Technical Sessions

Technical sessions are organized by **date**, then start & end **time**, and then **section/division**. Sessions organized by section/division are on pages 59-84 and include a session number. You can then use the session number to find details in this main part of the technical program.

Friday, Oct. 20

SESSION NO. 1—7:00 PM–8:00 PM

Tampa Convention Center, Room 37 and 38, Third Floor

SASES National Officer Meeting

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 2—8:00 PM–9:00 PM

Tampa Convention Center, Room 37 and 38, Third Floor

SASES Committee Member Meeting

Students of Agronomy, Soils and Environmental Sciences (SASES)

Saturday, Oct. 21

SESSION NO. 3—6:00 AM–5:30 PM

Tampa Convention Center, Front Drive, First Floor

SASES Tours

Sponsored by CHS, Inc.

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 4—7:00 PM–8:30 PM

Tampa Convention Center, Room 22 and 23, First Floor

Presidents Trophy Competition

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 5—8:30 PM–9:30 PM

Tampa Convention Center, Room 22 and 23, First Floor

SASES Business Meeting I

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 6—9:30 PM–10:00 PM

Tampa Convention Center, Room 22 and 23, First Floor

Delegate Training for SASES Clubs

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 7—10:00 PM–11:55 PM

Tampa Convention Center, Riverwalk, First

SASES Dance

Students of Agronomy, Soils and Environmental Sciences (SASES)

Sunday, Oct. 22

SESSION NO. 8—9:00 AM–10:30 AM

Marriott Tampa Waterside, Grand Ballroom E and F, Second Level

SASES Brunch and Keynote Speaker

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 9—10:00 AM–11:45 AM

Tampa Convention Center, Room 4

SSSA Business Meeting-- Consulting Soil Scientists

SSSA Division: Consulting Soil Scientists

10:00 AM **Introductory Remarks**
10:15 AM **Discussion**
11:45 AM **Adjourn**

8:00 PM–9:00 PM

Tampa Convention Center, Room 22 and 23, First Floor

SASES Elections

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 11—12:30 PM–3:00 PM

Marriott Tampa Waterside, Grand Ballroom I, Second Level

Undergraduate Research Contest - Oral I

Students of Agronomy, Soils and Environmental Sciences (SASES)

11-1	12:00 PM	**Characterization of Root-Associated Fungal Endophytes of Bioenergygrass Freedom Giant Miscanthus.