Farmers to Improve Local Waters.** Loretta M. Collins*, Ruth Cassilly, Mark Dubin, Gary K. Felton and Frank Coale

395-8 10:05 AM **Four Decades of Post-PhD Academic Career in a Nigerian University: Feedback to USAID and Iowa State University** Morakinyo Abiodun Bamidele Fakorede*

395-9 10:20 AM **Analysis of Cocoyam Value Addition Practices By Rural Women in Owerri Agricultural Zone of Imo State, Nigeria.** Juan Chinatu Nwaiwu*

10:35 AM **Adjourn**

SESSION NO. 396—8:00 AM–10:35 AM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

Developing Perennial Grains for Agroecosystem Resilience Oral

ASA Section: Global Agronomy

Lead Community: Perennial Grain Development Community

8:00 AM **Introductory Remarks**

396-1 8:05 AM **Relationships between Yield and Architecture Traits in *Silphium Integrifolium* help to Inform Ideotype Development** John Hill Price* and Kevin Smith

396-2 8:20 AM **Intermediate Wheatgrass As a Perennial Grain for Western Europe.** Douglas J. Cattani*, Olivier Duchene, Florian Celette, Erik Steen Jensen, Linda-Maria Dimitrova Martensson, Anna Westerbergh, Per-Olof Lundquist, Benjamin Dumont, Laura Fagnant and Christophe David

396-3 8:35 AM **Impact of Perennial and Annual Organic Transition Systems on Profitability and Soil Health Indicators** Manbir Kaur Rakkar*, Craig Sheaffer, Jacob Jungers, Jessica L Gutknecht, Julie M. Grossman, Galen Bergquist and Fucui Li

396-4 8:50 AM **Effects of Defoliation and Row Spacing on Intermediate Wheatgrass Grain and Forage Yield** Mitchell C. Hunter*, Craig Sheaffer, Steve Culman and Jacob Jungers

396-5 9:05 AM **Enhancing Farm Resilience Underground: Can Perennial Grains Provide Soil Ecosystem Services in the Mediterranean Climate of California?** Kalyn Diederich*, Kate M. Scow and Mark Lundy

9:20 AM **Break**

396-6 9:35 AM **Optimizing Agronomic Management of Kernza Intermediate Wheatgrass As Perennial Grain and Forage Crop** Valentin D Picasso*

396-7 9:50 AM **Agronomic Potential of a Perennial Oilseed Crop, *Silphium Integrifolium*** Sydney Schiffner*, Jacob Jungers, Kevin Smith, David L. Van Tassel and Craig Sheaffer

396-8	10:05 AM	**Perennial Legume Breeding at the Land Institute: New Species in the Domestication Pipeline** Brandon Schlautman*
396-9	10:20 AM	**Agronomic Performance of Intermediate Wheatgrass in Western Siberia.** Alex Morgounov*, Vladimir Shamanin and Lee R. DeHaan
	10:35 AM	**Adjourn**

SESSION NO. 397—8:00 AM–10:45 AM

Henry B. Gonzalez Convention Center, 225A, 2nd Level

Soil Biology and Biochemistry General Oral III (Enzymes and Rhizosphere)

SSSA Division: Soil Biology and Biochemistry

Moderator: Sarah Strauss

	8:00 AM	**Introductory Remarks**
397-1	8:05 AM	**Bacterial Niche Space on the Fungal Highway: Adaptations to Heterogeneity** Glade Dlott*, Natalie Sadler, Kirsten Hofmockel, Christopher Anderton, Janet Jansson and Kabir Peay
397-2	8:20 AM	**Spies and Bloggers: New Synthetic Biology Tools to Understand Microbial Processes in Soils** Caroline A Masiello*, Jonathan J Silberg, Ilenne Del Valle, Emily M Fulk, David Shis, Xiaodong Gao and George Bennett
397-3	8:35 AM	**Spatial Variability in the Arbuscular Mycorrhizal Fungi Spore Distribution in Agricultural Fields** Pushpa Soti* and Alexis Racelis
397-4	8:50 AM	**Comparing Soil Enzyme Activities across a pH Range** Tandra Fraser* and Mark Tibbett
397-5	9:05 AM	**Soil Storage and Pretreatment Optimization to Account for Spatiotemporal Variability in Soil Enzyme Activity and Kinetic Parameters** Yuhei Nakayama* and Andrew J. Margenot
397-6	9:20 AM	**Soil Air Drying and Storage Temperature Effects on Selected Soil Enzyme Activities** Nicola Lorenz*, Nathan Robert Lee, Linda Kincaid Dick, Jyotisna Saxena, Cliff Ramsier, Brian Gardener and Richard P. Dick
	9:35 AM	**Break**
397-7	9:45 AM	**Dynamics of Rhizospheric Microflora during a Whole Growing Stage of American Ginseng and Its Influence on Root Disease** Yan-Meng Bi*, Xiao-Lin Jiao, Xi-Mei Zhang, Jun-Fei Li and Weiwei Gao
397-8	10:00 AM	**Soil Respiration, Microbial Biomass and Enzyme Activity of a Two-Year Bambara Groundnut (*Vigna subterranea L. Verdc.)* Seed Residue Application in an Ultisol Under Cucumber (*Cucumis sativus L.)* Cultivation** Chinyere Blessing Okebalama*, Vivian Ukamaka Ugwu and Bernd Marschner
397-9	10:15 AM	**New Approach to Calculations of Enzyme Activity for 2D Soil Zymography** Andrey K. Guber*, Alexandra Kravchenko, Bahar S Razavi, Evgenia Blagodatskaya and Yakov Kuzyakov
397-10	10:30 AM	**Sensitivity of Enzyme Assays As Soil Quality Indicators on Diverse Long-Term Soil Management Systems** Rachael Birri*
	10:45 AM	**Adjourn**

SESSION NO. 398—8:00 AM–11:00 AM

Henry B. Gonzalez Convention Center, 301B, 3rd Level

Symposium--Scaling up Sustainable Intensification in Smallholder Systems

ASA Section: Global Agronomy

Lead Community: Agronomic Solutions for Smallholders Community

Section or Division Cosponsor: ASA Section: Environmental Quality, ASA Section: Global Agronomy

Moderator: Keith Shepherd

	8:00 AM	**Introductory Remarks**
398-1	8:05 AM	**Agronomy to Scale: An Initiative to Bring Improved Agronomy to Millions of Smallholder Farmers across Africa** Stephan M. Haefele*, Achim Dobermann and Jonathan Crouch
398-2	8:30 AM	**Pre-Adoption Assessment of Interventions for Sustainable Intensification** Cheryl A. Palm*
398-3	8:55 AM	**Scaling of Innovations in Agriculture- Shifting Mindsets for Transformational Impact** Lennart Woltering* and Maria Alvarado Boa
398-4	9:20 AM	**Working Collaboratively with Permanent Actors in Mesoamerica to Take Water Smart Agriculture to Scale** Elsa Aburto* and Marie-Soleil Turmel
398-5	9:45 AM	**Scaling the Intensification of Smallholder Coffee Production Systems through New Coffee Hybrids** Taya Brown* and Andrew J. Margenot
398-6	10:10 AM	**Agronomy Technologies Dissemination Using Interactive Voice Response in Malawi– the Opportunities and Pitfalls** Regis Chikowo* and Sieg Snapp
	10:35 AM	**Discussion**
	11:00 AM	**Adjourn**

SESSION NO. 399—8:00 AM–11:20 AM

Henry B. Gonzalez Convention Center, 007A, River Level

Cover Crop Management General Oral II

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

Moderator: Audrey Gamble

	8:00 AM	**Introductory Remarks**
399-1	8:05 AM	**Cover Crops As a Tool to Improve Agricultural Soil Quality in Oregon's High Desert** Clare Sullivan* and Markus Kleber
399-2	8:20 AM	**Effect of Mixed Species Cover Crops on Soil Health in a National Trial** Brian Davis* and Steven B Mirsky
399-3	8:35 AM	**Creating a Dynamic Workflow for Implementing on-Farm Research Network.** Ethan Sweep*, Brian Davis, Ankita Raturi, Resham Thapa, Harry H. Schomberg, Alondra Thompson, Julia W. Gaskin, Sarah Seehaver, Chris Reberg-Horton and Steven B Mirsky
399-4	8:50 AM	**Tracking Soil Property Responses to Inter-Seeded Cover Crops in a Corn-Soybean Rotation** Michael Lehman*, Shannon L. Osborne and Sharon K. Papiernik

399-5	9:05 AM	**Impact of Planting Date on Fall Seeded Cover Crops Biomass Production in the Midwest and Upper Midsouth** Christopher A Proctor*, Laura E. Lindsey, Erin Haramoto, A. Justin McMechan, Cintia Sciarresi, Wayde Looker, Josh Wehrbein, Sydney R Everhart, Montserrat Salmeron Cortasa, Daren D. Redfearn, Mary Drewnoski and Roger W. Elmore
399-6	9:20 AM	**Winter Annual Cover Crops and Inter-Seeding Dates Evaluation in Upper Midwest, USA** Yesuf Assen Mohammed*, Heather Matthees, Russ Gesch, Swetabh Patel, Frank Forcella, Kyle Aasand, Nicholas Steffl, Burton L. Johnson, M. Scott Wells and Andrew W. Lenssen
	9:35 AM	**Break**
399-7	9:50 AM	**The Cover Crop Systems Project: 4 Years of Data on the Impacts of Cover Cropping and Reduced Tillage in the Mid-Atlantic Region** Gwendolyn Bagley*, Brian Davis and Steven B Mirsky
399-8	10:05 AM	**DNDC Modeling on the Long-Term Effect of Tillage and Cover Crop Systems on Cotton Yield and Soil Organic Carbon Content** Changyoon Jeong*, Se-won Kang, Josh Copes and Jong Hyun Ham
399-9	10:20 AM	**Cover Crop Influences Nutrient Cycling, Soil Moisture, Soil Health, and Corn Yield in South Dakota** Anthony G. Bly*, Debankur Sanyal, David Karki and Johnathon Wolthuizen
399-10	10:35 AM	**Developing Suitable Cover Crop Systems for South Texas: Evaluating Different Winter Cover Crop Species** Spencer L. Samuelson*, Jake E. Mowrer and Muthukumar Bagavathiannan
399-11	10:50 AM	**Developing Solutions for Seed Shattering in Cover Crops Targeting Hairy Vetch (*Vicia villosa* Roth)** Maria J. Monteros*, Tim Hernandez, Yanina Alarcon, Nick D. Krom, Lisa Kissing-Kucek, Christy Motes, Shahjahan Ali and Heathcliffe Riday
399-12	11:05 AM	**Performance of Crimson Clover Breeding Lines in the Eastern US** Virginia Moore*, Steven B Mirsky, Lisa Kucek, Samuel Chris Reberg-Horton, Gerald R. Smith, Sarah Seehaver, Matthew R. Ryan and Sandra Wayman
	11:20 AM	**Adjourn**

SESSION NO. 400—8:00 AM–11:05 AM

Henry B. Gonzalez Convention Center, 007C, River Level

Soil and Water Management and Conservation General Oral III

SSSA Division: Soil and Water Management and Conservation

Moderator: Larry Cihacek, Davie Kadyampakeni

	8:00 AM	**Introductory Remarks**
400-1	8:05 AM	**Evaluating Alternative Waters and Crops for Agricultural Irrigation in Rio Grande Basin.** Vijayasatya Nagendra Chaganti*, Girisha Keshavamurthy Ganjegunte, Genhua Niu, Norman Meki and James R. Kiniry
400-2	8:20 AM	**Regional Analysis of Corn Yield Under Different Drainage Water Management Systems.** Jeffrey S. Strock*, Ehsan Ghane, Mohamed A. Youssef, Lamyaa S Negm, Shiying S Tian, Lori J. Abendroth, Giorgi Chighladze, Norman Fausey, Jane Frankenberger, Christopher H. Hay, Matthew J Helmers, Dan B. Jaynes, Eileen J. Kladivko, John McMaine, Lindsay Pease and Kelly A. Nelson
400-3	8:35 AM	**Soil and Water Management of Vegetables on Multi-Cropped Plastic Mulching Systems** Andre Luiz da Silva*, Fernanda Krupek, Elizanilda do Rego, Joara Secchi Candian and William Howell Gay
400-4	8:50 AM	**Responses of Soil Hydrological, Physical, and Biological Properties to Short and Long-Term No-till Systems** Udayakumar Sekaran, Kavya Laxmisagra Laxmisagara Sagar*, Nagender Pal Butail, Luiz Gustavo Denardin, Jasdeep Singh, Navdeep Singh, Gandura Omar Abagandura, Debankur Sanyal, Sandeep Kumar, Bhupinder Singh Farmaha, Anthony G. Bly and Amanda Posselt Martins
400-5	9:05 AM	**Responses of Soil Hydrological, Physical, and Biological Properties to Short and Long-Term Cover Crops** Nagender Pal Butail*, Udayakumar Sekaran and Sandeep Kumar
400-6	9:20 AM	**Cross-Linked Polyacrylamide Produces Long-Term Water Retention Increases in a Degraded Soil** Rodrick D. Lentz*
	9:35 AM	**Break**
400-7	9:50 AM	**Water Footprint Analysis of Israel National and Basin Agricultural** Nirit Bernstein* and Eliav Shtull-Trauring
400-8	10:05 AM	**Soil Sampling in High Tunnels** Eugenia M. Pena-Yewtukhiw*, John H. Grove, James D McClain and Lewis Jett
400-9	10:20 AM	**Field Pea and Chickpea Water Use Efficiency and Yield Under Different Irrigation Regime** Jovan Radojicic*
400-10	10:35 AM	**Vegetative Cover Crops As a Nitrate Reduction Strategy for Tile Drainage Water.** Jeffrey A. Vetsch*, Fabian G. Fernandez, M. Scott Wells and Daniel E. Kaiser
400-11	10:50 AM	**Effects of Reclaimed Wastewater Water Irrigation on Golf Course Soil Salinity and Sodicity in West Texas** Girisha Keshavamurthy Ganjegunte*, Vijayasatya Nagendra Chaganti, Saurav Kumar and Bernhard Leinauer
	11:05 AM	**Adjourn**

SESSION NO. 401—8:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Semi-Arid Dryland Cropping Systems Oral I

ASA Section: Agronomic Production Systems

Lead Community: Semi-arid Dryland Cropping Systems Community

Moderator: Emi Kimura

	8:00 AM	**Introductory Remarks**
401-1	8:05 AM	**Modeling Constraints to Productivity of Subsistence Dryland Farming** Abdullah A. Jaradat*
401-2	8:20 AM	**Canola and Chickpea Incorporated into a Cereal Grain Cropping System** Aaron D. Esser*
401-3	8:35 AM	**Intercropping Chickpea and Flax for Ascochyta Blight Management in North Dakota and Montana** Clair Keene* and Perry R Miller
401-4	8:50 AM	**Pulse-Intensified Rotation Enhances System Productivity and Soil Quality in Semiarid Environments** Kui Liu*, Manjula Bandara, Chantal Hamel, J. Diane Knight and Yantai Gan
401-5	9:05 AM	**Biochar Effects on Wheat and Pea Productivity Persist** Stephen Machado*, Rakesh Awale and Larry Pritchett

401-6	9:20 AM	**Introduction of Pulse Crops into the Wheat-Fallow Rotation in Southeastern Wyoming** Amberle Filley* and Carrie A. Eberle
401-7	9:35 AM	**Pushing Peas South: Production and Management of Spring Field Pea in Western Kansas** Lucas A. Haag*
	9:50 AM	**Break**
401-8	10:05 AM	**Winter Triticale Vs. Winter Wheat in Washington's Drylands: Long-Term Cropping Systems** William F. Schillinger* and David W. Archer
401-9	10:20 AM	**Winter Triticale Vs. Winter Wheat in Washington's Drylands: Economic Returns** David W. Archer* and William F. Schillinger
401-10	10:35 AM	**Glyphosate-Resistant Russian-Thistle Control in No-till Fallow** Drew J. Lyon*, Judit Barroso and Larry Lutcher
401-11	10:50 AM	**Impact of Warm-Season Annual Crops on Subsequent Wheat in Dryland Cropping Systems** Patrick M. Carr*, Simon Fordyce, Sherry Bishop, Heather Fryer and Sally Dahlhausen
401-12	11:05 AM	**Do We Have to Sacrifice Our Grasslands for Corn and Soybean Production?** John Hendrickson*, David W. Archer, Mark A. Liebig, Scott L. Kronberg and Jose G. Franco
401-13	11:20 AM	**Using the Osmometer Method to Quantify Drought Tolerance of Winter Wheat Under Field Conditions** Gongneng Feng*, Xuejun Dong, Qingwu Xue, Curtis Adams and Clark B. Neely
401-14	11:35 AM	**Hard Red Winter Wheat Yield Components and Quality As Influenced By Planting Date and Seeding Rate** Cody Creech*, Amanda Easterly and Tyler Taylor
	11:50 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 402—8:00 AM–4:30 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

Excellence in Extension Materials on Display III

ASA Section: Education and Extension

Lead Community: Extension Education Community

SESSION NO. 403—8:10 AM–10:00 AM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

Soil Physics and Hydrology General Oral I

SSSA Division: Soil Physics and Hydrology

Moderator: Vilim Filipović

	8:10 AM	**Introductory Remarks**
403-1	8:15 AM	**Modeling Evaporation with a Simple Analytical Solution** Tamir Kamai* and Shmuel Assouline
403-2	8:30 AM	**Groundwater Evaporation Dynamics and Its Influence Factors in Winter Wheat Fields in the North China Plain** Jianbin Lai*
403-3	8:45 AM	**"a New Approach to Predict Streamflow from Precipitation Using Copula Method".** Ying Ouyang*
403-4	9:00 AM	**Assessing Geophysical Methods to Detect Nutrient Movement from Septic Systems to Lake Lanier at the Hillslope Scale** Maria Teresa Tancredi*
403-5	9:15 AM	**Algebraic Expressions for Estimating the Drainage Velocity below a Surface Barrier** Fred Fred Zhang*
403-6	9:30 AM	**Influence of Land Use and Soil Basic Properties on Infiltration Parameters from the Global Dataset** Gulay Karahan*, Sabit Ersahin and Yakov A. Pachepsky
403-7	9:45 AM	**Aggregate Stability and Moisture Dynamics of Humid Tropical Soils Under Ammonium Chloride Amendment** Mark Nakka Wuddivira*, De Shorn E Bramble, Micah Alexander, Gregory G Gouveia, Ronen C.A. Francis and Kegan K Farrick
	10:00 AM	**Adjourn**

SESSION NO. 404—8:10 AM–10:15 AM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

CrossDiv Symposium--Development and Dissemination of Antibiotic Resistance in the Environment

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soil Chemistry,
SSSA Division: Soils and Environmental Quality

	8:10 AM	**Introductory Remarks**
404-1	8:15 AM	**Antibiotic Resistances in Soil: Origin, Fate, Dynamics and Clinical Relevance** James M. Tiedje*
404-2	8:40 AM	**Fate and Impacts of Antibiotics and Antibiotic-Resistance Genes in Agricultural Soil** Ed Topp*
404-3	9:05 AM	**Cellular Metabolism and the Evolution of Antibiotic Resistance** Allison Lopatkin*
404-4	9:30 AM	**Metagenomic Tracking of Antibiotic Resistance Genes from Farm to Fork** Amy Pruden*, Chaoqi Chen, Lauren Wind, Ishi M Keenum, Partha Ray, Xiao Liang, Min Oh, Vaishali Dharmarha, Giselle Guron, Gustavo Arango-Argoty, Katharine Knowlton, Kang Xia, Monica Ponder, Lenwood Heath and Liqing Zhang
	9:55 AM	**Discussion**
	10:15 AM	**Adjourn**

SESSION NO. 405—8:10 AM–9:50 AM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

CrossDiv Symposium--Deep, Wide, and Alive: Expanding Our View of Soils in a Changing Environment

SSSA Cross-Divisional Symposium

Section or Division Cosponsor: SSSA Division: Pedology,
SSSA Division: Soil Chemistry,
SSSA Division: Soil Physics and Hydrology

Moderator: Kimber Moreland

8:10 AM **Introductory Remarks**

405-1	8:15 AM	**Hydrologic Dynamics of the Bedrock Vadose Zone and Implications for Weathering and Biogeochemical Processes** Daniella M Rempe*
405-2	8:45 AM	**Identifying and Interpreting Pedogenesis in Deep Time through the Lens of Ichnology and the Study of Trace Fossils—Proxies for Organisms and Their Role As a Major Soil-Forming Factor** Stephen T. Hasiotis*
405-3	9:15 AM	**A Lurking Organic Monster: Pleistocene Marine Transgressions, Phreatic Zone Hydrology, and Deep Podzolized Carbon in the Atlantic Coastal Plain** Allan R. Bacon*
	9:45 AM	**Concluding Remarks**
	9:50 AM	**Adjourn**

SESSION NO. 406—8:10 AM–11:15 AM

Henry B. Gonzalez Convention Center, 006D, River Level

Soil Chemistry in the Face of Climate Change: Translating Soil Carbon Chemistry across Spatial Scales Oral (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Sanjai Parikh, Nikolla Qafoku, Hannah Waterhouse, Katherine Heckman

	8:10 AM	**Introductory Remarks**
406-1	8:15 AM	**Soils Carbon and Climate Change, from Clays and Microbes to Fields, Landscapes, Regions, Countries and Beyond** Nancy Cavallaro*
406-2	8:30 AM	**Linking Nominal Oxidation State of Carbon from Extracted Soil Organic Matter to Cumulative Respiration from Climate Change Incubations at a Continental Scale** Margaret Bowman*, Michael D. Sanclements, Brian D. Strahm, Tyler Weiglein, Angela R. Possinger, Adrian C. Gallo, Jeff A. Hatten, Katherine Heckman and Lucas E. Nave
406-3	8:45 AM	**Iron Promotes Both the Persistence and Decomposition of Soil Carbon Via Multiple Competing Mechanisms** Chunmei Chen, Elizabeth K Coward, Steven Hall and Aaron Thompson*
406-4	9:00 AM	**Application of Positron Emission Tomography to the Imaging of Soil Biogeochemical Processes: Linking Activity with Spatial Distribution** Michael Schmidt*, Steven Mamet, Derek Peak and Steven Siciliano
	9:15 AM	**Break**
406-5	9:30 AM	**Molecular Signatures of Climatic Change in Soil Chemistry** Nancy Hess*, Margaret Bowman, Rosalie J Chu, Jason Toyoda, Allison Thompson, Nikola Tolic, Katherine Heckman, Jeff A. Hatten, Lucas E. Nave, Brian D. Strahm and Michael D. Sanclements
406-6	9:45 AM	**Colloidal Organic Carbon Has a Key but an Unaccounted Role in Carbon Dynamics in Seasonally Flooded Wetlands** Mohammad Z Afsar*, Bruce L. Vasilas and Yan Jin
406-7	10:00 AM	**Roots to Regolith: Sources of Organic Matter across the National Ecological Observatory Network (NEON) Soil Plots** Adrian C. Gallo*, Jeff A. Hatten, Katherine Heckman, Lucas E. Nave, Angela R. Possinger, Michael D. Sanclements and Brian D. Strahm
406-8	10:15 AM	**Proximal Controls Dominate Soil Organic Matter Vulnerability to Decomposition in Mineral Soils at a Continental Scale** Tyler Weiglein*, Brian D. Strahm, Michael D. Sanclements, Adrian C. Gallo, Jeff A. Hatten, Katherine Heckman and Lucas E. Nave
406-9	10:30 AM	**The Soil Organic Carbon Stabilization Differed Among Forest, Pasture, and Cropland Top and Subsurface Soils Due to Different Amounts of Iron Oxides and Sorption Behaviors of Dissolved Organic Carbon** Lili Lei* and Louis M. McDonald
406-10	10:45 AM	**L** Peter Nico*, Amrita Bhattacharyya, Jennifer Pett-Ridge and Patricia Fox
406-11	11:00 AM	**How Chinese Privet Invasion Not Only Impacts Biodiversity but Is Potentially Contributing to Global Warming** Christine Mutiti*, Mark Chadwick, Sam Mutiti, Magdalena Wilson and Emily Cruce
	11:15 AM	**Adjourn**

SESSION NO. 407—8:15 AM–10:05 AM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Symposium--Precision Based Remote Sensing Techniques in Forest, Range, and Wildland Soils

SSSA Division: Forest, Range and Wildland Soils

Moderator: Eric Sucre

	8:15 AM	**Introductory Remarks**
407-1	8:20 AM	**Towards Above and below Ground Carbon Monitoring – the Remote Sensing Perspective** L. Moskal*
407-2	8:45 AM	**Utilizing Hyperspectral Characterization of Vegetation to Estimate Soil Properties across Landscapes** K. Dana Chadwick* and Katharine Maher
407-3	9:10 AM	**Seeing the Trees Outside of the Forest - Mapping Soil Based Ecosystem Services in Extremely Heterogenous Agricultural Landscapes Using High Resolution Remote Sensing Data** Sean M. Smukler*, Siddhartho Paul, Lyndsey Dowell and Sean Patrick Kearney
407-4	9:35 AM	**The Soil Moisture Active Passive Validation Experiment 2019: Forest and Agricultural Monitoring in the Northeast U.S.** Michael Cosh*, Andreas Colliander, Victoria Kelly, Simon Kraatz, Sidharth Misra, Laura Bourgeau-Chavez, Paul Siqueira, Lynn McKee, Steven Chan, Rajat R. Bindlish, Narendra Das and Simon H Yueh
	10:00 AM	**Concluding Remarks**
	10:05 AM	**Adjourn**

SESSION NO. 408—8:25 AM–10:30 AM

Hilton Palacio del Rio, Salon del Rey B, 2nd Floor

Symposium--Future of Remote Sensing for Agriculture: How This Information Can be Effectively Used for Decision Making

ASA Section: Climatology and Modeling

Lead Community: Airborne and Satellite Remote Sensing Community

Moderator: Song Cui

	8:25 AM	**Introductory Remarks**
408-1	8:30 AM	**How the Promise of Remote Sensing Is Finally Making an Impact in Agriculture: Case Studies from Around the World** George Vellidis*, Victor Alchanati, Yafit Cohen, Stefano Gobbo, Lorena Nunes Lacerda, Vasileios Liakos, Francesco Morari, Stefano Lo Presti, Ahmed Harb Rabia and John Snider
408-2	9:00 AM	**Calibrating Field-Specific Soil Parameters Using Remote Sensing and Several Years of Crop Yields** Frits K. Van Evert*, Jits Riepma, Pepijn A.J. van Oort and Arni P.H.M. Janssen
408-3	9:30 AM	**From the Ground up: Strengths and Limitations of Ground-, Drone-, and Satellite-Based Corn Sensing for Nutrient Prescription** Leonardo M. Bastos*, Rai Schwalbert and Ignacio A. Ciampitti
408-4	10:00 AM	**Unmanned Aircraft System Based High Throughput Phenotyping at Texas a&M: Adopting Big Data Analytics and Machine Learning into Agriculture** Jinha Jung*, Juan Landivar, Anjin Chang, Murilo M. Maeda, Sungchan Oh, Junho Yeom, Akash Ashapure, Nothabo Dube and Andrea Maeda
	10:30 AM	**Adjourn**

SESSION NO. 409—8:25 AM–11:15 AM

Henry B. Gonzalez Convention Center, 007D, River Level

Soil and Water Management and Conservation General Oral IV

SSSA Division: Soil and Water Management and Conservation

Moderator: Hudson Minshew, Atinderpal Singh

	8:25 AM	**Introductory Remarks**
409-1	8:30 AM	**Review of 4 Decades of Tillage Research and Extension in Pennsylvania** Sjoerd Willem Duiker*
409-2	8:45 AM	**Effects of Selected Conservation Management Practices on Soil Quality Compared to Crop Management for Claypan Soils** Salah M. Alagele*, Stephen H. Anderson, Ranjith P. Udawatta, Kristen Sloan Veum and Lalith M. Rankoth
409-3	9:00 AM	**Informing Variable Rate Irrigation with in-Situ Soil Water Sensors and Remote Sensing** Neil C. Hansen*, Ruth Kerry, Bryan G. Hopkins, Matthew Heaton, Ryan Jensen and Ryan Smith
409-4	9:15 AM	**Intensification and Diversification of Winter Pulses in the Rice Fallows of Bangladesh** Md. Omar Ali*, Ashutosh Sarker and William Erskine
409-5	9:30 AM	**Effects of Continuous Plastic Mulching on Crop Growth in a Winter Wheat-Summer Maize Rotation System on the Loess Plateau of China** Dianyuan Ding*
409-6	9:45 AM	**Sensors Effectiveness for Soil and Water Content Measurements UNDER Extreme Conditions** Abdrubalrasol Al-Omran* and Ibrahim Louki
	10:00 AM	**Break**
409-7	10:15 AM	**Sensor-Free Underground Soil Sensing** Abdul Salam*
409-8	10:30 AM	**Managed Aquifer Recharge on Agricultural Lands: Modeling Nitrogen Transport and Cycling in the Deep Vadose Zone** Hannah Waterhouse*, Bhavna Arora, Peter Nico, Nicolas Spycher, Helen Dahlke and William R. Horwath
409-9	10:45 AM	**Bacterial Source Tracking (BST) As a Tool for Determining Sources of Origination of Fecal Indicators in Texas Watersheds** John Boswell*, Elizabeth Casarez, Brian Hux, Lucas Gregory, Kevin Wagner, Kristina Mena and Terry J. Gentry
409-10	11:00 AM	**Estimating Soil Hydraulic Conductivity across a Field with a State-Space Modeling Approach** Xi Zhang* and Ole Wendroth
	11:15 AM	**Adjourn**

SESSION NO. 410—8:25 AM–11:15 AM

Henry B. Gonzalez Convention Center, 006C, River Level

Manganese as a Redox Driver in Soils and Sediments Oral I (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Owen Duckworth, Matthew Polizzotto

	8:25 AM	**Introductory Remarks**
410-1	8:30 AM	**How Microbes Break the Cryptic Mn Cycle to Form Mn Oxides** Colleen M Hansel*
410-2	8:45 AM	**Elevated Manganese Concentrations in United States Groundwater, Role of Land Surface-Soil-Aquifer Connections** Peter McMahon*, Kenneth Belitz, James Reddy and Tyler Johnson
410-3	9:00 AM	**Manganese Concentration and Reactivity Vary By Orders of Magnitude Near a Spring, a Swale and a Seep in an Upland Forested Watershed** Donald S. Ross*, Rebecca R. Bourgault, Scott W. Bailey and Nico Perdrial
410-4	9:15 AM	**Influence of Redox on Manganese Geochemistry across the Maui Rainfall Gradient** Ke Wen*, Oliver A. Chadwick, Zhuojun Zhang and Mengqiang Zhu
410-5	9:30 AM	**Distribution and Speciation of Manganese in Granite Weathering Profiles of Different Climatic Zones** Zhuojun Zhang*, Peng Yang, Congqiang Liu, Zhiqi Zhao and Mengqiang Zhu
	9:45 AM	**Break**
410-6	10:00 AM	**Synergistic Effects in Manganese Oxyhydroxide Redox Chemistry** Alan T. Stone* and Weichen Liao
410-7	10:15 AM	**Phenolic Contaminant Interactions with Mn(III/IV) Oxides** Matthew A. Ginder-Vogel*
410-8	10:30 AM	**Mechanistic Interactions of Phenolic Contaminants with Manganese Oxides** Emma Trainer*, Matthew A. Ginder-Vogel and Christina K. Remucal

410-9 10:45 AM **Manganese Has Been Around d-Block: Factors Influencing Mn-Driven Enhancement and Inhibition of Contaminant Mobility at Redox Interfaces** Samantha C Ying*, Michael V. Schaefer, Macon Abernathy, Miranda Aiken, Rebecca Mock, Ilkeun Lee, Loryssa Lake and Abdi Garniwan

410-10 11:00 AM **The Role of Manganese Abundances in Controlling Arsenic Mobility in Paddy Soils** Scott Maguffin and Matthew Charles Reid*

11:15 AM **Adjourn**

SESSION NO. 411—8:25 AM–12:00 PM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

Soil and Water Smart Management Using Digital Information, Decision Support Systems and Precision Technology Oral

ASA Section: Agronomic Production Systems

Lead Community:
Soil and Water Management Professionals Community

Moderator: Gary Feng, Asim Biswas

8:25 AM **Introductory Remarks**

411-1 8:30 AM **Developing a Vehicle-Mounted Imaging System for Collecting Agricultural Transect Data.** Jeffrey Thomas Bradford* and Jason P. Ackerson

411-2 8:45 AM **Embracing Drone Technology in Agricultural Research and Outreach** Emmanuel Deleon*, Erik Wardle and Troy A. Bauder

411-3 9:00 AM **Harnessing Cloud-Driven Earth Observation and Geospatial Technology to Support Improved Agricultural Sustainability** Sudhir R Shrestha*, Daniel P Roberts, Ranveer Chandra, Nick Short, Bruce Vandenberg and Debasis Dan

411-4 9:15 AM **Evaluation of Topographic Indices As Tools to Characterize the Spatial Variability of Soil Moisture Content on Alabama's Row Crops Fields** Guilherme Morata*, Brenda V. Ortiz, Luca Bondesan, Hemendra Kumar, Nedret Billor and Thorsten Knappenberger

411-5 9:30 AM **Low-Field Magnetic Resonance Imaging of Roots in Intact Clay Soils** George Cody Bagnall*, Cristine L. S. Morgan, Matthew Rosen, Haly L. Neely, Mark Conradi, Dean Kuethe, Stephen Altobelli, Eiichi Fukushima, Neha Koonjoo, John Mullet and William L Rooney

411-6 9:45 AM **Use of Sentek Moisture Probes to Develop Irrigation Strategies in Cropping Systems** Sudeep Singh Sidhu*, David L. Wright, Ian M Small and Sheeja George

411-7 10:00 AM ***NRCS Water Erosion Prediction Project (WEPP) Demonstration*** Michael Kucera*

10:15 AM **Break**

411-8 10:30 AM **Perennial Cereal Crop Increases Soil Particulate Organic Matter Compared with Annual Cereal** Keunbae Kim*, Guillermo Hernandez, Erin J. Daly, Dick Puurveen, Germar Lohstraeter and Leigh-Anne Powers

411-9 10:45 AM **Lessons Learned from Integrating a Biophysical Model in a Decision Support Tool: The Case of Soil Erosion** Allison M. Thomson*, Jack Carlson, Brian Fischer, Olaf David, Eric Coronel and Paul Hishmeh

411-10 11:00 AM **Sustainability Tools to Assess Water-Saving Irrigation Practices in Rice Fields in Arkansas** Beatriz Moreno-García*, Colby W. Reavis, Kosana Suvočarev and Benjamin R. K. Runkle

411-11 11:15 AM **Combinations of Soil and Water Management for Water Optimization** Matt A. Yost*, Matt Harper, Earl Creech, Niel Allen, Chad Reid and Boyd Kitchen

411-12 11:30 AM **Supplemental Irrigation Strategies for Spinach Seed Production in Western Washington** Gabriel LaHue*

411-13 11:45 AM ***Estimating the Value of Electroconductivity Data in Variable Rate Nitrogen and Seed Management*** Brittani Edge*, Taro Mieno, Robert E. Dunker, Joe D. Luck and David S. Bullock

12:00 PM **Adjourn**

SESSION NO. 412—8:45 AM–10:05 AM

Henry B. Gonzalez Convention Center, 006A, River Level

Nutrient Dynamics and Management in Livestock Production Systems Oral

ASA Section: Environmental Quality

Lead Community: Nutrients and Environmental Quality Community

Moderator: Lindsay Pease

8:45 AM **Introductory Remarks**

412-1 8:50 AM **Phosphorus Pools in Soils Under Effect of Rotational and Continuous Dairy Grazing** Gurpal Toor*, Yun-Ya Yang and Matt Morris

412-2 9:05 AM **The Effect of Lignite and Modified Coal on Nitrogen Loss from Broiler Litter** Brendon Costello, Bing Han, Deli Chen and Clayton Butterly*

412-3 9:20 AM **Nutrient Loss in Snowmelt Runoff Following Dairy Manure Application on Snowpack** Eric O. Young*, Jessica Sherman, Mellisa Wilson, Peter A. Vadas and Mellisa Motew

412-4 9:35 AM **Biochar As a Nutrient Source in Sustainable Agricultural and Environmental Management** Vimala D. Nair*, Andressa Freitas and Ramachandran P.K. Nair

412-5 9:50 AM **The Effect of Biochar and Organic Manure on Crop Productivities and Soil Quality** Ruijun Qin*, Scott B Lukas and Stephen Machado

10:05 AM **Adjourn**

SESSION NO. 413—8:55 AM–11:30 AM

Henry B. Gonzalez Convention Center, 006B, River Level

Tailoring of Biochar for Enhanced Efficacy Oral

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality

Moderator: Thomas Ducey, Balwant Singh, Sanjai Parikh

8:55 AM **Introductory Remarks**

413-1 9:00 AM **Biochar Surface Functionality Affects Nitrogen and Phosphorus Dynamics in Soils** Shamim Mia, Feike A. Dijkstra and Balwant Singh*

413-2 9:15 AM **Turfgrass Responses to Biochar Rate, Particle Size and Organic Ameliorants** Aprajita Kulshrestha and Francis B. Lopez*

413-3 9:30 AM **Residual Soil Phosphorus When Poultry Litter Biochar and Inorganic Phosphorus Are Used As Fertilizer Sources** Andressa Freitas*, Vimala D. Nair, Lynn E. Sollenberger, Willie Harris and Amanda Rodriguez

413-5 10:00 AM **Long-Term Effects of Biochar on Soil Fertility, Physical and Hydrological Properties Under Field Conditions in Mississippi** Yuanyuan Li*, Gary Feng, Haile Tewolde, Mingyi Yang and Fengbao Zhang

10:15 AM **Break**

413-6 10:30 AM **Some Ways to Modify Chars for Enhanced Binding of Certain Organic and Inorganic Contaminants** Joseph J. Pignatello*, Yi Yang, Santanu Bakshi, Zhengyang Wang, Jingjing Yang, Feng Xiao and Hsin-Se Hsieh

413-7 10:45 AM **Use of Manure-Based Biochars for Remediation of Mine Impacted Soils** Thomas F. Ducey*, Jeff Novak, James A. Ippolito, Kristin Trippe, Mark G. Johnson and Gilbert Sigua

413-8 11:00 AM **Optimizing Rice Husk Biochar for Maximizing Retention and Minimizing As and Cd Uptake By Rice** Franklin Linam* and Angelia L. Seyfferth

413-9 11:15 AM **Biochar Application for Reducing Cadmium Uptake in Cacao Seedling Under Two Constrasting Soil Conditions** Eduardo Chavez*, Julian Correa, Catalina Arroyave, Santiago Builes and Adriana Aristizabal

11:30 AM **Adjourn**

SESSION NO. 414—9:00 AM–11:05 AM

Hilton Palacio del Rio, La Reina, 2nd Floor

Symposium--AgMIP North America: Modeling Interactions between Soil Carbon, Water and Nitrogen Use Efficiency to Enhance Sustainability and Resilience of Cropping Systems.

ASA Section: Climatology and Modeling

Lead Community:
Agroclimatology and Agronomic Modeling Community

Moderator: Jerry Hatfield, Bruno Basso

9:00 AM **Introductory Remarks**

414-1 9:05 AM **North American Agriculture: Need for Sustainability and Resilience** Jerry L. Hatfield*, Bruno Basso and Sotirios V. Archontoulis

414-2 9:35 AM **Modelling Food Systems - Production to Consumption and Back Again** John Roy Porter*

414-3 10:05 AM **Overcoming Challenges in Modeling Interactions between Soil Carbon, Water Balance, and Nitrogen Cycling in the US Corn Belt** Sotirios V. Archontoulis*

414-4 10:35 AM **Modeling the Soil-Landscape-Management Interactions to Improve Resource Use Efficiency at Field Scale** Bruno Basso*

11:05 AM **Adjourn**

SESSION NO. 415—9:00 AM–11:05 AM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

Biostimulants, Soil Amendments, Manure, and Non-Traditional Fertilizers Oral

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Nirit Bernstein, Martha Mamo

9:00 AM **Introductory Remarks**

415-1 9:05 AM **Phosphorus Spatial Variability in Corn Fields Receiving Dairy Manure** Wayne R Roper* III, Thomas F. Morris, Karl Guillard and Richard A. Meinert

415-2 9:20 AM **Carbon and Nitrogen Pools As Affected By Long-Term Manure and Synthetic Fertilizer Application in Corn and Soybean Rotation** Gandura Omar Abagandura*, Nagender Pal Butail, Mahal Navreet, Asmita Gautam, Udayakumar Sekaran, Luiz Gustavo Denardin, Jose G. Guzman and Sandeep Kumar

415-3 9:35 AM **Adjusting Agronomic Soil P Tests for Renewable P Inputs: Struvite** Chunhao Gu*, Roland Cusick and Andrew J. Margenot

415-4 9:50 AM **Biostimulants: Meta Analysis and Overview** Bryan G. Hopkins*

10:05 AM **Break**

415-5 10:20 AM **Changes in N-Related Functional Genes and Nutrient in the "Charosphere"** Mengjie Yu* and Jianming Xu

415-6 10:35 AM **Comparison of the Effect of Organic and Chemical Fertilizer on Crop Productivity in Mongolia** Yasuo M Nakamaru*, Javkhlantuya Altansuvd, Lkham Davaa, Gonchig Solongo, Shinya Kasajima, Hirotake Ito and Hozumi Yoshida

415-7 10:50 AM **Influence of Polar and Non-Polar Moieties in Hydration of Humic Acids Under Arid Conditions** Bidemi Fashina* and Jiri Kucerik

11:05 AM **Adjourn**

SESSION NO. 416—9:10 AM–9:50 AM

Henry B. Gonzalez Convention Center, 008A, River Level

5 Minute Rapid--Biometry and Statistical Computing Oral

ASA Section: Biometry and Statistical Computing

9:10 AM **Introductory Remarks**

416-1 9:15 AM **Assessing Approaches for Grouping Producer Fields into Biophysical Domains for Yield-Gap Analysis** Spyridon Mourtzinis*, Patricio Grassini, Juan I Rattalino Edreira, Jose F. Andrade and Shawn P. Conley

416-2 9:20 AM **Extended and Improved Accounting for Irrigation in the Estimation of Corn Yield Trends** Richard Stuff*

416-3 9:25 AM **Spatiotemporal Dynamics of Three-Dimensional Soil Maps in a Long-Term Field Experiment** Abdullah A. Jaradat*

416-4	9:30 AM	**When Data Meets Sustainability: Improving Cover Crop Biomass Predictions Using Machine Learning Methods and Early-Season Crop Allometric Information.** Guillermo Marcillo*, Steven B Mirsky, Chris Reberg-Horton and Ankita Raturi
416-5	9:35 AM	**Logistic Regression in Agricultural Research** Joaquin Sanabria*, Ishrat Jahan and Job Fugice Jr.
	9:40 AM	**Discussion**
	9:45 AM	**Concluding Remarks**
	9:50 AM	**Adjourn**

SESSION NO. 417—9:25 AM–12:00 PM

Henry B. Gonzalez Convention Center, 221C, 2nd Level

Advancement in Measurement and Modeling of Soil Physical and Hydraulic Properties Oral: What's New?

SSSA Division: Soil Physics and Hydrology

Moderator: Hailong He, Sandeep Kumar

	9:25 AM	**Introductory Remarks**
417-1	9:30 AM	**Modelling Frozen Soil Thermal Conductivity** Hailong He, Miles Dyck*, Hao Feng, Bing Cheng Si and Jialong Lv
417-2	9:45 AM	**Field Scale Monitoring of Soil Water Using Actively Heated Fiber Optics** Asim Biswas*, Duminda Vidana Gamage and Ian Strachan
417-3	10:00 AM	**The Signature of Climate and Vegetative Influence on the Effective Soil Water Retention at a Continental Scale** Vinit Sehgal*, Nandita Gaur and Binayak P. Mohanty
417-4	10:15 AM	**Would It Help? Distributed Measurements in a Small Agricultural Catchment May Help Support Spatial Complexity of Soil Hydrologic Modeling** Timothy R. Green*, Robert H. Erskine, Holm Kipka, Nathan Lighthart, Caryn Nezat, Deborah Edmunds, Olaf David, David Barnard and Kyle Douglas-Mankin
	10:30 AM	**Break**
417-5	10:45 AM	**A General Model for Estimating Soil Penetrometer Resistance from Relative Bulk Density, Matric Potential, and Depth** Wang Hengfei*, Weida Gao and Tusheng Ren
417-6	11:00 AM	**Linking Unsaturated Air Permeability to Saturated Hydraulic Permeability to Characterize Functional Soil Structure.** Charles Pesch*, Per Moldrup and Lis Wollesen de Jonge
417-7	11:15 AM	**Decadal-Scale Shifts in Soil Hydraulic Properties Induced By Altered Precipitation** Daniel Gimenez*, Joshua S. Caplan, Daniel R Hirmas, John M Blair, Nathaniel Brunsell and Alan Knapp
417-8	11:30 AM	**A Multivariate Analysis for Predicting the Soil Hydraulic Conductivity Curve** Carlos J. Avila*, Sara E. Acevedo, Cristina P. Contreras and Carlos A. Bonilla
	11:45 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 418—9:30 AM–10:00 AM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

Poster and 5 Minute Rapid--Turfgrass Science Oral

C05 Turfgrass Science

Moderator: Patrick Burgess

	9:30 AM	**Introductory Remarks**
418-1	9:35 AM	**Bermudagrass Drought Tolerance Vs Avoidance** Lakshmy Gopinath*, Justin Quetone Moss and Yanqi Wu
418-2	9:40 AM	**Fraze Mowing for Overseeding Establishment and Removal** Matt Carpenter, Barry R. Stewart*, James D McCurdy, Eric H Reasor, Richard L. Harkess and Herbert W. Philley
418-3	9:45 AM	**Transformation for Sustainable Campus Turf: A Framework for Institutional Change Analysis, Examination of Four U.S. Case Studies** Kristen Nelson* and Michael Barnes
418-4	9:50 AM	**Evaluation of Low-Input Turfgrass Patch and Repair Ingredients** Ross C Braun*, Aaron J. Patton, Alec Kowalewski and Emily T Braithwaite
418-5	9:55 AM	**Photosynthetic Responses of Warm-Season Turfgrasses to Low-Light Conditions.** David Jespersen* and Bo Xiao
	10:00 AM	**Adjourn**

SESSION NO. 419—9:30 AM–10:30 AM

Henry B. Gonzalez Convention Center, Cantilever Room, 2nd Level

SSSA Business Meeting--Pedology

SSSA Division: Pedology

SESSION NO. 420—9:30 AM–10:35 AM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

Crop Physiology and Metabolism Oral V

C02 Crop Physiology and Metabolism

Moderator: Glen Ritchie

	9:30 AM	**Introductory Remarks**
420-1	9:35 AM	**Functional Phenomics of Whole Plant Physiology from Roots to Shoots** Larry M. York*, Marcus D. Griffiths, Haichao Guo and Anand Seethepalli
420-2	9:50 AM	**Low-Cost 3-D Cotton Plant Phenotyping** Nothabo Dube, Glen Lorin Ritchie*, Benjamin Bryant and Hamed Sari-Sarraf
420-3	10:05 AM	**Evaluation of Screening Methods for Heat Stress Tolerance in Peanut at Reproductive Stage** Hanh Pham*, Michael Gomez Selvaraj, Kameswara Rao Kottapalli, Gloria B. Burow, Naveen Puppala, Paxton Payton, John J. Burke and Mark D. Burow

420-4	10:20 AM	**Utilizing Cyber-Physical System Technology to Phenotype for High Night-Time Temperature Impact on Field Grown Winter Wheat** Nathan Hein*, Dan Wagner, Raju Bheemanahalli Rangappa and SV Krishna Jagadish
	10:35 AM	**Adjourn**

SESSION NO. 421—9:45 AM–10:50 AM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Biomedical, Health-Beneficial and Nutritionally Enhanced Plants Oral

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

Moderator: Davina Rhodes

	9:45 AM	**Introductory Remarks**
421-1	9:50 AM	**Cadmium and Zinc Transport and Accumulation in Hard Winter Wheat** Renuka Sankaran*
421-2	10:05 AM	**Can Trellis Systems be Used As a Sustainable Agricultural Practice to Improve Grapes' Nutritional Properties?** Marta R. M. Lima*
421-3	10:20 AM	**Inspecting Stevia Germplasm and the Production of High Quality Resources** Bipul Biswas* and Shomari Ade Johnson
421-4	10:35 AM	**Impact of Low Temperature on Contents of Soluble Sugars, Water Soluble Vitamins and Amino Acids in Spinach** Youngeun Yoon*, Yong Bok Lee and Saranya Kuppusamy
	10:50 AM	**Adjourn**

SESSION NO. 422—9:30 AM–11:30 AM

Henry B. Gonzalez Convention Center, 302B, 3rd Level

Symposium--Giants of Progress in Forage and Grazinglands Agriculture

C06 Forage and Grazinglands

Moderator: Michael Casler

	9:30 AM	**Introductory Remarks**
422-1	9:35 AM	**C. Jerry Nelson: A Career with Global Impact** Jeffrey J. Volenec* and Jennifer W. MacAdam
422-2	9:57 AM	**Vern Marble-Ambassador of Alfalfa** Daniel H. Putnam*
422-3	10:19 AM	**Douglas Dewey an Explorer, a Scientist, and a Gentleman** Kevin B. Jensen*
422-4	10:41 AM	**Dr. Bert Christie - a Giant Forage Agronomist, Professor and Plant Breeder** Yousef Papadopoulos*
422-5	11:03 AM	**Richard R. Smith - a Breeder with a Unique Vision and Impact** Michael D. Casler*, Kenneth H. Quesenberry and Heathcliffe Riday
	11:25 AM	**Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 423—9:30 AM–11:35 AM

Hilton Palacio del Rio, Salon del Rey C, 2nd Floor

Symposium--Climate Smart Practices and Agricultural Resilience

ASA Section: Climatology and Modeling

Lead Community: Global Climate Change Community

Moderator: Rajan Ghimire

	9:30 AM	**Introductory Remarks**
423-1	9:35 AM	**Preparing for a Risky Future: Multi-Scalar and Long-Term Research for Climate Resilient Farming Systems** Sieglinde S. Snapp*, Jeffrey E. Herrick and Xinyi Tu
423-2	10:05 AM	**Climate Demons, Agricultural Adaptation, and Environmental Protection** Armen R. Kemanian*
423-3	10:35 AM	**The Extreme Weather, Insurance, Conservation Nexus** David R. Huggins*, Lusine Taslakyan and J.D. Wulfhorst
423-4	11:05 AM	**The Application of Crop Models for the Development of Climate Smart Practices** Gerrit Hoogenboom*
	11:35 AM	**Adjourn**

SESSION NO. 424—9:45 AM–10:50 AM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Crop and Nutrient Management Recommendations Based on Integrated UAV and Digital Camera Systems Oral

ASA Section: Agronomic Production Systems

Lead Community: Sensor-based Nutrient Management Community

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition,
C03 Crop Ecology, Management and Quality

Moderator: Xinhua Yin

	9:45 AM	**Introductory Remarks**
424-1	9:50 AM	**High-Resolution Aerial Imagery As an in-Season Nitrogen Management Service** Sarah Grogan Bratschun*, Kirk M Stueve and James McBride
424-2	10:05 AM	**Leaf Area Index Estimation Under Different Nitrogen Treatments Using Unmanned Airborne Vehicles Hyperspectral Images for Precision Agriculture** Ahmed Harb Rabia*, Arianna Toffanin, Lorena Nunes Lacerda and George Vellidis
424-3	10:20 AM	**Using Unmanned Aerial Vehicles to Measure Emergence and Canopy Development Among Multiple Corn Hybrids** Jonathon Wall* and Ronnie W. Heiniger
424-4	10:35 AM	**Use of in-Season UAV-Generated Reflectance Measurements to Differentiate between Corn N and Water Deficiency** Taylor Becker*, Michelle M. Leinfelder-Miles and Mark Lundy
	10:50 AM	**Adjourn**

SESSION NO. 425—9:45 AM–11:15 AM

Henry B. Gonzalez Convention Center, 007B, River Level

Symposium--Collaborations at the National, Regional and State Levels to Facilitate Transfer of Knowledge: Cover Crops and Soil Health Networks II

ASA Section: Land Management and Conservation

Lead Community: Soil Health Community

Section or Division Cosponsor:
ASA Section: Agronomic Production Systems,
ASA Section: Environmental Quality,
SSSA Division: Soil and Water Management and Conservation,
SSSA Division: Soil Biology and Biochemistry,
SSSA Division: Soils and Environmental Quality,
ASA Section: Land Management and Conservation

	9:45 AM	**Introductory Remarks**
425-1	9:50 AM	**Programs and Networks for Sharing Soil Health Management Approaches in North Dakota** Abbey Foster Wick* and Caley Gasch
425-2	10:15 AM	**Soil Health Nexus Provides Research and Extension/Outreach Resources Related to Soil Health and Water** Leslie Johnson*, Christina Curell and Paul Gross
425-3	10:40 AM	**Indiana Conservation Cropping Systems Initiative: Innovations for Soil Health and Cover Crops** Lisa Holscher*
	11:05 AM	**Discussion**
	11:15 AM	**Adjourn**

SESSION NO. 426—10:00 AM–10:30 AM

Henry B. Gonzalez Convention Center, 008A, River Level

Special Session--Poster and 5 Minute Rapid --Interactive Demos for Data, Model, and Software Tools in Agronomy and Soils Oral

Special Sessions

Lead Community:
Statistical Education/Training for Researchers Community

	10:00 AM	**Introductory Remarks**
426-1	10:05 AM	**Data Ingestion Pipeline for Field-Collected Images with Barcode Detection** Brian Davis*
426-2	10:10 AM	**A Python Tool for Computing the Optimum Nitrogen Rate and Its Confidence Intervals Using a Generalized Cost Function** Tyler J. Nigon*, Ce Yang, David J. Mulla and Daniel E. Kaiser
426-3	10:15 AM	**Keeping It Simple: Easy Inputs to Schedule Your Next Irrigation** Kent A. McVay*
426-4	10:20 AM	**Cover Crop Decision Support Tools** Ankita Raturi*, Victoria J. Ackroyd, Steven B Mirsky and Chris Reberg-Horton
	10:25 AM	**Discussion**
	10:30 AM	**Adjourn**

SESSION NO. 427—10:00 AM–11:00 AM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

CSSA Business Meeting--Crop Ecology, Management and Quality

C03 Crop Ecology, Management and Quality

SESSION NO. 10—10:00 AM–12:00 PM

Hilton Palacio del Rio, La Vista C, 22nd Floor

Special Session Symposium--Media Relations for Scientists 101

Special Sessions

Section or Division Cosponsor:
ASA Section: Education and Extension

SESSION NO. 428—10:00 AM–12:05 PM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

Crossdiv Symposium--Linking Soil and Environmental Health: Indicators and Outcomes II

Sponsored by OCP North America, Inc.

SSSA Cross-Divisional Symposium

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis,
SSSA Division: Soil and Water Management and Conservation,
SSSA Division: Soil Fertility and Plant Nutrition,
SSSA Division: Soil Biology and Biochemistry,
ASA Section: Land Management and Conservation

Moderator: Jennifer Moore-Kucera

	10:00 AM	**Introductory Remarks**
428-1	10:05 AM	**Plant and Microbial Bioavailable Nitrogen in Agroecosystems: Emerging Rhizosphere-Scale Concepts and Implications** A Stuart Grandy* and Andrea Jilling
428-2	10:35 AM	**Measurements to Assess Soil Health Indicators and Link Them to Soil Ecosystem Services** Cristine L. S. Morgan*, Paul W. Tracy, Gregory Mac Bean, Michael Cope, Shannon Cappellazzi, Kelsey L. Hoegenauer, Dan Liptzin, Charlotte Norris, Elizabeth Rieke, NAPSHM Collaborators and C. Wayne Honeycutt
428-3	11:05 AM	**Beyond Carbon: Assessment and Decision Support Tools to Promote Healthy Soils** Keith Paustian*
428-4	11:35 AM	**Soil-Test Biological Activity As an Indicator of Nitrogen Availability** Alan J. Franzluebbers*
	12:05 PM	**Adjourn**

SESSION NO. 429—10:00 AM–12:05 PM

Hilton Palacio del Rio, La Vista AB, 22nd Floor

Symposium--Wetland Resilience in a Changing Climate

SSSA Division: Wetland Soils

	10:00 AM	**Introductory Remarks**
429-1	10:05 AM	**Are Soil Parameters Able to Predict Forested Wetland Health?** Schmacher William, Melanie Rudolf, Jordan Maxwell, Vinayak S. Shedekar, Yogendra Raut and Rafiq Islam*
429-2	10:20 AM	**Patterns of Bryophyte Diversity, Soil Carbon and Nutrient Availability through Time in Northern Appalachian Vernal Pools** Patrick J. Drohan* and Shauna Kay Rainford
429-3	10:35 AM	**Introduction to Coastal Zone Soil Survey (CZSS)** Jonathan Wiedenfeld*
429-4	10:50 AM	**Recovery of New England Tidal Marshes from Thin-Layer Placement and Storm Deposition** Amber Hardy* and Mark Stolt
429-5	11:05 AM	**Bootstrapping for Subaqueous Soil Survey Evaluation in Chesapeake Bay** Barret M. Wessel* and Martin C. Rabenhorst
429-6	11:20 AM	**Effects of River Reconnection on Wetland Soil Properties and C Sequestration in the Mississippi River Delta** Alina Spera, John R. White* and Ronald Corstanje
429-7	11:35 AM	**Blue Carbon Accounting** Mark Stolt* and Martin C. Rabenhorst
429-8	11:50 AM	**Blue Carbon Accounting for Carbon Markets** Brian A. Needelman*
	12:05 PM	**Adjourn**

SESSION NO. 430—10:05 AM–10:20 AM

Henry B. Gonzalez Convention Center, 006A, River Level

ASA Community Planning Session--Nutrients and Environmental Quality

ASA Section: Environmental Quality

Lead Community: Nutrients and Environmental Quality Community

SESSION NO. 431—10:10 AM–12:00 PM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

Soil Physics and Hydrology General Oral II

SSSA Division: Soil Physics and Hydrology

Moderator: Ray Anderson

	10:10 AM	**Introductory Remarks**
431-1	10:15 AM	**Monitoring Seasonal Variation of Observed Soil Moisture Data at Two Experimental Fields in the Alento Hydrological Observatory (southern Italy)** Paolo Nasta*, Heye Bogena, Harry Vereecken and Nunzio Romano
431-2	10:30 AM	**Hysteresis and Kinetic of Cu and Pb Sorption-Desorption** Tamer A. Elbana* and H. Magdi Selim
431-3	10:45 AM	**Novel Approaches to the Investigation of Compensated Root Water Uptake** Alon Ben-Gal*, Dovi Tzohar, Ehud Zeelim and Efraim Tripler
431-4	11:00 AM	**The Role of Soil Hydraulic Properties in Crop Water Availability** Quirijn de Jong van Lier* and Everton Alves Rodrigues Pinheiro
431-5	11:15 AM	**Web-Based Irrigation Scheduling Tool: Irrigwise** Ripendra Awal*, Ali Fares and Hamideh Habibi
431-6	11:30 AM	**Development of a Sprayable Biodegradable Polymer Membrane (SBPM) Technology – an Update** Keith L. Bristow*
431-7	11:45 AM	**A Strategy for a National Soil Moisture Network** Michael Cosh*, Jordan Clayton, Steven M. Quiring, Tyson E. Ochsner, Molly Woloszyn, Bruce Baker, Veva Deheza, John Bolten, Mark Svoboda, Peter Goble and Charles Schalk
	12:00 PM	**Adjourn**

SESSION NO. 432—10:15 AM–10:50 AM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Sergei A. Wilde Early Career Achievement Award Lectureship

SSSA Division: Forest, Range and Wildland Soils

Moderator: Randall Kolka

	10:15 AM	**Introductory Remarks**
432-1	10:20 AM	**The Influence of Fire on Carbon Loss Pathways in Temperate Forest Soils** Fernanda Santos*
	10:50 AM	**Adjourn**

SESSION NO. 433—10:15 AM–11:35 AM

Henry B. Gonzalez Convention Center, 301A, 3rd Level

Plant Genetic Resources Oral

C08 Plant Genetic Resources

Moderator: Brendan Kelly

	10:15 AM	**Introductory Remarks**
433-1	10:20 AM	**Discovery and Use of Resistance Genes from Exotic Germplasm in Maize** Jeff Habben* and Bailin Li
433-2	10:35 AM	**Distributions and Conservation Status of Crop Wild Relatives of the United States** Colin K. Khoury, Daniel Carver, Stephanie Greene*, Karen A. Williams, Melanie Schori, Blanca Leon and John Wiersema
433-3	10:50 AM	**Towards Conserving Crop Wild Relatives of Oman** Ali H. Al-Lawati*
433-4	11:05 AM	**Improving Biotic and Abiotic Stress Tolerance of Cultivated Pearl Millet (*Pennisetum glaucum* L.) through Introgression of Alleles from Wild Species** Shivali Sharma*, SK Gupta, Rajan Sharma, Kholova Jana, Vincent Vadez, Prakash Gangashetty, Indra Singh, Virendra Singh Deora, AK Jayalekha and Rajeev K. Varshney
433-5	11:20 AM	**Population Structure, Genetic Diversity and Anthracnose Resistance Response of the NPGS Sweet Sorghum Germplasm Collection.** Hugo Edgardo Cuevas*, Louis K Prom, Joseph E. Knoll and Wilfred Vermerris
	11:35 AM	**Adjourn**

SESSION NO. 434—10:15 AM–12:00 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 1, 3rd Level

CSSA Business Meeting--Turfgrass Science

C05 Turfgrass Science

SESSION NO. 435—10:20 AM–12:00 PM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

Integration of Precision Water, Fertilizer, and Pesticide Management Oral

ASA Section: Agronomic Production Systems

Lead Community: Precision Agriculture Systems Community

Moderator: Matt Yost

	10:20 AM	**Introductory Remarks**
435-1	10:25 AM	**Using Dynamic Information for Precision Crop Management** Louis Longchamps*
435-2	10:40 AM	**Using UAVs to Improve Nitrogen Management of Winter Wheat** Joseph Oakes*, Maria Balota, Wade E. Thomason, Brice Cazenave, Sayantan Sarkar and Amir Sadeghpour
435-3	10:55 AM	**Corn Yield and Remotely Sensed Spectral Response to Variable Irrigation and Nitrogen Rates** Sumit Sharma*, Jason G. Warren, Brian Arnall, Cameron Murley and Saleh Taghvaeian
435-4	11:10 AM	**Impact of Variable Irrigation and Nitrogen Management Strategies on Sugarbeet Yield, Evapotranspiration and Crop Water Productivity.** Vivek Sharma*
435-5	11:25 AM	**An Active Canopy Sensor-Based Precision Rice Management System for Improving Grain Yield, Quality, Resource Use Efficiency and Lodging Resistance** Yuxin Miao*, Hongye Wang and Junjun Lu
435-6	11:40 AM	**Characterize 2,4-D and Dicamba Volatility As Affected By Formulation and Exposure Duration** Patrick Maxwell*
	11:55 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 436—10:30 AM–10:45 AM

Henry B. Gonzalez Convention Center, 008A, River Level

ASA Community Planning Session--Statistical Education/Training for Researchers

ASA Section: Biometry and Statistical Computing

Lead Community:
Statistical Education/Training for Researchers Community

SESSION NO. 437—10:30 AM–10:45 AM

Hilton Palacio del Rio, Salon del Rey B, 2nd Floor

ASA Community Planning Session --Airborne and Satellite Remote Sensing

ASA Section: Climatology and Modeling

Lead Community: Airborne and Satellite Remote Sensing Community

SESSION NO. 438—10:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 006A, River Level

ASA Business Meeting--Environmental Quality

ASA Section: Environmental Quality

Moderator: Gary Feyereisen

SESSION NO. 439—10:30 AM–12:00 PM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

Development and Dissemination of Antibiotic Resistance in the Environment Oral

SSSA Division: Soil Biology and Biochemistry

Section or Division Cosponsor: SSSA Division: Soil Chemistry,
SSSA Division: Soils and Environmental Quality,
SSSA Division: Soil Physics and Hydrology

Moderator: Brendan Headd

	10:30 AM	**Introductory Remarks**
439-1	10:35 AM	**Response of Antimicrobial Resistance Elements in Soil and Swine Manure during Simulated Winter Incubation** Madison E. Jurgens, Daniel N. Miller*, Lisa M. Durso and Amy M. Schmidt
439-2	10:50 AM	**The Conjugation Window in E. coli** Brendan Headd* and Scott A. Bradford
439-3	11:05 AM	**Tracking the Antibiotic Resistome from Manure to Soils: Effect of Antibiotic-Administration in Beef Cattle** Chaoqi Chen*, Partha Ray, Christine Pankow, Christy Teets, Katharine Knowlton, Amy Pruden and Kang Xia
439-4	11:20 AM	**Isolation and Characterization of Pgprs for Mitigation of Triclosan Contamination** Monica O. Mendez*, Ashley M Garcia and Priscilla Carlo
439-5	11:35 AM	**Microbiome and Antibiotic Resistome in Soil and Plant Systems** Yike Shen, Zeyou Chen, Hui Li, Elliot T. Ryser, Robert Stedtfeld, James M. Tiedje and Wei Zhang*
	11:50 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 440—10:35 AM–10:50 AM

Hilton Palacio del Rio, El Mirador West, 22nd Floor

ASA Community Planning Session --Extension Education

ASA Section: Education and Extension

Lead Community: Extension Education Community

SESSION NO. 441—10:35 AM–10:50 AM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

ASA Community Planning Session --Perennial Grain Development

ASA Section: Global Agronomy

Lead Community: Perennial Grain Development Community

SESSION NO. 442—10:35 AM–12:00 PM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

Deep, Wide, and Alive: Expanding Our View of Soils in a Changing Environment Oral

SSSA Division: Soil Mineralogy

Section or Division Cosponsor: SSSA Division: Pedology, SSSA Division: Soil Chemistry, SSSA Division: Soil Physics and Hydrology

Moderator: Daniel Hirmas

	10:35 AM	**Introductory Remarks**
442-1	10:40 AM	**A New Paleoproxy for Vapor Pressure Deficit from Pedogenic Carbonate and Fossil Cellulose** Adrian Broz*, Gregory Retallack, Toby Maxwell and Lucas C.R. Silva
442-2	10:55 AM	**Ice Formation and Microbes: A Microscale Perspective on Interactive Biophysical Weathering Agents in the Critical Zone** Rebecca Lybrand*, George Dragos Zaharescu, Jason Austin, Swarup China, Rachel E. Gallery, Paul A. Schroeder, Daniel Veghte and Odeta Qafoku
442-3	11:10 AM	**Soil Carbon and Microbial Communities in Sandy Soils Under Different Land Use** Ekrem Ozlu*, Jenifer L. Yost, Nayela Zeba, Yakun Zhang, Alfred E. Hartemink, Francisco J. Arriaga and Thea Whitman
442-4	11:25 AM	**Soil Toposequence in Karstic Sinkholes** Christopher Shepard*
442-5	11:40 AM	**Exploring Soil Genesis across Scales: A New Development Index Independent of Parent Material** Aaron N Koop*, Daniel R Hirmas, Pamela L Sullivan and Aoesta K Mohammed
	11:55 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 443—11:00 AM–11:15 AM

Henry B. Gonzalez Convention Center, 301B, 3rd Level

ASA Community Planning Session --Agronomic Solutions for Smallholders

ASA Section: Global Agronomy

Lead Community: Agronomic Solutions for Smallholders Community

SESSION NO. 444—11:00 AM–11:45 AM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Symposium--Corn and Floor Crop Management in the Solar Corridor Crop Production System Oral

ASA Section: Agronomic Production Systems

Lead Community: Solar Corridor Crop System Community

Moderator: Timothy Reinbott

	11:00 AM	**Introductory Remarks**
444-1	11:05 AM	**Solar Corridor Crop System: Implementation and Impact - a Book Review** Charles LeRoy Deichman*, Timothy M. Reinbott and Robert J. Kremer
	11:25 AM	**Discussion**
	11:45 AM	**Adjourn**

SESSION NO. 445—11:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

ASA Business Meeting --Agronomic Production Systems

ASA Section: Agronomic Production Systems

Moderator: Calvin Trostle

SESSION NO. 446—11:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

ASA Business Meeting--Global Agronomy

ASA Section: Global Agronomy

SESSION NO. 447—11:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 302A, 3rd Level

CSSA Business Meeting --Crop Physiology and Metabolism

C02 Crop Physiology and Metabolism

SESSION NO. 448—11:00 AM–12:00 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

CSSA Business Meeting--Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

SESSION NO. 449—11:00 AM–12:00 PM

Hilton Palacio del Rio, El Mirador East, 22nd Floor

Sergei A. Wilde Distinguished Lectureship on Forest Soils

SSSA Division: Forest, Range and Wildland Soils

Moderator: Charles Rhoades

11:00 AM **Introductory Remarks**

449-1 11:05 AM **Patterns of Acid Deposition Impact Long-term SO_4 Cycling in the Southern Appalachian Mountains** Jennifer D. Knoepp*

12:00 PM **Adjourn**

SESSION NO. 450—11:05 AM–11:20 AM

Hilton Palacio del Rio, La Reina, 2nd Floor

ASA Community Planning Session --Agroclimatology and Agronomic Modeling

ASA Section: Climatology and Modeling

Lead Community: Agroclimatology and Agronomic Modeling Community

SESSION NO. 451—11:10 AM–12:00 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

Poster and 5 Minute Rapid--Crop Ecology, Management and Quality Oral

C03 Crop Ecology, Management and Quality

11:10 AM **Introductory Remarks**

451-1 11:15 AM **Plant-to-Plant Uniformity in Growth and Development in the Context of Maize Response to Banded Nitrogen at Seeding** Nicholas Thompson* and Tony J. Vyn

451-2 11:20 AM **Effect of Peanut Inoculant (Bradyrhizobia) Storage Duration on Growth, Nodulation, and Production.** R. Scott Tubbs*, John Beasley and W. Scott Monfort

451-3 11:25 AM **Reduced Rates of Prohexadione Calcium (Plant Growth Regulator) on Peanut in Arkansas, Georgia, Mississippi, South Carolina and North Carolina in Small and Large Block Trials** Sara Beth Pelham*, W. Scott Monfort, Ronald Scott Tubbs, David L. Jordan, Travis Faske, Dan Anco, Jason M. Sarver and Conner Ferguson

451-4 11:30 AM **Harvest Aids Influence on Winter Camelina Seed Yield and Quality** Maninder K. Walia*, M. Scott Wells, Julija A. Cubins, Donald L. Wyse, Frank Forcella and Russ Gesch

451-5 11:35 AM **Seeding Date and Genotype Affect on Grain Sorghum Yield in North Dakota** Kutay Yilmaz* and Burton L. Johnson

11:40 AM **Discussion**

12:00 PM **Adjourn**

SESSION NO. 452—11:35 AM–11:50 AM

Hilton Palacio del Rio, Salon del Rey C, 2nd Floor

ASA Community Planning Session --Global Climate Change

ASA Section: Climatology and Modeling

Lead Community: Global Climate Change Community

11:35 AM **Introductory Remarks**

11:40 AM **Discussion**

11:50 AM **Adjourn**

SESSION NO. 453—11:45 AM–12:00 PM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

ASA Community Planning Session --Solar Corridor Crop System

ASA Section: Agronomic Production Systems

Lead Community: Solar Corridor Crop System Community

SESSION NO. 454—1:15 PM–3:20 PM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

Symposium--Beyond Bt and Round-up: Next Generation of GMOs

C07 Genomics, Molecular Genetics and Biotechnology

1:15 PM **Introductory Remarks**

454-1 1:20 PM **Soybean Seed Traits** Tony Kinney*

454-2 1:50 PM **Ultra-Low Gossypol Cottonseed, TAM66274: A GMO Product from a Public Institution to Combat Protein Malnutrition** Keerti S. Rathore*, Devendra Pandeya, LeAnne Campbell, Lorraine Puckhaber, Robert D. Stipanovic and Thomas C. Wedegaertner

454-3 2:20 PM **Discovering Natural Products from Fungi for Agriculture Applications** Yi Tang*

454-4 2:50 PM ***Phosphite Dehydrogenase (ptxD)* Gene in Combination with Phosphite As a Potential, Non-Herbicidal Weed Suppression System** Devendra Pandeya*, Damar L. López-Arredondo, LeAnne Campbell, Keerti S. Rathore, Luis Herrera-Estrella and Muthukumar Bagavathiannan

3:20 PM **Adjourn**

SESSION NO. 455—1:25 PM–2:30 PM

Henry B. Gonzalez Convention Center, 225C, 2nd Level

Soil Fertility and Plant Nutrition General Oral III

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Carolina Cordova, Rishi Prasad

	1:25 PM	**Introductory Remarks**
455-1	1:30 PM	**Long-Term Effects of Tillage and Crop Rotation on Soil C Dynamics and Crop Yield in a Temperate, Humid Climate** Inderjot Chahal*, Laura L Van Eerd, David Hooker, Bill Deen and Kenneth Janovicek
455-2	1:45 PM	**Soil Fertility Improvement, Hierarchical Aggregate Stability and Aggregate Associated Carbon and Nitrogen Storage in a Four-Year Field Experiment with Biochar Amendments in Ghana** Chinyere Blessing Okebalama* and Bernd Marschner
455-3	2:00 PM	**The Response of Contents of Soil Organic Matter and Nutrients to Straw Incorporated into Different Soil Depths** Wenxiu Zou*, Lu Xinchun, Xu Chen and Xiaozeng Han
455-4	2:15 PM	**Influence of Mycorrhizae, NPK 15:15:15 and Poultry Manure on Some Soil Properties, Microbial Populations and Growth of Rubber Seedlings** Rex Okundia*, Izevbigie faith, Samson Aghedo, Ogeri Idika, Chinyere Elenwo, Eseosa Osazuwa, Hilda Agbonlahor, Jude Omoigberale and Idowu Atoloye
	2:30 PM	**Adjourn**

SESSION NO. 456—1:30 PM–2:30 PM

Henry B. Gonzalez Convention Center, 304C, 3rd Level

ASA Business Meeting --Climatology and Modeling

ASA Section: Climatology and Modeling

SESSION NO. 457—11:25 AM–12:10 PM

Henry B. Gonzalez Convention Center, 007B, River Level

ASA Business Meeting --Land Management and Conservation

ASA Section: Land Management and Conservation

11:25 AM	**Introductory Remarks**
11:30 AM	**LCM Section**
11:40 AM	**ASA Board**
11:50 AM	**Experiment Station Management Community**
11:55 AM	**Cover Cop Community**
12:00 PM	**Soil Health Community**
12:05 PM	**Concluding Remarks**
12:10 PM	**Adjourn**

SESSION NO. 458—1:30 PM–2:30 PM

Henry B. Gonzalez Convention Center, 221D, 2nd Level

SSSA Business Meeting --Soil Physics and Hydrology

Sponsored by Campbell Scientific

SSSA Division: Soil Physics and Hydrology

SESSION NO. 459—1:30 PM–2:30 PM

Henry B. Gonzalez Convention Center, 303A, 3rd Level

SSSA Business Meeting --Soils and Environmental Quality

Sponsored by OCP North America, Inc.

SSSA Division: Soils and Environmental Quality

SESSION NO. 460—1:30 PM–2:35 PM

Henry B. Gonzalez Convention Center, 304B, 3rd Level

Legume Crop Agronomics --Agronomic Production Systems Oral

ASA Section: Agronomic Production Systems

Moderator: Michael Mulvaney

	1:30 PM	**Introductory Remarks**
460-1	1:35 PM	**Manipulating Planting Date and Seeding Rate to Maximize Yield in Grain Pea in the Southeast** Esleyther H. Henriquez Inoa*, Rachel A. Atwell Vann and Samuel Chris Reberg-Horton
460-2	1:50 PM	**On Farm Research Is Providing Insight into Optimal Pinto Bean Field Populations Under the Direct Harvest System** John Thomas*, Laura Thompson and Strahinja Stepanovic
460-3	2:05 PM	**Impact of Planting Pattern on Water-Use Efficiency of Peanut** Navjot Singh*, Monique Leclerc, Gengsheng Zhang, Ronald Scott Tubbs, W. Scott Monfort and Diane L. Rowland
460-4	2:20 PM	**Peanut Nitrogen Availability to a Subsequent Wheat Crop** Michael J. Mulvaney*, Arun D Jani, Ramon G Leon, John Erickson and Heather A Enloe
	2:35 PM	**Adjourn**

SESSION NO. 461—1:30 PM–2:35 PM

Henry B. Gonzalez Convention Center, 304A, 3rd Level

Semi-Arid Dryland Cropping Systems Oral II

ASA Section: Agronomic Production Systems

Lead Community: Semi-arid Dryland Cropping Systems Community

Moderator: Emi Kimura

1:30 PM **Introductory Remarks**

461-1	1:35 PM	**Diversifying Cropping Systems Enhances Productivity, Stability and Nitrogen Use Efficiency** Mervin St. Luce*, Reynald Lemke, Yantai Gan, Brian G. McConkey, William May, Constantine A. Campbell, Robert Zentner, Hong Wang, Roland Kroebel, Myriam Fernandez and Kelsey Brandt
461-2	1:50 PM	**Cover Crop Use in a Semi-Arid Wheat-Sorghum-Fallow Cropping System** Johnathon D. Holman* and Augustine K Obour
461-3	2:05 PM	**Strategic Tillage Effects on Crop Yield and Soil Properties in Dryland No-Tillage Systems** Augustine K Obour*, Johnathon D. Holman and Alan J. Schlegel
461-4	2:20 PM	**Resilience, Productivity, and Challenges of Southern High Plains Dryland Cropping Systems.** Jason G. Warren*, Sumit Sharma, Josh Lofton and Phillip Alderman
	2:35 PM	**Adjourn**

SESSION NO. 462—1:30 PM–2:35 PM

Henry B. Gonzalez Convention Center, 301C, 3rd Level

Cover Crop Management General Oral III

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

Moderator: Rahul Raman, Gurpreet Kaur

	1:30 PM	**Introductory Remarks**
462-1	1:35 PM	**Allelopathic Cereal Rye Cover Crop Breeding** Shannon Koss*, Chris Reberg-Horton, Steven B Mirsky and Ramon Gonzalez
462-2	1:50 PM	**Evaluation of Different Fababean (*Vicia faba* L.) Cultivars As a Cover Crop** Ranjit Riar*, Laura Boots-Haupt, Kyle Brasier and Hossein Zakeri
462-3	2:05 PM	**Buckwheat As a Biofumigant in Potato-Based Cropping Systems** Aaron Mills*, Christine Noronha, Judith Nyiraneza, Tandra Fraser and Yefang Jiang
462-4	2:20 PM	**Remediating the Fragipan with an Annual Ryegrass Cover Crop** Lloyd W. Murdock*, Anastasios D. Karathanasis, Christopher Mataocha and John H. Grove
	2:35 PM	**Adjourn**

SESSION NO. 463—1:30 PM–2:20 PM

Henry B. Gonzalez Convention Center, 221B, 2nd Level

Crop Breeding and Genetics Oral IV

C01 Crop Breeding and Genetics

Moderator: Michael Timko

	1:30 PM	**Introductory Remarks**
463-1	1:35 PM	**Exploration of Genomic Resources for Breeding Cowpea with Enhanced Biotic Stress Resistance** Lucky Omoigui*, Alpha Y. Kamara, Catherine Danmaigona, Godspower Ekeuro and Michael P Timko
463-2	1:50 PM	**Enhancement of Cowpea Breeding through Molecular Breeding in Cowpea** Ainong Shi*, Jun Qin, Yuejin Weng, Waltram Ravelombola, Haizheng Xiong, Gehendra Bhattarai, Stephen Eaton, Senyu Chen and Beiquan Mou
463-3	2:05 PM	**Effects of Salt on the Growth and Root Development of Cowpea (*Vigna unguiculata* (L.) Walp) Genotypes** Damba Yahaya*, Matthew Blair and Nicholas Ninju Denwar
	2:20 PM	**Adjourn**

SESSION NO. 464—1:30 PM–2:35 PM

Henry B. Gonzalez Convention Center, 302C, 3rd Level

Pedology General Oral II

SSSA Division: Pedology

Moderator: Matthew Ricker

	1:30 PM	**Introductory Remarks**
464-1	1:35 PM	**Soil Geophysical Properties Influence Nest-Site Selection By Ground Nesting Bees in Agricultural Settings** Rebecca Lybrand*, Jennifer Fedenko, Malak Tfaily and Sujaya Rao
464-2	1:50 PM	**Colluvium Versus Alluvium: Definitions and Diagnostic Criteria** Bradley A. Miller* and Jérôme Juilleret
464-3	2:05 PM	**Glossic Horizon Formation in Coarse-Loamy Bisequal Soils of Northern Lower Michigan, USA** Christopher J. Baish* and Randall J. Schaetzl
464-4	2:20 PM	**Pedogenesis in Soils Formed from Reclaimed Soda Ash Waste, Implications for Restoration** M. Scott Demyan*, G. Matt Davies and Alice Snyder
	2:35 PM	**Adjourn**

SESSION NO. 465—1:30 PM–2:40 PM

Henry B. Gonzalez Convention Center,
Cantilever Room, 2nd Level

Martin and Ruth Massengale Lectureship

C06 Forage and Grazinglands

Moderator: Renata Nave

	1:30 PM	**Introductory Remarks**
465-1	1:35 PM	**Modelling the Grassland Ecosystem** David J. Barker*
	2:25 PM	**Discussion**
	2:40 PM	**Adjourn**

SESSION NO. 466—1:30 PM–2:45 PM

Henry B. Gonzalez Convention Center, 225D, 2nd Level

Manganese as a Redox Driver in Soils and Sediments Oral II (includes student competition)

SSSA Division: Soil Chemistry

Moderator: Owen Duckworth, Matthew Polizzotto

	1:30 PM	**Introductory Remarks**
466-1	1:30 PM	**Enzymes, Manganese, or Iron? Drivers of Oxidative Organic Matter Degradation in Forest Soils.** Marco Keiluweit*, Rachelle LaCroix and Morris Jones
466-2	1:45 PM	**Effect of Manganese Redox Cycling on Organic Matter Transformations across Oxic-Anoxic Interfaces** Nathan A Chin*, Samantha C Ying, Morris Jones, Peter Nico and Marco Keiluweit

466-3	2:00 PM	**Manganese Cycling and Associated Impacts on Carbon Storage in Forest Ecosystems** Elizabeth Herndon*, Sydney Laubscher and Carla Rosenfeld
466-4	2:15 PM	**Coupled Mn Redox Cycling and Organic Carbon Degradation on Mineral Surfaces** Mengqiang Zhu* and Dong Ma
466-5	2:30 PM	**Oxidative Capacity of Naturally Formed Manganese Oxides from Graskop** Matthew Fischel*, Cathy Clarke and Donald L. Sparks
	2:45 PM	**Adjourn**

SESSION NO. 467—1:30 PM–3:00 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 1, 3rd Level

CSSA Society-Wide Student Oral Competition

Graduate Student Sessions

SESSION NO. 468—1:30 PM–3:00 PM

Henry B. Gonzalez Convention Center, 225B, 2nd Level

SSSA Business Meeting --Forest, Range and Wildland Soils

SSSA Division: Forest, Range and Wildland Soils

SESSION NO. 469—1:30 PM–3:15 PM

Henry B. Gonzalez Convention Center, 303B, 3rd Level

Environmental Quality Oral

ASA Section: Environmental Quality

Moderator: Nicole Fiorellino

	1:30 PM	**Introductory Remarks**
469-1	1:35 PM	**Improving Corn Yield and Mitigating Nitrogen Losses in the U.S. Corn Belt: Nitrogen Fertilization Timing in a Changing Climate** Yong Wang*, Yao Zhang, Keith Paustian, Stephen Del Grosso, Peter Scharf, Radley Horton, Daniel Bader and Robert Anex
469-2	1:50 PM	**Temperature Effects on Selenium Cycling in Simulated Constructed Wetlands** Michael P. Nattrass*, Jesse I. Morrison and Brian S. Baldwin
469-3	2:05 PM	**Sustainable Biochar-Based Vineyard Practices in Grape Production: Improving Vineyard Productivity While Reducing the Uptake of Pesticides into Grapes and Wine** Manuel Garcia Jaramillo*, Kurt A. Spokas, Alexander Levin and Kristin Trippe
469-4	2:20 PM	**Collateral Protection? Effects of Pesticide Seed Treatments on Weeds and Their Natural Enemies** Richard G. Smith*, Samuel Palmer, Nicholas Warren, John Tooker, Kirsten Pearsons and Elizabeth Rowen
469-5	2:35 PM	**Biocontrol of Plant Pathogens Using an Engineered Lactonase** Qian Zhang*
469-6	2:50 PM	**Benchmarking Nitrogen Use Efficiency in Producer Fields in the Western US Corn Belt** Fatima Amor Tenorio*, Eileen L McLellan, Alison J Eagle, Kenneth G Cassman and Patricio Grassini
	3:05 PM	**Concluding Remarks**
	3:15 PM	**Adjourn**

SESSION NO. 470—1:30 PM–3:30 PM

Henry B. Gonzalez Convention Center, 221C, 2nd Level

ASA Business Meeting--Education and Extension

ASA Section: Education and Extension

SESSION NO. 471—1:30 PM–3:35 PM

Henry B. Gonzalez Convention Center, 225A, 2nd Level

Soil Nitrogen Cycling, When Does Community Matter? Oral

SSSA Division: Soil Biology and Biochemistry

Moderator: Arnab Bhowmik

	1:30 PM	**Introductory Remarks**
471-1	1:35 PM	**Causes and Consequences of Microbial Community Change in Dairy Land Organic Farming** Teal S. Potter*, Richard Lankau, Erin M Silva, Matthew D. Ruark, Miranda C. Sikora and Léa Vereecke
471-2	1:50 PM	**The Effect of Biofumigation and Chemical Fumigation on Soil Nitrogen Cycling and Soil Bacterial Diversity** Louise Sennett*, David L. Burton, Claudia Goyer and Bernie J. Zebarth
471-3	2:05 PM	**Long-Term N Fertilization Imbalances Potential N Acquisition and Transformations By Soil Microbes** Laibin Huang*, Chance Riggins, Sandra Rodriguez-Zas, Maria Zabaloy and Maria B. Villamil
471-4	2:20 PM	**Above Ground Disturbances Impact below Ground Nitrogen Cycling in Rhizospheres of Alfalfa and Orchard Grass** Mara Cloutier*, Heather D. Karsten, Tiffanie Alcaide and Mary Ann V. Bruns
471-5	2:35 PM	**Investigation of Soil Microbial Factors Related to Greater Than Expected Residue Induced N_2o Emissions from Canola (***Brassica napus L.***)** Akeem T Shorunke*, Richard Farrell and Roberta Helgason
471-6	2:50 PM	**Why Ammonia Oxidizing Bacteria and Ammonia Oxidizing Archaea Coexist in Agricultural Soils** Jeanette M. Norton* and Yang Ouyang
471-7	3:05 PM	**Contribution of Comammox Bacteria to Nitrification in Terrestrial Ecosystems** Jizheng He* and Hang-Wei Hu
471-8	3:20 PM	**Driving Forces and Active Diazotrophs for Paddy Biological Nitrogen Fixation** Zubin Xie*, qicheng bei, Xiaojie Wang and Yucheng Feng
	3:35 PM	**Adjourn**

SESSION NO. 472—1:30 PM–3:50 PM

Henry B. Gonzalez Convention Center, 303C, 3rd Level

Agricultural Renaissance and Soil Health Oral

SSSA Division: Soil and Water Management and Conservation

Moderator: Cheryl Mackowiak, Dianna Bagnall

	1:30 PM	**Introductory Remarks**

472-1	1:35 PM	**Soil Health at USDA-NRCS: New Strategies to Meet Stakeholder Needs** Dennis Chessman*, Bianca Moebius-Clune, Brandon Smith, Barry Fisher, Candy Thomas and Carl Koch
472-2	1:50 PM	**Variations Present in Soil Health Metrics in a Single Soil Type Under Differing Management Systems** Caitlin Caudle*, Deanna L. Osmond, Joshua L. Heitman, Matt Ricker and Rachel L. Cook
472-3	2:05 PM	**The Spatial Dimension of Soil Health: Local, Regional and Global.** Harold van Es*, Joseph Pierre Amsili and Zafer Bestas
472-4	2:20 PM	**Common Ground: Developing Meaningful, Measurable, Indicators of Soil Health** Dianna K. Bagnall*, William Alex McIntosh, Cristine L. S. Morgan, Michael Black, Marissa Cisneros, Richard T Woodward and Erin Kiella
	2:35 PM	**Break**
472-5	2:50 PM	**Evaluating Agricultural Management Effects on Selected Soil Health Indicators at Long-Term Agricultural Experimental Research Sites across Mexico.** Paul W. Tracy*, Simon Fonteyne, Dan Liptzin, Nele Verhulst, Gregory Mac Bean, Shannon Cappellazzi, Michael Cope, Kelsey L. Hoegenauer, Charlotte Norris, Elizabeth Rieke, C. Wayne Honeycutt and Cristine L. S. Morgan
472-6	3:05 PM	**How Can Soil Health Assessments Translate into Best Management Practices for Irrigated Agriculture in the Desert of Southern Peru?** Erika Foster*, Zachary Brecheisen, Lucia Zuniga, Juan Lopa Bolivar, Martin Villalta Soto, Darrell G. Schulze and Timothy Filley
472-7	3:20 PM	**Slakes Smartphone Application to Quantify Aggregate Stability: Performance across a Range of Soil Types and Managements** Kade Flynn*, Paul W. Tracy, Dan Liptzin, Gregory Mac Bean, Shannon Cappellazzi, Michael Cope, Kelsey L. Hoegenauer, Elizabeth Rieke, Charlotte Norris, C. Wayne Honeycutt, Cristine L. S. Morgan and NAPSHM Collaborators
472-8	3:35 PM	**Comparing Aggregate Stability Analyses to Evaluate Soil Health across North America** Kelsey L. Hoegenauer*, Gregory Mac Bean, Shannon Cappellazzi, Michael Cope, Daniel Liptzin, Charlotte Norris, Elizabeth Rieke, Paul W. Tracy, Kade Flynn, C. Wayne Honeycutt, Julie A Howe, Cristine L. S. Morgan and NAPSHM Collaborators
	3:50 PM	**Adjourn**

SESSION NO. 473—2:00 PM–3:00 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

ASA Business Meeting --Biometry and Statistical Computing

ASA Section: Biometry and Statistical Computing

2:00 PM	**Introductory Remarks**
2:15 PM	**Discussion**
3:00 PM	**Adjourn**

SESSION NO. 474—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center,
Stars at Night Ballroom 2, 3rd Level

SSSA Society-Wide Student Oral Competition

Graduate Student Sessions

SESSION NO. 475—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

Applied Soybean Research Poster

ASA Section: Agronomic Production Systems

Lead Community: Applied Soybean Research Community

1333	**Soybean Yield Improvement Strategies Based on North Dakota Producer Data** Peder Schmitz*
1334	**Effect of Poultry Litter on Soybean Yield and Grain Nutrient Composition** Rajveer Singh* and Rishi Prasad
1335	**Managing Early Maturing Soybeans in North Carolina** MaKayla R. Gross*, Rachel A. Atwell Vann, Ryan Heiniger, Austin Brown, Andrea Gibbs, Rod Gurganus, Jarette Hurry, Matthew Leary, Dylan Lilley, Mac Malloy, Paul Smith, M. Scott Tilley, Anna-Beth Williams and Al Wood
1336	**Management Strategies for Soybean Production in Mississippi** Richard E. Turner* and M. W. Ebelhar
1337	**Identification of Underlying Mechanism for Target Spot Resistance in Soybean** Sejal Patel*, Jenny D Koebernick and Jinesh Patel
1338	**Soybean Response to Different Sulfur Sources** Gena Ram Mahato* and Peter Kovacs
1339	**Adaptation of Soybean to Tropical Environments for Smallholder Farmers** Carrie Miranda* and Kristin Bilyeu
1340	**Economic Impact of Intensive Management of Double Crop Soybean in Kentucky** Katherine S. Rod*, Curtis Bradley, Jordan Shockley and Carrie A. Knott
1341	**Macronutrient Uptake and Partitioning in Mid-South Irrigated Soybean** Brian Pieralisi*, Bobby R. Golden, Jason Bond, Don Cook, Trent Irby, Michael S. Cox and Tyler L. Richmond
1342	**Micronutrient Uptake and Partition in Mid-South Irrigated Soybean** Tyler L. Richmond*, Brian Pieralisi, Bobby R. Golden, Justin McCoy, William Mansour and Lindsey Bell
1343	**Impact of Sulfur and Foliar Fertilizers on Soybean Yield in Kentucky** Conner Raymond*, Griffin Mobley, Chad D Lee and Carrie A. Knott

SESSION NO. 476—2:30 PM–4:30 PM

**Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level**

Major Crops, Small Grains, Bioenergy Crops Poster--Agronomic Production Systems

ASA Section: Agronomic Production Systems

1306	**Identification of Barley Yellow Mosaic Virus Resistance Gene with Molecular Markers in the Korean Malting Barley Varieties** Young Mi Yoon*, Jong-Ho Park, Yang-Kil Kim and Se-Kwan Oh

1307 **Selection of Optimum Korean Barley Cultivar for Sprouted Fodder** Jongho Park*, youngmi yoon, Yang-Kil Kim and sea-kwan oh

1308 **Optimization of Nitrogen Fertilization to Maximize Grain Quality and Yield of Malting Barley in a Humid Environment** Raj K. Shrestha*, Laura E. Lindsey, Matthew Hankinson, Greg McGlinch and Eric J. Stockinger

1309 **Maize Plant Population and Nitrogen Application in Concordance to Water Availability** Arturo Chong*

1310 **Agronomic Comparison of Soft Red Winter and Hard Red Winter Wheat Production in Northeast Texas** David R. Drake*, Amy Braley, Russell L. Sutton and Curtis A. Jones

1311 **Effect of Grazing on Yield and Yield Components of Wheat (*Triticum aestivum*) in West Tennessee** Barbara A. Darroch*, Craig Darroch and Emalee Buttrey

1312 **Wheat Gluten Strength Tolerance to Post-Maturity Harvesting Delay** Kate Dorrian, Paul R. Bullock*, Harry Sapirstein and Manasah Mkhabela

1313 **Individual and Combined Effects of Low-Temperature Stress on Winter Wheat Yield** Leilei Liu*, Yumin Xia, Bing Liu, Juan Shen, Liang Tang, Weixing Cao and Yan Zhu

1314 **Effects of Nitrogen and Plant Growth Regulator (PGR) on Oat Performance in South Dakota Environments** David Karki*, Anthony G. Bly and Sara Bauder

1315 **Rice Response As Influenced By Late-Season Exposure to Off-Target Herbicide Movement.** Justin McCoy*, Lindsey Bell, Bobby R. Golden, Jason Bond, Jeff Gore, Taghi Bararpour, Darrin M. Dodds, Ben Lawrence and William Mansour

1316 **Impact of Variable Planting Density on Grain Sorghum Yields in the Southern Great Plains** Ifekristi Ogunwobi*, Josh Lofton, Anna Zander, Sarah Kezar and Chase Harris

1317 **Field Assessment of Grain Sorghum Hybrid Tolerance to Sugarcane Aphid** Joshua Doria* and Calvin L. Trostle

1318 **The Influence of Nitrogen Fertilization and Seeding Rate on Biomass Sorghum Yield** Benjamin Davies*, Amir Sadeghpour and Maria Balota

1319 **Perennial Bioenergy Crop Yield and Quality Response to Nitrogen Fertilization** Sichao Wang, Pavani G. Tumbalam*, Gregg Sanford, Philip Robertson, Randall Jackson and Kurt D. Thelen

1320 **Rationale for Siting 2nd Generation Biofuels Crops on "Marginal" Fields** Carl R. Crozier*, Joshua L. Heitman, Amy Johnson and Mari Chinn

1321 **Industry Effort Making It Easier for Scientists to Use "Precision Ag Data"** Mark Stelford*

1322 **Crop Rotation Impact on Soybean Yields in the Mid-South United States.** Gurpreet Kaur*

1323 **Assessment of Soybean and Maize Yield for Single and Double Season Cropping System in Central Brazil** Rafael Battisti*, Fábio Miguel Knapp, Jéssica Sousa Paixão, Derblai Casaroli and José Alves Jr.

1324 **Physiological Responses of Corn and Soybeans Under Water Stress** Esleyther H. Henriquez Inoa*, Paula J Ramos-Giraldo, Samuel Chris Reberg-Horton and Anna Locke

1325 **Comparison of Corn and Soybean Yields Under Tilled Versus No-till Management in a Long Term Study in Eastern South Dakota.** Rachel MacDowell*, Peter J. Sexton, Rueben Behnke, Sandeep Kumar, Brad Rops, Ruth Stevens, Shannon L. Osborne, Jack Davis and Jasdeep Singh

1326 **Interaction of Seeding Rates and Nitrogen Fertility Management for Higher Corn Yields in the Mississippi Delta** M. Wayne Ebelhar*, W. Brien Henry and Richard E. Turner

1327 **Impact of Hybrid Selection, Planting Date, and Seeding Rates on Dryland Corn in Western Nebraska** Strahinja Stepanovic* and Justin Richardson

1328 **Is Crop Yield and Grain Nitrogen Harvest Associated with Partial Nitrogen Budgets?** Gerasimos J. Danalatos*, Michael J. Castellano and Sotirios V. Archontoulis

1329 **Honey Bees and Other Focal Species in Corn Treated with Atoxigenic Strains of Aspergillus Flavus** Krishna B. Bhandari*, Scott D Longing and Charles P. West

1330 **Evaluating Twin-Row Corn Spatial Arrangement and Its Influence on Final Yield** M. Scott Tilley*, David L. Jordan, Ronnie W. Heiniger, Rachel A. Atwell Vann and Carl R. Crozier

1331 **Composting at Illinois State; A 25-Year Perspective** Kenneth D. Smiciklas*

1332 **Root-Knot Nematode and Cotton Root Length As Affected By Methods of Control** Leonardo Galdi*, Carlos Cordeiro, Iago Santos, Rita Mazzuchelli and Fábio Echer

SESSION NO. 477—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Interactive Demos for Data, Model, and Software Tools in Agronomy and Soils Demonstration

ASA Section: Biometry and Statistical Computing

Lead Community:
Statistical Education/Training for Researchers Community

426-2 10:10 AM **A Python Tool for Computing the Optimum Nitrogen Rate and Its Confidence Intervals Using a Generalized Cost Function** Tyler J. Nigon*, Ce Yang, David J. Mulla and Daniel E. Kaiser

426-3 10:15 AM **Keeping It Simple: Easy Inputs to Schedule Your Next Irrigation** Kent A. McVay*

426-4 10:20 AM **Cover Crop Decision Support Tools** Ankita Raturi*, Victoria J. Ackroyd, Steven B Mirsky and Chris Reberg-Horton

426-1 10:05 AM **Data Ingestion Pipeline for Field-Collected Images with Barcode Detection** Brian Davis*

SESSION NO. 478—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center,
Exhibit Hall 1, 1st Level

Climatology and Modeling Poster

ASA Section: Climatology and Modeling

1344 **Multisite Evaluation of an Improved SWAT Irrigation Algorithm for Corn Production in the U.S. Southern Great Plains** Yong Chen*, Gary W. Marek, Thomas H. Marek, David K. Brauer and Raghavan Srinivasan

1345 **A Geospatial Decision-Support System for Mississippi Corn Producers** Patrick J. English* and Sherri L. DeFauw

1346 **Exploring Why Ensembles of Crop Models Appear to be Better Than a Single Model** Garry J O'Leary* and Kurt K Benke

1347 **Eastern Gamagrass Study for Simulation Modeling** James R. Kiniry*, Sumin Kim, Russell W. Jessup, Byron Burson, Gary McBryde, Joel Douglas, Melinda Brakie and Alan Shadow

1348 **The Use of MODIS Atmospheric Products for Calculation of Degree Days with Random Forest Regression Algorithm** Kwang Soo Kim*, Byoung Hyun Yoo and Jihye Lee

1349 **Simulation of Straw Mulch Decomposition and Its Effects on Soil Surface Water and Energy Movement** Zhuangji Wang*, Dennis Timlin, Miguel L. Cabrera, Resham Thapa, David H. Fleisher and Katherine Tully

1350 **Application of the Cassava Model for Planting Date Evaluation Under Rainfed Conditions in North East Thailand** Phanupong Phoncharoen*, Patricia Moreno Cadena, Poramate Banterng and Gerrit Hoogenboom

1351 **Spatial Crop Modeling and Decision Support Tool** Vakhtang Shelia*, Upendra Singh, Job Fugice Jr., Cheryl H Porter and Gerrit Hoogenboom

1352 **Is the Apsim-Sugar Model Able to Predict Sugarcane Variety Differences?** Henrique Boriolo Dias*, Geoff Inman-Bamber, Yvette Everingham, Paulo Cesar Sentelhas, Rodrigo Bermejo and Diomedes Christodoulou

SESSION NO. 479—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Extension Education in Agronomy Poster (includes competition)

ASA Section: Education and Extension

Lead Community: Extension Education Community

1353 **Nutrient Management Farmer Training and Certification in Maryland: Current Methods and Exploration of an Online Format** Emileigh Lucas*, Brian Kalmbach, David E. Ruppert, Paul Shipley and Patricia M. Steinhilber

1354 **Development of 4R Phosphorus Fertilization Options for Manitoba Farmers and Agronomists** John Heard*, Cynthia Grant and Don Flaten

1355 **Effective Field Day Demonstrations of Tillage Erosion and Restoration** John Heard*, David A. Lobb and Marla Riekman

1356 **Water Quality - an Experiential and Interactive Education** Indi S. Braden*

1357 **Weather-Based Foliar Fungicide Application Decision Aid** David L. Holshouser*, Hillary L. Mehl and Tian L. Zhou

1358 **Virginia Cover Crop College 101: Purposeful Cover Crop Planning** Wade E. Thomason*, Chris Lawrence, Mark S. Reiter, Doug Horn, Robert Waring, Mike Parrish and Cynthia Martel

1359 **The Lone Star Healthy Streams Program: Beef Cattle Best Management Practices** Matthew W. Brown*

1360 **Influence of Soil Composition on Spatial Distribution of the Asiatic Garden Beetle, *Maladera Castanea* arrow (Coleoptera: Scarabaeidae), in Ohio Agroecosystems** Adrian Pekarcik, Eric Richer*, Garth Ruff, Amy Raudenbush and Kelley Tilmon

1361 **Demonstrating Conversion of Wildtype to Novel Endophyte Fescue Pastures for Greater Livestock Performance and Better Environmental Outcomes** John H. Fike*, Gabriel Pent, Scott Baker, Travis Bunn, Taylor Clarke, Lindy Fimon, Amy Fannon, Jeannie Layton-Dudding, Haley Norton, Morgan Paulette and Carl Stafford

1362 **The Impact of Fast Urban Growth on Agricultural Land and Water Resources in Southwestern Idaho** Robert L. Mahler*

1363 **Sowing the Seeds of Science** Tracy M Wilson*, Jeremiah Dung and Scott Duggan

1364 **Classroom Experiential Learning Exercise: Integration of UAS Obtained Imagery with Geo-Referenced, Real-World Data** Dirk Victor Charlson*

1365 **Classroom Experiential Learning Exercise: Impact of Tillage on Soil Water Infiltration** Dirk Victor Charlson*

1366 **Reflections on ASA Reinvest Program Support for the Australian Crops Contest** Kevin J. Donnelly, Ozzie Abaye and Keren Duerksen*

1367 **START Acting: A Program for Recruitment and Retention of South Texas Students into Agricultural Careers** Maria Consuelo Donato*

1368 **Strengthening U.S. Graduate Education in Agricultural Science through International Research Focused on Managing Water Scarcity in Diverse Agroecosystems** Jose C.B. Dubeux* Jr., Diane L. Rowland, Cheryl L Mackowiak, Jamil Ghazal, David M. Jaramillo and Victor Guerra

SESSION NO. 480—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Biochar: Agronomic and Environmental Uses Poster II

ASA Section: Environmental Quality

Lead Community:
Biochar: Agronomic and Environmental Uses Community

1372 **Comparative Study of Cadmium and Arsenate Sorption to *Miscanthus* Biochar Produced at Different Pyrolysis Temperatures** Seoyeon Lee*, Ji-Suk Park and Hee-Myong Ro

1373 **Who Benefits from Biochar? Ecological and Biogeochemical Interactions in a Perennial Cropping System** Jake Nash, Jessica Miesel* and Lisa K Tiemann

1374 **Lignite Coal and Biochar Diminish Ammonia Volatilization from Broiler Litter: Evaluating Application Method and Particle Sizes** Dana M. Miles*, Ardeshir Adeli and John P Brooks

1375 **Sorption of Three Organic Acids (Benzoic acid, 1-naphthoic acid, and 9-anthroic acid) Onto Giant Miscanthus Derived Biochar from Methanol-Water Mixtures.** Jeongmin Choi* and Seunghun Hyun

1400 **Lead Sorption and Retention By Biochar: A Laboratory Study to Evaluate the Remediative Potential of Biochar** Mark G. Johnson*, Shannon Plunkett, Chris S. Eckley and Todd Peter Luxton

1401 **Bio-Adsorption of Cobalt and Lead Ions from Aqueous Solution Using Bamboo Biochar** Avedananda Ray, Biswanath Dari*, Debjani Sihi, Sisir Tandon and Ashotosh Dubey

1402 **Spectroscopic Characterization of Defatted Cottonseed Meal-Based Biochars** Zhongqi He*, Chanel Fortier and Mingxin Guo

1403 **Changes in Soil pH and Nutrients Availability after Co-Application of Biochar and Paper Mill Biosolids** Eric Manirakiza*, Noura Ziadi, Mervin St. Luce, Chantal Hamel, Antoine Karam and Hani Antoun

1404 **Evaluation of Lead Adsorption By Locally Sourced Biochar** Paola Granados*, Aaron Garza, James Kang and Sergio Mireles

1405 **Effects of Inoculated Biochar on the Growth of Cucumber** Aaron Garza*, Paola Granados, Michael Gonzalez, James Kang and Adam Flores

1406 **Positive and Negative Effects of Biochar from Softwood and Coconut Shell on Lettuce Growth and Nutrition** Shalini Rajput*, Devin A. Rippner and Sanjai J. Parikh

1407 **Efficacy of Manure-Based Biochar and Compost Blends for Zn and Cd Phytostabilization Using Corn in Mine Soils** Gilbert Sigua*, Jeff Novak, Donald W. Watts, James A. Ippolito, Thomas F. Ducey, Mark G. Johnson and Kurt A. Spokas

1408 **Effect of Biochar Application on Hydro-Physical Properties of Fluvial Deposits** Safak Ceylan*, Jaehoon Lee, Nastaran Basiri, Amin Nouri Gharahassanlou, Forbes R. Walker, Daniel C. Yoder, Sindhu Jagadamma and Prakash R. Arelli

1409 **Potential Use of Biochar Amendments on Soil Carbon for Cropland in Japan** Ayaka W. Kishimoto-Mo*, Akira Shibata, Fumihiro Ozawa, Takeshi Osawa and Shigeto Sudo

1410 **Hydroponic Evaluation of Treated Wastewater and Well Water on Wheat Growth and Production** Fatima AlHamedi*

SESSION NO. 481—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Environmental Quality Poster

ASA Section: Environmental Quality

1369 **Environmental Risk Assessment of Illicit Drugs in Wastewater Treatment Plants' Effluents and Surface Waters** Jamshid Ansari*, Per magnus Edhe, Johan Lindberg and Sylvia Waara

1370 **3D Spatial Variability of Microbial Water Quality in Irrigation Ponds Translates into Temporal Variations of Microbial Quality of Irrigation Water at the Fields** Dong Jin Jeon*, Matthew Stocker, Ekaterina Sokolova, Moon Kim and Yakov A. Pachepsky

1371 **Will Pesticides Mitigated By Rice (*Oryza sativa*) be Transferred to Seed at Harvest?** Matthew T. Moore* and Martin A. Locke

SESSION NO. 482—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Nutrients and Environmental Quality General Poster II

ASA Section: Environmental Quality

Lead Community:
Nutrients and Environmental Quality Community

1411 **Assessing Runoff Water Quality in Irrigated Rice Cropping Systems in Central Arkansas** Arlene Arlene Adviento-Borbe*, Joseph H. Massey, Michele Reba and Merle Anders

1412 **Can Composting Reduce Runoff Phosphorus Loads from Dairy Farms?** Laura W. Good* and Pamela Porter

1413 **Using High N Strip Banded Fertilizer on Long Term Zone -Till Corn with Conservation Practices to Improve corn yield.** Jerry Grigar* Jr.

1414 **Nutrient Export from Tile Drained Alfalfa Grass Plots in Northern New York** Mark K. Haney*, Stephen R. Kramer and Laura B. Klaiber

1415 **Effects of Bio-Energy Crops on Water Quality** Joshua Krischel*

1416 **Runoff Water Quality after Litter Application in a Silt Loam No-till Corn-Soybean Rotation** Brad D. Lee*, Dwayne Edwards, E. Glynn Beck, Mark Akland, Jason M. Unrine and Phillip R. Owens

1417 **Re-Examining Phosphorus Use Guidelines in Potato Production** Sarah MacDonald* and Kurt Steinke

1418 **Phosphorus Loss in Runoff and Leaching from Freezing and Thawing of Cover Crops** Ariana Munoz*, Laura Christianson and Reid Christianson

1419 **Hydrogeology and Land-Use Effects on Spring Water Properties in the Mid-Hill Region of Nepal** Durga D. Poudel*, Timothy Duex, David Borrok and Roshan Poudel

1420 **Utilizing Forage Phenolic Compounds to Increase Soil Nitrogen Retention in Western Beef Production Systems** Kathryn Slebodnik, Jennifer R Reeve*, Jennifer W. MacAdam, Jeanette M. Norton and Stephen Lee

SESSION NO. 483—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Carbon and Greenhouse Gas Emissions -General Poster II

ASA Section: Environmental Quality

Lead Community:
Soil Carbon and Greenhouse Gas Emissions Community

1421 **Nitrous Oxide Flux from Integrated Crop-Livestock Management in a Semiarid Region** Mark A. Liebig*, Derek Faust, David W. Archer, Scott L. Kronberg and John Hendrickson

1422 **Carbon Dioxide Exchange and Productivity of a Pasture Agroecosystem in Central Kentucky** Ian Ries*, Maheteme Gebremedhin, Kenneth Andries, Jeremy Sandifer and Martin Matisoff

1423 **Effects of Compost Application on Soil Carbon and Greenhouse Gas Emissions in California Central Coast Wine Grape Production** Tsz Fai Wong*, Jenna Janz Merrilees, Craig Stubler, Cristina Lazcano and Charlotte Decock

1424 **Diurnal N_2o Flux Variations in Response to Contrasting Soil, Environmental, and Agricultural Management Conditions** Armando Flores*, Debasish Saha, Kevin Allen Kahmark, Sven Bohm and GPhilip Robertson

1425 **Comparison of Total and Organic Carbon Analysis Using Two Methodologies** Maria Velazquez*, Donna Prochaska and Julie A Howe

1426 **Pulse Crop Species and Frequency Affect Greenhouse Gas Emissions in Wheat-Based Rotations** Kui Liu, Craig F. Drury and Yantai Gan*

SESSION NO. 484—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Sustainable Intensification Poster

ASA Section: Environmental Quality

Lead Community: Sustainable Intensification Community

1427 **Factors Contributing to Farm-Level Food Security and Sustainability in Rice-Based Farming Systems in Southern Bangladesh** Shah-Al Emran, Timothy J. Krupnik, Sreejith Aravindakshan, Virender Kumar and Cameron M. Pittelkow*

1428 **Global Greenhouse Gases Mitigation Due Livestock Intensification in Grazing Systems** Johnny R Soares*, Marcelo V Galdos, Eleanor E Campbell, Julianne C Oliveira, Leonardo Monteiro, Murilo S Vianna, John Sheehan, Rubens A C Lamparelli, Gleyce K D A Figueiredo, Deepak Jaiswal and Lee Lynd

1429 **Increasing Sustainability in a Dairy Cropping System** Curtis J. Dell*, Heather D. Karsten, Peter J. A. Kleinman, Ray B. Bryant, Charlie White, Ronald J. Hoover, Virginia Ishler, John Tooker and John M. Wallace

1430 **Sustainability of Organic and Mixed Crop-Livestock Systems on the Palouse** Alexandra Davis*, David R. Huggins, Jonathan Wachter, Lynne Carpenter-Boggs, Jeremy C. Hansen and John Reganold

SESSION NO. 485—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Global Agronomy Poster

ASA Section: Global Agronomy

1431 **Simulating Effects of Planting Date on Growth and Yield of Drought-Tolerant Maize Varieties in Contrasting Agro-Ecologies of the Nigeria Savannas** Alpha Y. Kamara*, Abdullahi Tofa and Aloysius Beah

1432 **Suitable POLY4 Based Blends for Major Maize Growing Agro-Ecological Zones of Tanzania** Candice McGladdery, Robert Meakin, Rachel Fields, Zacharia Malley and Timothy D Lewis*

1433 **Effect of Different Blending Ratio of POLY4 with MOP on Growth and Yield of Corn in Liaoning Province in North Eastern China** Xiaohui Fan*, David Lagarrigue, Ross Mitchell, Robert Meakin and Wantai Yu

1434 **Tomato Response to Polyhalite Compared to Other Potassium Fertilizers for Fresh Market in Brazil** Lino Furia, Simone Da Costa Mello, Rachel Fields and David Lagarrigue*

1435 **Effects of POLY4 Fertiliser on European Cereal Crops** Ross Mitchell*, Rachel Fields and David Lagarrigue

1436 **Polyhalite As Multi-Nutrient Fertilizer on Yield and Quality of Carrots in Brazil** Simone Da Costa Mello, Camila Gabriela de Souza, Lino Furia and Rachel Fields*

1437 **Exploring Forage Mixtures to Improve Traditional Fallows and Build Soil Fertility in the Andean Crop Rotations** Katherin Meza Retamozo*, Steven J. Fonte, Steven J. Vanek, Edgar Olivera, Raul Ccanto and Maria Scurrah

1438 **Improving Cotton Production in Azerbaijan** Braden Tondre*, Steve Hague, Uzeyir Topchibashev and Josh McGinty

1439 **Validation of Programmes with Different Proportions of K, S, Ca and Mg Delivered By POLY4 in Replacement of Traditional Fertilization Programmes in Maize in the State of Jalisco, Mexico** Lino Furia, David Lagarrigue* and Adrián Chemello

1440 **Evaluation of Main Funtional Markers Related to Wheat Quality** Jae-Han Son*, Changhyun Choi, Kyeong-Hoon Kim, Kyeong-Min Kim, Jinhee Park, Jinwoo Yang, Kwang-Ho Jeong, Young-Keun Cheong, Tae-Il Park and Chon-Sik Kang

1441 **Factors Contributing to Maize Yield Gaps in Central America Vary with Site and Agroecological Context** Lisa Eash*, Steven J Fonte, Bram Govaerts, Kai Sonder, Nora Honsdorf, Axel Schmidt and Nele Verhulst

1442 **A Hand Fertilizer for Smallholders** Arturo Chong*

1443 **Interactive Effects of Raindrop Impact and Artesian Seepage on Mollisol Slope Erosion and Aggregate Loss** Gang Liu*, Fenli Zheng, Jia Lu, Yafei Jia and Xunchang Zhang

SESSION NO. 486—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Cover Crop Poster II

ASA Section: Land Management and Conservation

Lead Community: Cover Crop Management Community

1449 **Cover Crop Grazing Effects on Soil Health in a Cotton and Peanut Rotation** Noah Hull* and Audrey V. Gamble

1450 **Invading Rapeseed: Observations of Cover Crop Species in Mixtures Becoming Weeds** Bethany Wolters*, Mark S. Reiter, Michael L Flessner, William Hunter Frame, Steven C. Hodges and Ryan Stewart

1451 **Effects of Cropping Systems, Tillage and Irrigation Management on Soil Chemical and Physical Properties on the Southern High Plains of Texas** Johan Desrochers*, Katie L. Lewis, James P. Bordovsky and Joseph A. Burke

1452 **Does Legume Cover Crops Helps Mineralize Soil Nitrogen and Improve Subsequent Corn Grain Yield?** Bee Khim Chim, Hanxiao Feng*, Shannon L. Osborne and R. Michael Lehman

1453 **Effect of Termination Timing on Spring Biomass Production for Cereal Rye, Wheat, and Triticale Cover Crops** A. Justin McMechan*, Julia Campos, Kaity Wilmes and Christopher A Proctor

1454 **Allelopathy & Cover Crops: A Review** Yan Gu, Katja Koehler-Cole*, Roger W. Elmore, Sydney R Everhart, Christopher A Proctor, Daren D. Redfearn and Margarita Marroquin Guzman

1455 **Management Strategies for Improving the Properties of an Upland Soil** Ardeshir Adeli*, John P Brooks, John Read, Gary Feng, Dana M. Miles, Mark W. Shankle, Nicole Barksdale and Johnie N. Jenkins

1456 **Cover Crop Composition Influences Nitrogen Requirement of Corn** Jason Clark*, Shannon L. Osborne, Peter J. Sexton and Peter Kovacs

1457 **Cover Crop Mixtures for Cotton Production** Kipling S. Balkcom*, Dennis P Delaney and Yucheng Feng

1458 **Cover Crop Councils: United in a Digital Environment** Sarah Seehaver*, Victoria J. Ackroyd, Lauren Golden, Anna Lee Morrow, Eileen J. Kladivko, Chris Reberg-Horton and Steven B Mirsky

1459 **Rye Cover Crop As a Source of Forage or Biomass Feedstock; Yield and Quality Trade-Off** Reza Keshavarz Afshar*, Amir Sadeghpour and Bryan Reed

1460 **Can Diverse Mixtures of Cool-Season Annuals Overseeded in Hayfields As Cover Crops Contribute to Forage Production and Alter Hay Production?** Abiola Bruce-Smith*

1461 **Effect of Tillage, Planting Date and Grazing Radish Cover Crop on Weed Suppression and Corn Grain Yield** Dhruba Dhakal*, Leah Sandler, Kelly A. Nelson and Gurbir Singh

1462 **Factors Affecting Establishment of Cover Crops Interseeded into Corn Prior to Harvest** Mattie Schmitt*

1463 **Cereal Rye and Hairy Vetch Cover Crop Decomposition in Different Tillage Systems** Gurbir Singh*, Lili Yang, Karl W.J. Williard and Jon E. Schoonover

1464 **Nutrient Loss from Floodplain Soil with Controlled Tile Drainage Under Forage Production** Gurbir Singh*, Patrick R Nash and Kelly A. Nelson

1465 **Economics of Harvesting Winter Covers for Biomass within a Cotton-Peanut Rotation in Georgia** William F. Anderson*, Marshall Lamb, Ana Julia Azevedo and R. Scott Tubbs

1466 **Comparison of Dual-Use and Single-Use Cover Crops in No-till Tennessee Production Systems** Weston Bracey*, Virginia R. Sykes, Gary E. Bates, Renata La Guardia Nave, Xinhua Yin and Larry Steckel

1467 **Effect of Cover Crops on Soil Water Conservation and Crop Yield** Abdelaziz Nilahyane*, Rajan Ghimire, Pramod Acharya, Abdel O. Mesbah and Mark A. Marsalis

1468 **Responses of Biological Soil Health Indicators to Cover Crop Mixtures in a Conservation Agricultural System** Gokhan Ucar, Yucheng Feng* and Kipling S. Balkcom

1469 **Water Use By Mustard Cover Crops: Does It Affect the Growth of Corn As a Following Crop?** Xuejun Dong*, Gongneng Feng, Shane Sieckenius and Daniel I. Leskovar

1470 **Microbial Abundance and Diversity after Rye Cover Crops** Katja Koehler-Cole*

1471 **Herbicide Alternatives to Amaranth Control in a No-till Dairy System** Haleigh Summers* and Heather D. Karsten

1472 **Improving the Soil: 6 Years of Mixes** Mark S. Reiter*

1473 **Cover Crop Management Impacts on Soil Water Availability to Corn in a Conservation Tillage System** Harry H. Schomberg*, Steven B Mirsky and Alondra Thompson

1474 **Exploring the Potential of Implementing Pollinator Friendly Cover Crop Species in Southern Ontario.** Kirsten V. Radcliffe*, Elizabeth A. Lee, Nigel Raine, Manish N. Raizada and Bill Deen

1475 **Does Sustainable Farming Require a Government Incentive?** Amy L. Shober*, Joshua Duke, Cathryn Soriano, Shawn Tingle, Emerson Paradee and Robert Johnston

1500 **Evaluation of Cover Crop Selections for Southeast Missouri** Indi S. Braden* and Michael T. Aide

1501 **Evaluation of Cover Crop Species for Productivity and Shade Tolerance When Inter-Seeded into Continuous Corn at the V5 Stage.** Ryan Haden*

1502 **Impacts of Single- and a Multiple-Species Cover Crop on Soybean Relative to the Wheat-Soybean Double Crop System** Tyson Brant Raper*, Angela McClure, Shawn Butler, Xinhua Yin and Ryan H. Blair

1503 **Evaluation of Planter Attachments for Establishing Cotton into Cover Crops** Tyson Brant Raper*, Freeman Brown, Michael Buschermohle, Shawn Butler, William Hart, Blake Brown, Savana Davis and Ryan H. Blair

1504 **Perennial Cover Crop Systems for Maize Grain and Biomass Production** Allen Chen*, Shui-Zhang Fei, Andrew W. Lenssen and Kenneth J. Moore

1505 **Impact of Cover Crops and Nicosulfuron Dosage on Weed Control and Corn Productivity** Omidreza R Zandvakili*, Masoud Hashemi, mohammad Chaichi, Allen V Barker and Fatemeh Etemadi

SESSION NO. 487—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Land Management and Conservation General Poster

ASA Section: Land Management and Conservation

1444 **Impact of Different Nitrogen Sources on Soil Physical Properties Under Agroforestry System** Leonard Kibet*, Kwesi Huffman, Lee Jones, Girish K. Panicker, Jacqueline Mccomb and Frank Mrema

1445 **Long-Term Agroecosystem Research (LTAR) Croplands Common Experiment: Can Aspirational Management Achieve Sustainability?** Martin A. Locke*, Mark A. Liebig, Philip Robertson, David W. Archer, Tala Awada, John M. Baker, Michel Cavigelli, Harold P. Collins, Curtis J. Dell, David R. Huggins, Abdullah A. Jaradat, Jane M-F Johnson, Kevin King, Peter J. A. Kleinman, John L. Kovar, Jude E Maul, Greg McCarty, Steven B Mirsky, Glenn Moglen, Thomas B. Moorman, Oliva Pisani, Doug R Smith, Patrick Starks, Timothy Strickland, Kenneth A Sudduth, Kristen Sloan Veum and Brian J. Wienhold

1446 **Estimation of Soil Erosion and Sediment Size Distributions in Autumn and the Following Spring at the Chinese Mollisol Croplands** Haiou Shen*

1447 **The Influences on Photosynthetic Parameters in Winter Wheat Field By Straw Mulching and Drip Irrigation Amount** Yanqun Zhang*, Jiandong Wang, Shihong Gong and Yan MO

1448 **Linking Long-Term Corn and Soybean Yield Stability and System Resilience to Agricultural Management Practices in North Carolina** Cara Mathers*, Alexander Woodley, Joshua L. Heitman, Deanna L. Osmond and Wayne R Roper III

SESSION NO. 488—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Health: Integrated Approaches Towards Sustainable Agriculture Poster II

ASA Section: Land Management and Conservation

Lead Community: Soil Health Community

1506 **Evaluating Nitrogen Effects on Current Soil Health Metrics for Illinois Maize Production** Andrew J. Margenot, Taylor Berkshire*, Nicholas Seiter, Nathan Schroeder, Jaeyeong Han, Nathan Kleczewski, Carolyn J. Butts-Wilmsmeyer, Laura F. Gentry, Paul Davidson and David S. Bullock

1507 **Developing Spatial Sampling Strategies for Monitoring Microbial Activity for Soil Health** Jacobb Pintar*, Peyton Smith, Haly L. Neely, Clark B. Neely, Jamie Foster, Katie L. Lewis, Perejitei Ebikirifagha Bekewe, Ayush Joshi Gyawali and Johan Desrochers

1508 **The New USDA-NRCS Soil Health Conservation Activity Plan** Dennis Chessman*, Bianca Moebius-Clune and Brandon Smith

1509 **Assessment of the Impacts of Manure and Inorganic N Fertilization on Soil Quality, Crop Productivity, and Crop Quality in a Continuous Maize System** Grace L. Miner*, Jorge A. Delgado, James A. Ippolito, Catherine E. Stewart, Daniel K. Manter, Stephen Del Grosso, Robert D'Adamo and Bradley Floyd

1510 **On-Farm Soil Health Indicators across Missouri** Stacy M. Zuber*

1511 **Effect of Tillage System and Forage Type on Soil Health Parameters** Yili Meng*, Jim J. Wang, Guillermo Scaglia, Lisa M. Fultz and Zhuo Wei

1512 **Testing High Biomass Sorghum for Removal of Legacy Soil Phosphorus and As Alternative Bedding Material in Poultry Houses** Amy S. Collick, Jennifer Timmons, Patricia King, Fawzy M. Hashem, Ray B. Bryant* and Arthur L. Allen

1513 **Mycorrhizal Colonization and Characterization in Dryland Cotton Production System Under Cover Crops** Partson Mubvumba*, Paul B. DeLaune, Charles Coufal and Anthony Pennartz

1514 **Soil Health after 25 Years of Conservation Management.** Kristen Sloan Veum*, Newell R Kitchen and Kenneth A Sudduth

1515 **Long-Term Rotation and Tillage Effects on Soil Health Indicators** Anna M Cates*, Matthew D. Ruark and Greg Richardson

1516 **Soybean Effects on Soil Health Indicators in Crop Rotations** Ikechukwu Vincent Agomoh, Craig F. Drury*, Xueming Yang, Lori Phillips and Dan Reynolds

1517 **Developing an Assessment of Soil Carbon Sequestration That Is Consistent across Soil Types and Duration of Conservation Agricultural Practice Implementation** Barbara C Bellows*

1518 **Soil Quality Indicators Selection and Relationship to Crop Yields in Arid and Semiarid Agroecosystems** Omololu J. Idowu*, Mohammed Nasir Omer, April L. Ulery, Steven J. Guldan, Dawn VanLeeuwen and Darien Pruitt

1519 **Seasonal Variation of Microbial Enzyme Activities in a Switchgrass Conservation Agroecosystem** Keerthi Mandyam*, Heather L. Tyler, Joseph Bridges, Anna Kazarina, Ananda Nanjundaswamy and Girish K. Panicker

SESSION NO. 489—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Crop Breeding and Genetics Poster III

C01 Crop Breeding and Genetics

1520 **Evaluating Drought Response in Alfalfa (*Medicago sativa*) Fall Dormancy Varieties** Sarah Krogman*, Kimberly D Cooper and Suresh Bhamidimarri

1521 **Greenhouse Selections for Drought Tolerance in Alfalfa (*Medicago sativa*)** Kimberly D Cooper*, Sarah Krogman and Suresh Bhamidimarri

1522 **Pennycress (*Thlaspi arvense*) Yield Peaks at Moderate Nitrogen Rate in Two Genotypes** Matthew A. Ott*, Katherine Frels, Ratan Chopra, M. Scott Wells and M. David Marks

1523 **Evaluation of Drought Tolerance in Common Bean at Seedling Stage** Yufeng Yang*, Qirui Cui, Jun Qin, Waltram Ravelombola, Gehendra Bhattarai, Bazgha Zia, Olaoye Dotun Samuel, Sora Imamura, Jossie Santamaria Archbold and Ainong Shi

1524 **Adaptation of Fava Bean (*Vicia faba* L.) Germplasm for Cover Cropping in the Western United States** Kyle Brasier*, Valerie Bullard, Amy Bartow, Anna Young-Matthews, Matthew Humphrey, Christopher Bernau, Mary Wolf, Heather Dial, Jinguo Hu, Hossein Zakeri and Margaret Smither-Kopperl

1525 **Evaluation of Drought Tolerance in Arkansas Cowpea Lines at Seedling Stage** Qirui Cui, Yufeng Yang*, Sora Imamura, Jossie Santamaria Archbold and Ainong Shi

1526 **Characterization and Selection of Winter Oilseed Rape Varieties for Developing Germplasms in the Southeast Region** Wonkeun John Park*, Juang-horng Chong, Jeff Riddle, Rongzhong Ye, Richard E. Boyles, Bradley Stancil, B. Todd Campbell, Kyoung S Ro, Luke Dant, S Bruce Martin, Christopher L. Ray and Matthew C Smith

1527 **Linkage Map Construction and QTL Analysis of Fiber Quality and Yield Traits in Tetraploid Cotton (*Gossypium hirsutum* L.)** Linglong Zhu, Vasu Kuraparthy*, Ryan James Andres and Kuang Zhang

1528 **Determining Water Use of Cotton (*Gossypium* spp.) for Areas with Declining Levels of Irrigation Water** Travis Witt*, Mauricio Ulloa and Robert C. Schwartz

1529 **High-Density Linkage Map Construction and QTL Analyses for Fiber Quality, Yield and Morphological Traits Using 63K SNP Array in a Recombinant Inbred Line Population of Upland Cotton (*Gossypium hirsutum* L.)** Kuang Zhang, Vasu Kuraparthy*, Hui Fang, Linglong Zhu, Shilpa Sood and Donald Jones

1530 **Identification of QTL Associated with Biological Nitrogen Fixation in a Soybean Mapping Population** Yi-Chen Lee, Kelsey McAllister and Stella Kantartzi*

1531 **Candidate Genes Mapping for Yield and Seed Compositions in Soybean** Avjinder Singh Kaler, Larry C. Purcell and Jugpreet Singh*

1532 **Phenotypic Selection Using Spectral Imagery in Soybean** Dylan Walta*, William T. Schapaugh Jr., Ajay Sharda, Harman Singh and Antonio Asebedo

1533 **Genotype By Environment Assessment of Soybean Response to Flood** Leandro Mozzoni*, Henry T. Nguyen, Daryl Chastain, Tessie Wilkerson, Blair Buckley, Pengyin Chen, M. Liakat Ali, Heng Ye, Sandra Liliana Florez-Palacios, Andrea Acuna, Marcos da Silva, Maria de Oliveira, Derrick Harrison, Francia Ravelombola and Chengjun Wu

1534 **Mapping a Novel Semideterminacy Gene from Glycine Soja** Chancelor Clark*

1535 **Genome Wide Association Study of Carbon and Nitrogen Isotope Composition in Soybean Using Whole Genome Resequence Data.** Muhammad Arifuzzaman*, Sujan Mamidi, Alvaro Sanz-Saez, Hossein Zakeri, Lin Li, Andrew Scaboo and Felix B. Fritschi

1536 **Winter Triticale Forage Yield Improvement in the Southern Great Plains of United States, 1990 - 2010** Tadele T. Kumssa*, Joshua D Anderson and Xue-Feng Ma

1537 **Light-Emitting Diode (LED) Lighting Improves the Efficiency of Wheat Doubled Haploid Production Using the Wheat-Maize Wide Hybridization System.** Meenakshi Santra*, Scott Seifert, Raymond Sandoval, Hong Wang and Scott Haley

1538 **Patterns of LD Decay, Population Structure, and Selection Signatures in Purdue Bred Soft Red Winter Wheat Population.** Rupesh Gaire*, Gina L. Brown-Guedira and Mohsen Mohammadi

1539 **Increased Prediction Accuracy in a Soft Wheat Trial Using Combinations of Growing Season Physiological Traits and Genomic Information Under a Multi-Environment Context** Jia Guo*, Dipendra Shahi, Sumit Pradhan, Jahangir Khan, Jordan McBreen, Guihua Bai and Md A. Babar

1540 **Evaluation of a Spring Wheat Panel for Drought Stress Tolerance** Ibrahim Elbasyoni* and P. Stephen Baenziger

1541 **Application of CRISPR-Cas9-Based Genome Editing to Morphological Spike Diversity of Wheat** Xiaoyu Zhang*

1542 **Phenological Growth Stages of *Zizania Palustris* Based on the Bbch Scale.** Jacques Duquette*

1543 **Automated Phenotyping to Detect Traits Related to Mid-Season Biomass Accumulation in Maize Under Limited Water Supply** Sofija Bozinovic*, Dejan Dodig, Ana Nikolić, Miroslav Zorić, Jelena Vančetović, Dragana Ignjatović Micić, Astrid Junker and Thomas Altmann

1544 **Impact of Breeding on Maize's Ability to Acquire Phosphorus Under Low Phosphorus Conditions** Lindsay Dahlen* and Amelie CM Gaudin

1545 **Response of Pearl Millet Genotypes to Polyethylene Glycol (PEG) Induced Drought Stress at Germination and Seedling Stages** Desalegn D. Serba*

1546 **Floral Biology and Artificial Hybridization of Proso Millet (*Panicum miliaceum* L.)** Dipak K. Santra, Saurav Das*, Rituraj Khound and Allison Rickey

1547 **Genomic Prediction for Floral Timing in Switchgrass** Neal Tilhou* and Michael D. Casler

1548 **Predicting Sugarcane Ratoon Yield Based on Previous Yields** James Ryan Todd*, Edwis Dufrene, Herman Waguespack, Collins Kimbeng, Michael Pontif and Debbie L. Boykin

1549 **Comparison of the Microsoft Kinect V2 and Faro Focus 120 for 3D Plant Phenotyping of Cassava (*Manihot esculenta*)** Tyler Adams*, Richard Bruton, Ilse Barrios, Henry Alonso Ruiz Guzman and Dirk B. Hays

1550 **Evaluation of Antimicrobial Seed Treatments and Their Effect on Northern Wild Rice Germination Rates** Clare Gietzel*, Lillian McGilp and Jennifer Ann Kimball

1551 **Assessment of Genetic Diversity in Northern Wild Rice (*Zizania* palustris) Using Genotype-By-Sequencing** Matthew Haas*, Mingqin Shao and Jennifer Ann Kimball

1552 **High Protein Rice and Beyond** Ida Wenefrida* and Herry S. Utomo

1553 **Controlled Freezing Studies As a Corollary Selection Method for Winter Hardiness in Perennial Flax (*Linum spp.*)** David G. Tork*, Neil O. Anderson, Kevin Betts and Donald L. Wyse

1554 **GPR As a Non-Destructive Root Phenotyping Tool in Bulked Roots.** Brody L Teare*, Dirk B. Hays, Michael Gomez Selvaraj, Henry Alonso Ruiz Guzman and Iliyana Dobreva

SESSION NO. 490—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Crop Ecology, Management and Quality Poster II

C03 Crop Ecology, Management and Quality

1555 **The Evaluation of *Glycine Tabacina* As a Cover Grass Used on Orchard** Yuan-Ching Tsai*, Kuan-Huang Lin, Shi Yap, Wei-Jin Wong and Tzu-Jung Wu

1556 **Identifying Management Practices That Increase Kernel Number in Wheat** Ronnie W. Heiniger*, Angela Post and Ryan Heiniger

1557 **Preemergence-Herbicide Placement and Residue Disturbance Affect Weed Control in Conservation Tillage Cotton.** Andrew Price*, Steve Li and Robert L. Nichols

1558 **Nitrogen Management Aid Application in Winter Wheat and Barley.** Olga S. Walsh* and Jordan McClintick-Chess

1559 **Corn Yield Response to Row Spacing and Plant Population in Iowa** Rasel Parvej*, Emily E. Wright and Mark A. Licht

1560 **Tuber Yield and Quality Response of Russet Potato to Rate and Application Timing of a Soluble Calcium Fertilizer** Samuel YC Essah*, Jorge A. Delgado and David Holm

1561 **Effects of S-Metolachlor and Efficacy of Alternative Seed Safeners on Sorghum Root Characteristics and Yield** Marcelo Wallau*, Leonardo Felix, Jose Carvalho de Souza Dias and Brock Waggoner

1562 **Determine the Optimal Planting Date of Twenty Varieties of Hemp (*Cannabis sativa* L.) for Suitable Growth and Production in Southeastern Virginia.** Brice Cazenave*, Benjamin Davies and Maria Balota

1563 **Planting Date Effect on Corn Growth and Ear Issues** Isai Sosa*, Osler Ortez, Kylee T. Farabaugh, A. Justin McMechan and Roger W. Elmore

1564 **Plant-to-Plant Uniformity in Growth and Development in the Context of Maize Response to Banded Nitrogen at Seeding** Nicholas Thompson* and Tony J. Vyn

1565 **Effect of Peanut Inoculant (Bradyrhizobia) Storage Duration on Growth, Nodulation, and Production.** R. Scott Tubbs*, John Beasley and W. Scott Monfort

1566 **Reduced Rates of Prohexadione Calcium (Plant Growth Regulator) on Peanut in Arkansas, Georgia, Mississippi, South Carolina and North Carolina in Small and Large Block Trials** Sara Beth Pelham*, W. Scott Monfort, Ronald Scott Tubbs, David L. Jordan, Travis Faske, Dan Anco, Jason M. Sarver and Conner Ferguson

1567 **Harvest Aids Influence on Winter Camelina Seed Yield and Quality** Maninder K. Walia*, M. Scott Wells, Julija A. Cubins, Donald L. Wyse, Frank Forcella and Russ Gesch

1568 **Seeding Date and Genotype Affect on Grain Sorghum Yield in North Dakota** Kutay Yilmaz* and Burton L. Johnson

SESSION NO. 491—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Seed Physiology, Production and Technology Poster

C04 Seed Physiology, Production and Technology

Section or Division Cosponsor: C02 Crop Physiology and Metabolism, C08 Plant Genetic Resources

1569 **Association between Herbicide Resistance and Seed Traits in Ryegrass (*Lolium* spp.)** Aniruddha Maity*, Vijay Singh, Gerald R. Smith and Muthukumar Bagavathiannan

1570 **Green Tea (*Camellia sinensis)* extract As a Seed Treatment to Control Bacterial Fruit Blotch Disease of Cucurbits** Gregory E. Welbaum*, Merve Kiremit and Bingyu Zhao

1571 **Fine-Mapping and Characterizing the *Qphs.Cnl-2B.1* found in a Northeast Soft White Wheat** Shantel A Martinez*, Sven Nelson, Melvin J. Oliver and Mark E. Sorrells

1572 **Investigating the Germination Dynamics of Silverleaf Nightshade (*Solanum elaeagnifolium*) Towards Development of Control Strategies** Jacobo Sanchez*, Nathaniel Turner, Cody Vavra and Rosalyn B. Shim

1573 **PowerPollen^{SM} -- a Novel Pollen Preservation System to Improve Yield and Genetic Purity in Hybrid Maize Seed Production** Mark E. Westgate*, Todd Krone and Jason Cope

SESSION NO. 492—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Turfgrass Science Poster

C05 Turfgrass Science

1574 **Evaluating the Use of Soil Surfactants on Baseball Infield Skins** Adam Thoms*, Alex Lindsey, Benjamin Pease and Nick E. Christians

1575 **Interspecific Comparisons of Carrying Capacity and Pace of Natural Grass Tennis Courts** Jeffrey S. Ebdon*, Michelle DaCosta and Jefferson Lu

1600 **Organic Land Care Practices in Maintaining Sustainability of Athletic Field Turf** William M. Dest and Jeffrey S. Ebdon*

1601 **Stitched Hybrid Systems Impact on Kentucky Bluegrass Athletic Fields** Kyley H. Dickson*, John C. Sorochan and William Strunk

1602 **Persistence and Performance of Low-Maintenance Cool-Season Grasses without Irrigation in Central California** Maggie Reiter*

1603 **Alternative Plant Materials for Landscapes of the Southwest USA** Worku Burayu* and Kai Umeda

1604 **Perennial Ryegrass Quality Affected By Acidification of Irrigation Water** Elena Sevostianova*, Bernhard Leinauer and Matteo Serena

1605 **Developing Online Education and Training for Installation and Management of Roadside Turfgrasses** Kristine Moncada*, Jon M. Trappe, Samuel Bauer and Eric Watkins

1606 **Optimizing Irrigation Rates and Frequency for Perennial Ryegrass in Western Oregon** Alyssa Cain*, Conner Olsen, Alec Kowalewski, Micah A Gould and Clint Mattox

1607 **How Do Warm-Season Grasses React to Deficit Irrigation in California?** Mingying Xiang*, Marco Schiavon, James H. Baird, Pawel Orlinski, Luiz Monticelli, Chiara Ferrari, Chiara Toniatti and Alessio Forconi

1608 **Application of Unmanned Aerial Systems Based Imagery and Data Analytics in Turfgrass Field Trials** Jing Zhang*, Brian M. Schwartz, Kevin E. Kenworthy, Yanqi Wu, Ambika Chandra, Susana R. Milla-Lewis and Paul L. Raymer

1609 **Pre-Game Agronomic Field Safety Assessment for Sports Fields: Future Implications for Risk Assessment** Kristina S. Walker* and Eddie G. Walker II

1610 **Evaluation of New Bermudagrasses for California** Marta Pudzianowska*, Pawel Petelewicz, Marco Schiavon, Christian S. Bowman, Adam J. Lukaszewski and James H. Baird

1611 **The Effects of Sand Shape & Turf Type on the Playing Quality of a Hybrid Turf System** Brianna Schneider, T. Karl Danneberger, Pamela J Sherratt, Edward McCoy and David S. Gardner*

1612 **Fraze Mowing for Overseeding Establishment and Removal** Matt Carpenter, Barry R. Stewart*, James D McCurdy, Eric H Reasor, Richard L. Harkess and Herbert W. Philley

1613 **Evaluation of Low-Input Turfgrass Patch and Repair Ingredients** Ross C Braun*, Aaron J. Patton, Alec Kowalewski and Emily T Braithwaite

1614 **Transformation for Sustainable Campus Turf: A Framework for Institutional Change Analysis, Examination of Four U.S. Case Studies** Kristen Nelson* and Michael Barnes

1615 **Photosynthetic Responses of Warm-Season Turfgrasses to Low-Light Conditions.** David Jespersen* and Bo Xiao

1621 **Quantifying the Water Productivity, Forage Yield and Quality of Alfalfa (*Medicago sativa* L.) Utilizing Limited Water Resources** Umair Gull*, Khaled Bali, Robert Hutmacher, Isaya Kisekka and Daniel H. Putnam

1622 **Seeding Rates for Oats and Brassica Mixtures** Daren D. Redfearn*, Mary Drewnoski, Alexa Johnson and Jay Parsons

1623 **Forage Production and Nutritive Value Response of Tall Fescue to Different Rates of Organic and Inorganic Fertilizers** Juan K. Q. Solomon* and Jason Davison

1624 **Impact of Post-Feekes 6 Nitrogen Application in Winter Wheat Forage Production** Bronc Finch*, Vaughn Reed and Brian Arnall

1625 **Summer Cover Crop Seeding Rate and Its Effect on Cover Crop Biomass and Subsequent Wheat Forage Biomass** Scott G. Robertson* and James K. Rogers

1626 **Summer Cover Crop Termination Effect on Subsequent Wheat Forage Yield** James K. Rogers* and Scott G. Robertson

1627 **Maximising Legume Pasture Production By Defining Establishment Windows and Optimal Flowering Periods in Drought Prone Environments** Bonnie M Flohr*, Therese McBeath and Rick Llewellyn

1628 **Alfalfa (*Medicago sativa* L.) Crop Response and Elemental Concentration in Broiler Litter Amended Soils.** Annesly Netthisinghe*, Paul Woosley, Todd Willan, Rebecca Gilfillen and Naomi Rowland

1629 **Wheat (*Triticum aestivum* L.) Grain Only and Dual-Purpose Systems; Beef Cow-Calf and Grain Production.** Annesly Netthisinghe*, Hunter Galloway, Fred Galloway and Getahun Agga

1630 **Identifying Superior Small Grain Varieties for Forage Utilization** Vern S. Baron* and Patricia E. Juskiw

1631 **Texas Wintergrass Growth and Seed Production in Response to Targeted Grazing** Caitlyn E. Cooper*, Katherine E. Hood, Tian E. Zhang, Darrel B. Murray and James P. Muir

1632 **Influence of Management on Pasture Botanical Composition** Domingo Mata-Padrino*, Eugenia M. Pena-Yewtukhiw, David P Belesky and William B. Bryan

1633 **Adjourn**

SESSION NO. 493—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Forage and Grazinglands Poster II: Cool-Season Forages

C06 Forage and Grazinglands

1616 **Introductory Remarks**

1617 **Assessment of Drone Image Analysis of Legume Cover in Pastures in Relation to Ground Assessment.** Kathryn Radicke*, Jiao Ning, Chuck West and Philip Brown

1618 **Recycling Soil Nitrogen for Fall Stockpiled Tall Fescue** Alan J. Franzluebbers* and Matt H. Poore

1619 **An Analysis of the Impact of Salinity on Alfalfa Yield and Forage Quality in the San Joaquin Valley of California** Aaron Anderson*, Giuliano Galdi, Natalia Franco, Sharon E. Benes, Simarjeet Singh, Umair Gull, Robert Hutmacher and Daniel H. Putnam

1620 **Performance of Semi- and Non-Dormant Reduced-Lignin Alfalfa Varieties As Influenced By Harvest Schedule in a Mediterranean Environment** Brenda Perez*, Chris DeBen and Daniel H. Putnam

SESSION NO. 494—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Genomics, Molecular Genetics, and Biotechnology Poster

C07 Genomics, Molecular Genetics and Biotechnology

1634 **EMS-Induced Mutant Library As a Tool for Fast Trait Discovery** Zhanguo Xin*, Gloria B. Burow, Chad Hayes, Yves Y Emendack, Junping Chen and Doreen Ware

1635 **QTL Mapping for Salt Tolerance at the Seedling Stage in Cowpea (*Vigna unguiculata*)** Homa Zarghami*, Dirk B. Hays, Hongbin Zhang and B.B Singh

1636 **Gnotobiotic Plant System Facilitates Sequencing the Genomes of Yet-to-be Isolated Rhizobacteria** Michael G LaMontagne*, Phi Tran, Yan Zhang and Michael S Allen

1637 ***cost-Effective CO1 Method to Identify Pheretimoid Cocoons, Juveniles, and Adults and Investigate Their Population Phenology*** Maryam Nouri Aiin*, Josef Gorres, Cheryl Keough and Joseph Schall

1638 **Evaluation of the CRISPR-Cas9 System for Targeted Gene Knockout in Potato (*Solanum tuberosum* L.)** Stephany Toinga*, Madhusudhana Janga, Maria Isabel Vales and Keerti S. Rathore

1639 **Identification of Quantitative Trait Loci Conferring Resistance to *Pythium* Species in Soybean** Saghai Maroof*, Elizabeth Clevinger, Elizabeth Lerch, Ruslan Biyashev, Charles Quigley, Qijian Song, Anne Dorrance and Alison Robertson

1640 **The Gene Regulatory Network of *Rsv3*-Mediated Extreme Resistance Against *Soybean Mosaic Virus*** Saghai Maroof*, Lindsay DeMers, Neelam R Redekar, Aardra Kachroo and Song Li

1641 **Quantitative Trait Loci Controlling 3-Deoxyanthocyanidins in Black Grain Sorghum *(Sorghum bicolor* L.)** Lauren Fedenia*, Patricia E. Klein, Bob Klein, William L Rooney and Linda Dykes

1642 **Soybean Genomic Tool for Parental Selection** Avjinder Singh Kaler* and Larry C. Purcell

1643 **The Molecular Mechanisms Underlying Plant Vernalization Revealed By Systems Analysis of Transcriptomes in Chickpea and Related Species** Mustafa Cilkiz*, Yang Zhang, Meiping Zhang, Shahal Abbo, Amir Sherman, Clarice J. Coyne, George J. Vandemark and Hongbin Zhang

1644 **Using CRISPR/Cas9 Genome Editing to Increase Lysine Levels in Rice** Khushboo Rastogi*, Oneida Ibarra, Marco Molina, Mayra Molina, Michael J. Thomson and Endang M. Septiningsih

1645 **Synthesis and Characterization of Cry2Ab-Avm Bioconjugate** Zhizhen Pan*, Lian Xu, Yi-Shu Zheng, Li-Yang Niu, Bo Liu, Nan-Yan Fu, Yan Shi, Qing-Xi Chen, Yu-Jing Zhu and Xiong Guan

1646 **Increasing Levels of Resistant Starch in Rice Using CRISPR/Cas9 Multiplex Genome Editing** SUDIP BISWAS*, Oneida Ibarra, Marco Molina, Mayra Molina, Ming Chen, Michael J. Thomson and Endang M. Septiningsih

1647 **Characterization of a Novel QTL *qSub8.1* for Submergence Tolerance in Rice** Yuya Liang, Khushboo Rastogi*, Miguel A. Lopez, Matthew James Prior, Sean Cabanlit, Rodante E. Tabien, Julia Bailey Serres and Endang M. Septiningsih

1648 **Genomic Selection of Forage Agronomic Traits of Winter Wheat** Frank Maulana*, Ki-Seung Kim, Joshua D Anderson and Xue-Feng Ma

1649 **Cross-Species Transferability of *Solanum Lycopersicoides*-Derived DNA Markers and Their Applications in Genetic Diversity Assessment of Silverleaf Nightshade (*S. elaeagnifolium*) Populations** Joshua Singleton, Puneet Kaur Mangat*, JungHyun Shim, Ritchel Bueno Gannaban, Cody Vavra and Rosalyn B. Shim

1650 **Differential Alpha-Tubulin Expression in *Eleusine Coracana* (finger millet)** Nathan Hall*, Jinesh Patel and J. Scott McElroy

SESSION NO. 495—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Forest, Range and Wildland Soils General Poster

SSSA Division: Forest, Range and Wildland Soils

1000 **Soil Microbial and Nematode Responses to Interactive Drought and Fire Disturbances in a Semi-Arid Savanna Rangeland** Yamina Pressler*, Heather Hannusch, William E. Rogers and Peyton Smith

1001 **Quantifying Uncertainty in Ecosystem Studies** Ruth Yanai*

1002 **The Effects of Prescribed Fire and Thinning on Soil Properties and Plant Community Dynamics in Wisconsin Forests.** Alyssa Archuleta* and Jacob Reed Prater

1003 **Stable Aggregate Dynamics and Carbon Storage in Acidified Forest Soils: Influence of Conifer Conversion and Atmospheric Deposition at the Fernow Experimental Forest** Jacob Kemner*, Mary Beth Adams, Louis M. McDonald, William Peterjohn and Charlene L. Kelly

1004 **Below Ground Biomass Decomposition Increases with Management Intensification in Subtropical Grazing Lands** Marta M. Moura Kohmann*, Carolina Brandani, Maria Lucia A. Silveira, Kacey Aukema, Elizabeth Boughton and Hilary Swain

1005 **A Novel Methodology for Deconstructing the Complex Soil Microbiome Using Targeted Enrichments across the Carbon Metabolism Space** Dan Naylor*

1006 **The Response of Soil Viral and Bacterial Functional Diversity to Long-Term Agricultural Management** Ning Duan*, Sean M. Schaeffer, Xiaolong Liang, Regan Wagner, Aubrey Fine and Mark Radosevich

1007 **Soil C Spatial Variance within Soil Profile Pit Faces Under Three Land Uses As Measured By Vnirs.** Daniel Markewitz*

1008 **Characterization of Organic Matter in Pedogenic Iron-Containing Mineral Fractions: Effect of Iron Phase Crystallinity** Lixia Jin* and Asmeret Asefaw Berhe

1009 **Assessing Publicly Available SOC Data in Maine** Xue Bai* and Ivan J. Fernandez

1010 **Lateral Hydrologic Flux and Chemistry Influences the Spatial Architecture of Soils in Northeast Forested Catchments** Amanda Pennino*, Brian D. Strahm, Kevin J. McGuire, Scott W. Bailey, Don Ross, Madeline Schreiber, Stephanie Duston, Josh Benton and Jenny Bowers

1011 **Digital Soil Mapping Techniques Applied to Terrestrial Ecological Unit Inventory of the Pinaleño Mountains on the Coronado National Forest** Robert Wright Ballard*, Kristi K Meier, Mark A. Casillas and Wayne A. Robbie

1012 **Tree Phosphorus Uptake from Argillic and Saprolite Horizons in a Weathered Ultisol in the Calhoun Critical Zone Observatory, USA** Zhine Wang*

1013 **Effects of Chemical Hardwood Control in a Loblolly Pine Plantation on the Litter and Topsoil Development** Samuel Sterinbach*

1014 **Forest Ecosystem Carbon Dynamics over 35-Years in a Balsam Fir-Red Spruce Forest in Northern Maine after Stem-Only and Whole-Tree Harvesting** Agne Grigaite*, Bruna Barusco, Charles T. Smith Jr., Inge Stupak, Aaron Weiskittel, Adriana Rezai-Stevens, Brian Roth, Christopher Preece, Ivan J. Fernandez, Jenna Zukswert, John L. Campbell, Juha Metsaranta, Russell Briggs, Shawn Fraver, Stephen Kull and Werner Kurz

SESSION NO. 496—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Biostimulants, Soil Amendments, Manure, and Non-Traditional Fertilizers Poster

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

1015 **Soil Phosphorus Fractionation Following Co-Application of Biochar and Paper Mill Biosolids** Noura Ziadi*, Xiangru Zhang, Athyna N. Cambouris, Eric Manirakiza, Khaled D. Alotaibi and Zhengyi Hu

1016 **Wood Ash As Soil Amendment in Agriculture** Sukhwinder Bali* and Lakesh Sharma

1017 **Carbon and Nitrogen Cycling in Two Florida Soils Amended with Manure- and Food-Derived Composts** Alicia J Kelley, Ann Christina Wilkie and Gabriel Maltais-Landry*

1018 **FTIR (Fourier-transform infrared spectroscopy) Analysis of Seven Wisconsin Biosolids** Daniel D. Ebeling*, Daniel Bronner and Angela M. Ebeling

1019 **A Proprietary Carbon Technology Improved Soil Health Parameters in the Central Valley, CA** Mostafa A. Ibrahim*, John L. Breen and Michael Dustan

SESSION NO. 497—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Fertilizers in the Environment Poster

SSSA Division: Nutrient Management and Soil and Plant Analysis

Section or Division Cosponsor:
SSSA Division: Soil Fertility and Plant Nutrition

1020 **Evaluating the Effectiveness of Gypsum and Polyhalite on Changing Subsoil Chemical Attributes in Brazilian Oxisol** Timothy D Lewis*, Jose E. Cora and David Lagarrigue

1021 **Carbon Balance Using Algal Biomass As a Fertilizer** Shannon Cappellazzi* and David D. Myrold

1022 **Inhibitors to Ammonia-Oxidizing Bacteria** Sarah Hobson*, Alejandra Oyarzun and Michael Hyman

1023 **Effect of Biochar on Nitrous Oxide Emission Under Different Types of Nitrogen Fertilizer in Upland Soil** Sunil Lee*, Gunyeob Kim, Eunjung Choi and Jongsik Lee

SESSION NO. 498—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Pedology General Poster II

SSSA Division: Pedology

1024 **Soil Health Parameters in Forested Landscapes As a Function of Past Land Use.** Sarah Higgins*, John M. Kabrick, Ben Knapp and Mark Abney

1025 **Accumulation of Cadmium in Peruvian Soils of the Piura Region: Origin and Consequences for Cacao Production** Patrick J. Drohan*

1026 **Lithologic Controls on Soil Development in the Perhumid Temperate Rainforest in Southeast Alaska** Jennifer Fedenko*, Rebecca Lybrand and David V. D'Amore

1027 **How to Calibrate Your Fingers: A Guide to Improving Field Estimates of Soil Texture** Judith K. Turk*, Rebecca Young and Nicole Musgrave

1028 **Quantifying Data Quality in Citizen Soil Science** Shawn Salley*

1029 **The Need for Standardization in Natural Diversity Studies** Juan-José Ibáñez and Eric C. Brevik*

1030 **Improving Bay Water Neutralization of Bauxite Residue** ChiaWei Lin*, Ana Barrientos, Youjun Deng and Julie A Howe

SESSION NO. 499—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Ecological Effects of Manure Applications in Agricultural Production Systems Poster

SSSA Division: Soil and Water Management and Conservation

1031 **Nematode Populations As Affected By Residue and Water Management in a Long-Term Wheat-Soybean Rotation in Eastern Arkansas** Lucia Escalante Ortiz* and Kristofor R. Brye

1032 **Effects of Nitrogen Application after Bolt-Picking on Seed Yield and Components of Rapeseed** Yanhua Li*, Hualei Huang, Yan Zhou, Youming Shi, Xiaochun Zhang and Shuqin Huang

SESSION NO. 500—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

One Health Vision, Healthy Soils, Healthy Food, Healthy People Poster

SSSA Division: Soil and Water Management and Conservation

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality,
SSSA Division: Nutrient Management and Soil and Plant Analysis,
SSSA Division: Soil Biology and Biochemistry

1033 **Exploring Microbial Roles in Plant Drought Tolerance in the Sahel** Laura Mason*, Richard P. Dick and Virginia I. Rich

1034 **Soil Health Scoring Functions for New York State By Texture, Taxonomy, and Operation Type** Joseph Pierre Amsili*, Robert Schindelbeck and Harold van Es

1035 **Does No-Tillage Mitigate Stover Removal in Irrigated Continuous Corn? a Multi-Location Assessment** Catherine E. Stewart*, Damaris Roosendaal, Aaron J. Sindelar, Virginia L. Jin and Marty R. Schmer

SESSION NO. 501—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Biology and Biochemistry General Poster Session III

SSSA Division: Soil Biology and Biochemistry

1100 **Kansas Soil Health Partnership** Carlos A. Bonini Pires*, William Davis, Marcos Vinicius Mansano Sarto, Dorivar A. Ruiz Diaz, Ignacio A. Ciampitti and Charles W. Rice

1101 **Soil Microbes and Carbon Stocks Respond to Climate-Driven Changes in the Physico-Chemical Soil Matrix** Sabine Reinsch, David A. Robinson*, Per Ambus, Claus Beier, Timo Breure, Christiana Dietzen, Marie F Arndal, Inger K Schmidt, Klaus S Larsen, Anders Michelsen, Fiona Seaton and Bridget A Emmett

1102 **Responses of Soil Microbiota Structure and Activity to Soil Pore Size Distribution and Matric Potential** Qing Xia*, Joshua L. Heitman and Wei Shi

1103 **Land Use Effect on Soil Microbial Community Composition across a Precipitation Gradient of Kansas** James Lin*

1104 **Impacts of Turf Care Products on Soil Biological Health** Wendy Griffin*, Mussie Y. Habteselassie and Paul L. Raymer

1105 **The Effects of AMF Inoculation and Soil Amendments on Seed Emergence of Guar and Pinto Beans** Darien Pruitt*, Omololu J. Idowu, Soum Sanogo, Sangamesh Angadi and Robert Steiner

1106 **Out Wintering of Livestock on Cropland Rapidly Increases Soil Organic Matter and Changes the Soil Microbial Community Structure** Joshua J. Steffan*, Eric C. Brevik, Billi Jean Petermann and Karissa Bohn

1107 **Responses of Soil C and N Fractions and Bacterial Community to Long-Term Fertilization on the Loess Plateau of China** Fu Xin*, Jun Wang, Upendra M. Sainju and Wenzhao Liu

1108 **Disentangling the Nematode-Microbiome Interactions Underlying Sod-Based Rotation and Their Potential Consequences on Soil Nutrient Cycling** Kaile Zhang*, Lesley Schumacher, Zane Grabau, Gabriel Maltais-Landry, David L. Wright, Ian M Small and Hui-Ling Liao

1109 **Quantifying Root Biomass, Microbial Biomass and Soil Organic Pools Under Long Term Grazing Lands Management Strategies** Javid McLawrence*, Cara Case, Jesse I. DuPont, Reshmi Sarkar, Ishu Verma, Francis M. Rouquette Jr. and Anil Somenahally

1110 **Soil Organic Matter Dynamics in Organic and Conventional Vegetable Production Under Different Weed Management Regimes** Denise M Finney*, Kirk Cherneskie and Gladis Zinati

1111 **Characterization of *B*-D-Fucosidase Activity in Soil** Xiangfa Ma* and Shiping Deng

1112 **Biochar Impacts on Plant Growth and Soil Microbial Communities in Marginal Soils** Andrew Engel*, Stephanie Bruggeman, David Clay and Sharon A. Clay

1113 **Pivot Bio Proven Inoculant As a Source of Nitrogen in Corn** Will G Davis*, Dorivar A. Ruiz Diaz, Kraig L. Roozeboom and Charles W. Rice

1114 **Response of Indigenous Bradyrhizobia and Insect Pests to Genetically-Diverse Soybean Varieties on the Eastern Shore of Maryland** Alhadi Ahmed*, Joseph R Haymaker, Fawzy M. Hashem, Simon M Zebelo, Mohammed Abdelmoutal and Arthur L. Allen

1115 **Tracing Spatial Soil Heterogeneity to Elucidate Microbiome Composition** Denise Tijerina* and Engil Isadora Pujol Pereira

1116 **Improving Crop Energy Balance through Associations with N_2-Fixing and N_2o-Reducing Bacteria** Yvette Garcia*, Jorge Da Silva and Engil Isadora Pujol Pereira

1117 **Assessing the Stability and Quantity of Soil Carbon in Tropical Forest and Afforested Sites Under Payment for Ecosystem Service Contracts in Northeastern Costa Rica** Katherine Quinonez* and A. Peyton Smith

1118 **Prediction of Soil Health Indicators Using a Field Spectroradiometer Equipped with an Illuminating Contact Probe** Ann-Marie Fortuna*, Patrick Starks, Amanda M Nelson and Jean L. Steiner

1119 **Exploring the Relationship between Agricultural Management Practices and Viral Ecology** Regan Wagner*, Mark Radosevich, Sean M. Schaeffer, Xiaolong Liang, Aubrey Fine and Ning Duan

1120 **Copper Accumulation in New Jersey Pine Barren Vineyard Soils** Stephanie Lugo*

SESSION NO. 502—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Manganese as a Redox Driver in Soils and Sediments Poster (includes student competition)

SSSA Division: Soil Chemistry

1121 **Nanoparticle Fe- and Mn-Oxide Amendments for Limiting As and Cd Availability in Rice Soils** Markus Koeneke* and Matthew Polizzotto

1122 **Quantifying Cr(VI) Production Rates As a Function of Manganese Oxide Mineralogy and, Dissolved Organic Carbon Composition** Fatai Balogun* and Matthew Polizzotto

SESSION NO. 503—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Chemistry in the Face of Climate Change: Translating Soil Carbon Chemistry across Spatial Scales Poster (includes student competition)

SSSA Division: Soil Chemistry

1123 **Crop Management Influences on Pore-Scale Oxygen Content in Upland Soils** Emily Morgan Lacroix*, Robert J Rossi, Deborah Bossio and Scott Fendorf

1124 **Considering Weathered Bedrock in Global Carbon Cycling: CO_2 Production and DOC Dynamics in a Bedrock Weathering Profile Underlying a Forested Hillslope** Alison K Tune*, Jennifer L Druhan, Jia Wang, Philip C Bennett and Daniella M Rempe

1125 **Linking Carbon and Nitrogen Speciation with Soil Organic Matter Persistence at the Continental Scale** Angela R. Possinger*, Brian D. Strahm, Tyler Weiglein, Margaret Bowman, Adrian C. Gallo, Jeff A. Hatten, Katherine Heckman, Lucas E. Nave and Michael D. Sanclements

SESSION NO. 504—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Remediation and Pollution Control: Biogeochemical Processes of Organic, Inorganic, and Biological Contaminants Poster (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor:
SSSA Division: Soils and Environmental Quality

1126 **The Fate of Gallium and Indium in Soils and Their Effects on the Growth and Accumulation of Gallium and Indium in Paddy Rice (*Oryza sativa* L.)** Dar-Yuan Lee*, Pei-Wen Chen and Chien-Hui Syu

1127 **Effect of Organic and Inorganic Soil Amendments on Zinc and Lead Availability in Soils Affected By Historic Mining Activities** Christopher Baxter* and Geoffrey Siemering

1128 **The Potential for Remediation of per- and Polyfluoroalkyl Substances (PFASs) Using Feammox Bacteria** Shane Parker, Joshua Henson, Yuanbo Li and Owen W. Duckworth*

1129 **Comparison of Multiple Soil Factors at Three Reclaimed Mine Sites in Poland** Melanie Szulczewski*

1130 **The Tolerance and Uptake Capability of Cd and As of Weedy Red Rice Seedlings Grown in Hydroponic Cultures** Che-Yu Chih, Dong-Hong Wu, Kai-Wei Juang, Dar-Yuan Lee and Chien-Hui Syu*

1131 **Potential for Increasing Metal Pollution in Estuarine Redox Dynamic Soils of the Rio Doce (Brazil)** Diego Barcellos*, Hermano Melo Queiroz, Angelo Fraga Bernardino, Gabriel Nuto Nóbrega, Xosé Luis Otero and Tiago O. Ferreira

1132 **Transformations of Ammonium in Ammonium-Contaminated Bulk Fertilizer Site Soils in Western Canada** Michael Schmidt*, Derek Peak and Steven Siciliano

1133 **Antimicrobial Cross-Resistance Induced By Triclosan Resistant Plant-Growth Promoting Rhizobacteria** Alexandra Ortiz*, Oscar D. Gonzalez, Cesar Arizola Jr., Priscilla Carlo, Ashley M Garcia, Alfred Addo-Mensah and Monica O. Mendez

1134 **The Effects of Plant Growth-Promoting Rhizobacteria on Triclosan Levels in Onion Tissue and Soils** Oscar D. Gonzalez*, Ashley M Garcia, Alexandra Ortiz, Alfred Addo-Mensah and Monica O. Mendez

1135 **Exploring Social and Environmental Predictors of Heavy Metal Contamination in the Rio Grande Valley of South Texas** Joy Youwakim*, Debasish Bandyopadhyay, Ji-hoon Kang, Brendan Lavy and Alexis Racelis

1136 **Highly Sensitive Detection of Estrogens in Environmental Samples Using Surface Enhanced Resonance Raman Scattering** Zhezhe Wang*, Jiabing Li and Jim J. Wang

SESSION NO. 505—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Enhancing Nutrient Use Efficiency Poster

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis

1137 **Fruit Load Affects Potassium Uptake of *Coffea arabica* L.** Lais Teles de Souza* and José Laércio Favarin

1138 **Influence Nanometric Phosphates Dispersed in Ureia in *Panicum Maximum* Tillering.** Heitor Pontes Gestal Reis*, Dirceu Maximino Fernandes, Caue Oliveira, Amanda Soares Giroto and Gelton Geraldo Fernandes Guimarães

1139 **Impact of Nitrogen Rates on Two Potato Cultivar's Yield and Quality** Ahmed A Zaeen, Ahmed Jasim, Lakesh Sharma, Sukhwinder Bali*, Lily Calderwood, Aaron Buzza and Andrei Alyokhin

1140 **Long-Term Effects of Fertilizer Nitrogen Source on Yield, Nitrogen Efficiency and Soil** Patrick J Forrestal* and Karl G Richards

1141 **Impact of Source on Ideal Nitrogen Timing in Winter Wheat in Oklahoma** Michaela Smith*, Joao Luis Bigatao Souza, Vaughn Reed and Brian Arnall

1142 **Evaluation of Nitrogen Fertilizer Efficiency Under Three Water Management Practices Using ^{15}n Isotope Technique** Manoch Kongchum*, Nutifafa Adotey, Dustin L. Harrell and Anna Coker

1143 **Maize and Grass Integrated System Fertilized with Polyhalite and KCl** Alberto C. de Campos Bernardi*, Gilberto Batista de Souza and Fabio Vale

1144 **Nitrogen and Water Management for Optimized Sugar Beet Yield and Sugar Content** Olga S. Walsh*, Sanaz Shafian and Jordan McClintick-Chess

1145 **Improving Nutrient Management for Wheat through Comprehensive Soil and Crop Survey** Olga S. Walsh*, Christopher W. Rogers, Sanaz Shafian, Juliet Marshall and Jordan McClintick-Chess

1146 **Transport of Nitrogen Released from Slow Release Fertilizers with Different Half Lives (numerical experiments)** Ali Mehmandoost Kotlar* and Quirijn de Jong van Lier

1147 **Ammonia Volatilization of Nitrogen Fertilizers on Clayey Oxisol: Effect of Liming and Straw** Gulherme Frelo Chilante, Evandro Antonio Minato, Vitor Rodrigues Cordioli, Tadeu Takeyoshi Inoue and Marcelo Augusto Batista*

1148 **Nitrogen Application, Biological N Fixation, and Soybean N Uptake** Alexandra M. Walters*, Matthew D. Ruark, John M Gaska, Chelsea Zegler and Shawn P. Conley

1149 **Maize Grain Yield Response to Misses As Influenced By Nitrogen** Fikayo Oyebiyi*

1150 **World Cereal Nitrogen Use Efficiency Trends: Review and Current Knowledge** Peter Omara*

1151 **ZnO Nanofertilizer Is Better Source of Zinc Nutrition in Maize Seedlings Development** Michel Esper Esper Neto*, Lorena Moreira Lara, Evandro Antonio Minato, Carolina Fedrigo Coneglian, Rayssa Fernanda dos Santos, Tadeu Takeyoshi Inoue and Marcelo Augusto Batista

1152 **Nitrogen Losses through Ammonia Volatilization after Liming and Gypsum Application in No-till System** Evandro Antonio Minato*, Marcos Renan Besen, Michel Esper Esper Neto, Edner Betioli Junior, Tadeu Takeyoshi Inoue and Marcelo Augusto Batista

1153 **Wheat Yield Using Organomineral and Mineral Fertilizers in Improved Soil Fertility** Carolina Fedrigo Coneglian*, Rodrigo L. Sakurada, Michel Esper Esper Neto, Evandro Antonio Minato, Edner Betioli Jr., Tadeu Takeyoshi Inoue and Marcelo Augusto Batista

1154 **Potential Use of Proximal Sensing Devices for Management of Mid-Season Nitrogen Applications in Texas-Grown Cotton and Corn** Dennis L. Coker*, Jason E. Mowrer, Dale Mott and Gaylon D. Morgan

SESSION NO. 506—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Macronutrients for Crop Production Poster

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor:
SSSA Division: Nutrient Management and Soil and Plant Analysis

1155 **Evaluation of POLY4 (Polyhalite) for Enhancing Productivity of Maize and Wheat** V K Singh, B S Dwivedi, Neeraj Awasthi, Rachel Fields*, Rajiv K Singh, Sanjay Singh Rathore, Pravin Kumar Upadhyay, Kapila Shekhawat and Devarup Das

1156 **Langbeinite As a Partial Replacement for Traditional Potash Applications in Corn, Soybean, and Cotton.** Curt Woolfolk*, Kirandeep Mann, Ross Bender and Kyle Freeman

1157 **Phosphorus K-Edge XANES Spectroscopy in Cropping Systems Under No-till** João Paulo Paulo Gonsiorkiewicz Rigon*, Silvia Capuani, Marina Colzato, Juliano Carlos Calonego and Carlos Crusciol

1158 **Response of Corn and Common Bean to Polyhalite As Multi-Nutrient Fertilizer in Brazilian Cerrado Region** Maria da Conceição Santana Carvalho* and Adriano Stephan Nascente

1159 **Nitrogen Uptake and Growt of Rubber Tree Clones Seedlings** Enes Furlani* Jr., Noemi Cristina Souza Vieira and Amanda Pereira Paixão

1160 **Determination of Nutritional Status of *Brachiaria Brizantha* Cv. Marandu for Nitrogen through Image Analysis** Jessica Angela Bet*, Pedro Henrique Cerqueira Luz, Valdo Rodrigues Herling, Murilo Mesquita Baesso, Liliane Maria Romualdo, Marcos Roberto Ferraz and Thiago Pereira Motta

1161 **Effect of Potassium Chloride Coating with Humic Acids on Soil Leaching** Pedro Henrique Cerqueira Luz*, Jessica Angela Bet, Valdo Rodrigues Herling, Marcos Roberto Ferraz, Ricardo dos Santos Dotto and Leonardo Paresqui

1162 **Effect of 8-Years of NPK Fertilization Rates on Grain Yield and on NPK Balance in Soybean-Corn-Common Bean Rotation in Brazilian Cerrado** Maria da Conceição Santana Carvalho* and Adriano Stephan Nascente

SESSION NO. 507—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Fertility and Plant Nutrition General Poster II

SSSA Division: Soil Fertility and Plant Nutrition

1163 **Biochar and Poultry Litter Effect on Corn Yield, Nutrient Uptake, and Atmospheric Emissions** Karamat R Sistani*, Jason R Simmons and Jeff Novak

1164 **Temporal Variations in Plant and Soil Characteristics Following a Single Strip-till Manure Application** Murali Darapuneni*, Leonard M. Lauriault, Syam K. Dodla, Omololu J. Idowu, Kulbhushan K. Grover, Gasper Martinez, Koffi Djaman and Sangamesh Angadi

1165 **Rotating Fertilizers for Managing Poultry Litter As a Row Crop Fertilizer** Haile Tewolde*, Normie W. Buehring, Gary Feng and Mark P. Harrison

1166 **Poultry Litter Ash Physical and Chemical Characteristics That Impact Use As an Alternative Phosphorus Fertilizer** Clara Ervin*, Mark S. Reiter, Wade E. Thomason, Rory O. Maguire and Whitehurst Brooks

1167 **Influence of Applied Cattle Manure on Winter Wheat Grain Yield, Soil pH and Organic Carbon** Lawrence Aula*, Peter Omara, Jagmandeep Singh Dhillon, Alimamy Fornah and William R. Raun

1168 **Nutrients in Deep Degraded Soil after Sewage Sludge Application Under Native Species from Atlantic Forest** Irae Amaral Guerrini*, Livia Goulart, Pedro Nalesso, Thiago Tassio Souza Silva, Marianne Fidalgo Faria, Guilherme Willian Carlos, Grasiela Spada and Robert B. Harrison

1169 **Crop Response in Dryland Spring Wheat Planted after Canola and Associations with Soil Microbial Community Structure** Cassandra Rieser*

1170 **Evaluation of Varying Rates of Iron and Manganese on HLB Affected Trees (VALENCIA AND BINGO) in Florida** Samuel Kwakye* and Davie Mayeso Kadyampakeni

1171 **Subsoil Micronutrient Supply in the Inland Pacific Northwest** Isaac Madsen* and William L Pan

1172 **Effect of Controlled-Released Nitrogen Fertilizer on Spring Maize Yield, Benefit and Nitrogen Balance in the System of Soil-Crop in the Northeast of China** Yuying Li*, Fengqin Chi, Lin Li and Hongsheng Gao

1173 **Evaluating Relationships between Soil Respiration and Nitrogen Use Efficiency in Corn (Zea mays L.)** Edmond Bryan Rutter* and Dorivar A. Ruiz Diaz

1174 **Sensor-Based Nitrogen Management to Enhance Agronomic and Economic Efficiency in Wheat Production** Reza Keshavarz Afshar* and Raj Khosla

1175 **Wet-Dry Alternation Irrigation and Nitrogen Promoted Absorption and Utilization of Returned Wheat Straw Nitrogen** Jianwei Zhang*, Qiuyi Zhong, Pengfu Hou, Muhammad Yousaf Nadeem, Yanfeng Ding, Ganghua Li Sr., Shaohua Wang and Lin Chen

1200 **Improving Nitrogen Use Efficiency in Sugarcane Using Remote Sensing Data** Jose E. Cora*, Bruno Basso, Hugo Faria, Samara Barbosa, Almir Salvador and Vinicius Marchioro

1201 **Effects of Nitrogen and Plant Population on Cotton Cultivars Yield** Leonardo Galdi*, Daniel Rodrigues, Carlos Cordeiro and Fábio Echer

1202 **Management of Nitrogen Fertilizer in Sugarcane - Brazil** Samara Barbosa*, Jose E. Cora, Hugo Faria, Bruno Basso, Almir Salvador Neto, Vinicius Marchioro and Henildo de Souza Pereira

1203 **Improving Nitrogen Use Efficiency in Sugarcane Using Remote Sensing Data Linked to Crop Modeling and Yield Mapping Technologies** Hugo Faria*, Jose E. Cora, Samara Barbosa, Almir Salvador Neto, Vinicius Marchioro, Henildo de Souza Pereira and Bruno Basso

1204 **Evaluation of Pretreated N Fertilizer with Urease and Nitrification Inhibitor on Ammonia Volatilization** Nutifafa Adotey*, Anna Coker, Manoch Kongchum, Dustin L. Harrell and Leigh Hamric

1205 **Phosphorus Response in Potato in Maine** Ahmed Jasim, Lakesh Sharma*, Ahmed A Zaeen and Sukhwinder Bali

1206 **Comparative Analysis of Urease Inhibitors Versus Nitrification Inhibitors for Delayed Flood Rice** William Mansour*, Bobby R. Golden, Jason Bond, Jeffrey Gore, Nathan A. Slaton and Darrin M. Dodds

1207 **Comparing Nitrogen Use Efficiency Among Small Grains Species in Texas** Matthew W. Brown*

1208 **The Effect of the Glucoheptonate on Water Holding Capacity of Soils** Joshua Mott* and Rory O. Maguire

1209 **Impact of Silicon Fertilization in Rice and Wheat Production in Louisiana** Wooiklee Paye*, Brenda Tubana, Stephen Harrison, Marilyn Sebial Dalen, Daniel Forestieri, Jose Rodolfo Mite, Jayvee Cruz, Hector Mendoza, Jiraporn Bamrungrai and Diego Mayorga

1210 **Polyhalite Fertilization in Louisiana Sugarcane Production Systems: Impacts on Yield, Quality Components, and Soil Nutrient Content** Brenda Tubana, Marilyn Sebial Dalen, Daniel Forestieri, Hector Mendoza*, Jayvee Cruz, Jiraporn Bamrungrai, Diego Mayorga, Jose Rodolfo Mite and Wooiklee Paye

1211 **Sugarcane Response to Polyhalite in Brazilian Oxisol** Jose E. Cora*, Francis J. Pierce, Lino Furia and Timothy D Lewis

1212 **Investigating the Effects of Potassium and Magnesium Application Rates on Corn** Kyle Hoegenauer*, Trenton L. Roberts, Jason Kelley, Robyn Mulloy and Caio dos Santos

1213 **Crop Yield and Soil-Test Responses to Annual Application of Traditional and Multi-Nutrient Phosphorus- and Potassium-Containing Fertilizer Sources** Alden Smartt*, Nathan A. Slaton, Trenton L. Roberts, Jody Hedge and Chandler Gruener

1214 **Maize (*Zea mays* L.) Nitrogen, Phosphorus and Potassium Response to Zinc Fertilization** Vasile Cerven*

1215 **Effect of Sulfur Source on Yield and Quality Components of Sugarcane in Louisiana Production Systems** Brenda Tubana*, Marilyn Sebial Dalen, Daniel Forestieri, Dominique Galam, Wooiklee Paye, Jayvee Cruz, Jiraporn Bamrungrai, Diego Munoz Valladares, Jose Rodolfo Mite and Hector Mendoza

1216 **The Effect of Cultivated Fertile Layer on Soil Physical Properties and Maize Yield** Xiaozeng Han*, Lu Xinchun and Xu Chen

1217 **Soil and/or Foliar Applied Nutrition on Nutrient Concentration, Root Growth, and Soil pH of HLB Affected Valencia Citrus Trees** Alisheikh Atta*, Kelly T. Morgan, Said A. Hamido, Davie Mayeso Kadyampakeni and Mahmud Abdel-k Kamal

1218 **Soybean Nutrient Management Strategies to Improve Production on Medium-Textured Soils** Christian Terwillegar* and Kurt Steinke

1219 **Integrating Multiple-Input Management Systems to Improve Soft Red Winter Wheat** Seth Purucker* and Kurt Steinke

1220 **Enhancing Yield Benefits from Intercropping of Pulse and Oilseed Crops** Eric Bremer*, Doon Pauly, Benjamin Ellert and Ken Greer

1221 **Rhizobium Innoculation Study in Valencia Peanut (*Arachis hypogaea* L.)** Hayden Kelly, W. Scott Monfort, Youngkoo Cho and Naveen Puppala*

1222 **Developing Sustainable Sweet Potato for South Texas: An Opportunity to Diversify Agricultural Production and Promote Soil Health** Isaiah Jaramillo*, Jon Dale and Engil Isadora Pujol Pereira

1223 **Stratification of Soil Characteristics in Long Term Winter Wheat Fertility Studies after 9 Years of No-till Management in Oklahoma.** Joao Luis Bigatao Souza*, Vaughn Reed, Bronc Finch and D. Brian Arnall

1224 **Meta-Basalt Rock Dust Wastes As Soil Amendments** Tony L. Provin* and Jake E. Mowrer

1225 **One-Time Application of Multi-Nutrient Fertilizer Briquettes for Maize (*Zea mays L.*) Production in the Guinea Savanna Ecological Zone of Ghana** Sampson Agyin-Birikorang, Job Fugice* Jr., Raphael Adu-Gyamfi, Ignatius Tindjina, Upendra Singh and Yaw Manu

1226 **The Effect of Nitrogen, Potassium, and Sulfur on Industrial Hemp Seed Production** Ezekial Overbaugh, Benjamin Grandon, Keith Edmisten, Amy Johnson and Angela Post*

1227 **Shade Tree and Input Intensity Impact Soil Nutrient Cycling, Plant Nutrient Uptake, and Yield in Amazonian Coffee Production Systems** Andrew J. Margenot*, Eduardo Chavez, Carlos Caicedo Vargas, Julio Macas Ramírez, Leider Tinoco Jaramillo, Jimmy Pico Rosado and Cristian Subía García

SESSION NO. 508—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Advancement in Measurement and Modeling of Soil Physical and Hydraulic Properties Poster: What's New?

SSSA Division: Soil Physics and Hydrology

1228 **A Heat Pulse Based Sensor That Simultaneously Determines Soil Thermal Properties and Matric Potential** Yuki Kojima*, Tomoyuki Kawashima, Kosuke Noborio, Kohji Kamiya and Robert Horton

1229 **Dynamic Pore Volumes and Hydraulic Properties in a Tilled Soil** Dilia Kool*, Zhengchao Tian, Bing Tong, Joshua L. Heitman, Thomas J. Sauer and Robert Horton

1230 **Optimizing the Chameleon Permeameter for Measuring Soils with Extremely Small Saturated Hydraulic Conductivity** Ali Farsad* and Amir Sadeghpour

1231 **An Improved Drip Infiltrometer Measuring the Near-Saturated Hydraulic Conductivity** Bo V. Iversen*, Michael Koppelgaard and Ali Mehmandoost Kotlar

1232 **A Comparison of the New Integral Suspension Pressure Method (ISP) for Determining Soil Particle-Size Distribution (PSD) with Traditional Psd Methods.** Leonardo Daniel Rivera* and Maegan Canha

1233 **Field Evaluation of the Tensiomark Matric Potential Sensor for Hydraulic Soil Characterization** Ebrahim Babaeian*, Scott A. White and Markus Tuller

1234 **Influence of Precipitation and Land Use on Pore Geometry in Soils with Vertic Properties** Matthew G Sena*, Pamela L Sullivan, Daniel R Hirmas and Sharon A Billings

1235 **A Numerical Model to Estimate Soil Saturated Hydraulic Conductivity after Wildfires: A Thermochemical Approach** Sebastián A. Aedo* and Carlos A. Bonilla

1236 **A New Method for Determining Thermal Properties Using Cylindrical Soil Column and Heat Flux Plate** Kosuke Noborio*, Yuki Ito and Robert Horton

1237 **Estimating Water Vapor Transport from Soil Thermal Conductivity Measurements at Various Water Contents and Temperatures** Sen Lu*

1238 **Root Influences on Soil Property Measurements with Heat Pulse Sensors: A Simulation Study** Xiaoting Xie*, Yili Lu and Tusheng Ren

SESSION NO. 509—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soil Physics and Hydrology General Poster III

SSSA Division: Soil Physics and Hydrology

1239 **Field Performance of Electromagnetic Sensors in a Clay Soil** Esmaiil Mokarighahroodi* and Manoj K. Shukla

1240 **Estimation of Soil Water Properties Under Drip Irrigation.** Takafumi Suzuki* and Kosuke Noborio

1241 **Influence of the Rhizosphere on Hydraulic Properties of a Loess Soil in Sunflower and Beet Fields** Ieyasu Tokumoto*, Kenta Tagawa and Hiroyuki Cho

1242 **Quantification of Soil Compaction Impacts on Cotton Yield and Soil Physical Properties in Texas** Ayush Joshi Gyawali* and Haly L. Neely

1243 **Soil Physical Properties Under Long-Term Land Use** Dedrick D. Davis* and Michael Felton

1244 **Comparison of Aggregate Stability Measurement Methods** Michael Gonzalez*, Adam Flores, Aaron Garza, James Kang and Citlali Zertuche

1245 **Estimation of Van Genuchten Model Parameters from Soil Bulk Electrical Conductivity and Water Content Measurements** Yongwei Fu*, Robert Horton and Joshua L. Heitman

1246 **Prediction of Soil Pore Continuity with Time-Domain Reflectometry Measured Dielectric Permittivity and Electrical Conductivity** Yuki Ito*, Naoto Sato and Kosuke Noborio

1247 **Rapid Estimation of the Atterberg Limits of Soils from Hygroscopic Water Content** Hafeez Ur Rehman*, Nastaran Pouladi, Markus Tuller, Lis Wollesen de Jonge, Per Moldrup and Emmanuel Arthur

1248 **Evaluation of Hydraulic Properties of Selected Growing Media Mixes for Greenhouse Crop Production** Eduardo Escamilla*, Sanjit K Deb and Joseph Ronald Young

1249 **Evaluation of Temperature Effects on a Soil Water Potential Sensor at Low Water Content** Michelle Mbia* and Dedrick D. Davis

1250 **Analysis of Spatial Variability of Soil Water Retention Using the Cdf Matching** Nizami Gummatov and Yakov A. Pachepsky*

1251 **Prediction of Soil Water Transport Parameters on Salt and Sodium Affected Soils** Hans Klopp*, Will Bleam and Francisco J. Arriaga

1252 **Quantification of Local Scale Preferential Flow and Nonlinear Solute Transport Processes in Highly Structured Soils** Vilim Filipović* and Horst H. Gerke

1253 **Accounting for Subsurface Structures in Flow and Transport Modelling of Heterogeneous Soils and the Vadose Zone** Horst H. Gerke* and Vilim Filipović

SESSION NO. 510—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Soils and Environmental Quality General Poster II

SSSA Division: Soils and Environmental Quality

1254 **Study on the Relationship between Farmland Envirnment and Organic Apple Production** Takamitsu Kai*

1255 **Reducing the Discrepancies between the Aerodynamic Gradient Methodand Other Micrometeorological Approaches for Measuring Fumigant Emissions** Ray G. Anderson*, Scott R Yates, Daniel Ashworth, Dennise L Jenkins and Qiaoping Zhang

1256 **Soil Organic Matter Pools Following Traditional Tillage Practices** River Dowell* and Iin P. Handayani

1257 **Determining Sources of Phosphorus Using Isotope Signatures in Residual and Recalcitrant Phosphorus Pools in East Creek, Chesapeake Bay** Jessica Anton*, Kristi Mingus, Arash Massoudieh and Deb P. Jaisi

1258 **The Impact of Phosphorus Management on Crop Response and Phosphorus Runoff Under Long-Term No-till Management** Jose G. Guzman*, Asmita Gautam, Dwayne Beck and Michael Lehman

1259 **Relation of Plant Physiological Processes and Compound Physicochemical Properties to Lettuce Uptake of Pharmaceuticals** Ya-Hui Chuang*, Cheng-Hua Liu, Ray Hammerschmidt, Wei Zhang, Stephen A. Boyd and Hui Li

1260 **Sorption of Lincomycin By Biochars Produced from Agricultural and Urban Wastes** Cheng-Hua Liu*, Ya-Hui Chuang, Hui Li, Stephen A. Boyd, Brian J. Teppen and Wei Zhang

1261 **Evaluating Impact of Agroforestry and Silvopasture on Soil Quality.** Sangita Karki, Anthony Kumi, Ramble O. Ankumah*, Raymon Shange and Jannette Bartlett

1262 **Ammonia Volatilization By an Inorganic-Organic Hybrid Nitrogen Product Used As a Slow Release Fertilizer Corn in North Carolina As Compared to UAN and Urea** Alex Woodley, Isabel pagan-caballero* and Wayne Robarge

1263 **Evaluation of a New Low-Cost Particle Sensor and Iot Platform for Monitoring Airborne Soil Particles** Elena Mikhailova*, Christopher Post, Andrew Metcalf, John Pearce and Austin Green

1264 **Tracking E.coli Populations Following Manure Applications Using a Combined Approach of GIS and Genomics** Leah Brueggeman*, Peter Bergholz and Megan Ostrand

1265 **Estimating Isotherm Parameters for Sandy to High Phosphorus-Retentive Soils from Soil Test Data** Amanda Rodriguez* and Vimala D. Nair

1266 **A Green BMP for Mitigation of Metals in Stormwater: Field Panel Study** Dibyendu Sarkar*, Chuxiao Chen, Virinder Sidhu and Rupali Datta

1267 **Digital Soil Mapping Can Help Explain Soil Nutrient Distribution, Plant Growth, and Grazing Preference in Silvopastoral Systems** Amanda J. Ashworth*, Phillip R. Owens, Kabindra Adhikari, Taylor Adams, Tom Sauer, Dirk Philipp and Andrew Thomas

1268 **Effect of Land Use on Methane Oxidation** Irosha Wanithunga*

1269 **Developing Protocol for Measuring Economic Value of Surface Soil Ecosystem Service** Sung Chul Kim*, Jae E. Yang, Hyuck Soo Kim, Sang Phil Lee, Dong Hyun Yoon and Jin Wook Kim

1270 **The Impact of Land Application of Biochar on Carbon Sequestration and Agricultural Sustainability** Chieriel Desamito*

SESSION NO. 511—2:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, Exhibit Hall 1, 1st Level

Wetland Resilience to a Changing Climate: Lessons Learned from the Last 20 Years Poster (includes student competition)

SSSA Division: Wetland Soils

1271 **Using Portable X-Ray Fluorescence Spectrometry for Metals Assessment in Cerrado Wetlands Soils, Brazil** Bruno Teixeira Ribeiro*, David C. Weindorf, Camila Silva Borges, Diogo Costa Nascimento, Geila Santos Carvalho, Nilton Curi and Luiz Roberto Guimarães Guilherme

1272 **Integrated Effect of Biochar-Biosurfactant Application on Crude Oil Remediation in a Contaminated Wetland Soil** Zhuo Wei*, Jim J. Wang, Yili Meng and Ronald Delaune

1273 **Potential Effect of Sea Level Rise on Soil Carbon Fluxes in a Mangrove-Marsh-Mudflat Sequence of the Lower Laguna Madre, Texas** Gaspar Najera*, Alejandro Fierro, Leticia Contreras and Carlos Cintra

1274 **Phosphorus Sorption in Agricultural Wetland Soils - Temperature, Redox, and Amendment Effects** Nia R. Hurst*, Christine M. VanZomeren and Jacob F. Berkowitz

1275 **The Role of Fe in P Dynamics in Floodplain Soils in West Tennessee** Michael Singer* and Paula M. Gale

1300 **Wetland Soil Redox Assessment Using IRIS Tubes in Central Georgia** Cameron S Skinner*, Allison Rick Vande-Voort, Christine Mutiti, Samuel Mutiti and Samuel Long

1301 **Climatic Influence on Wetland Biogeochemistry and Function Using an Elevational Sequence in the Rocky Mountains, WY** Anna Schwyter* and Karen L. Vaughan

1302 **Low-Level Saltwater Intrusion and Fe(III) Loadings Shift Anaerobic Carbon Mineralization Pathways in a Subtropical Tidal Freshwater Marsh** Min Luo*, Rongzhong Ye, Jiafang Huang and Chuan Tong

1303 **Rehabilitation of on-Farm Constructed Wetlands to Protect Surrounding Agro-Ecosystems in Changing Climate** Erin L. Smith*, Lisa Kellman and Paul Brenton

1304 **Effects of CO_2 and Deficit Irrigation Regimes on Growth, Yield and Water Use Efficiency of Irrigated and Dryland Varieties of Durum Wheat** Fitsume Desta*, Nigel Warwick and Gururaj Kadkol

1305 **Capillary Barrier Effect As a Mechanism for Water Retention and Climate Resilience in Pacific Atoll Islands Soils** Mary Engels* and Robert Heinse

SESSION NO. 512—3:30 PM–4:30 PM

Henry B. Gonzalez Convention Center, 221A, 2nd Level

CSSA Business Meeting --Joint Division C01 and C07

C07 Genomics, Molecular Genetics and Biotechnology

SESSION NO. 513—5:15 PM–6:00 PM

Henry B. Gonzalez Convention Center, 305, 3rd Level

SSSA Business Meeting--Soil Mineralogy

SSSA Division: Soil Mineralogy

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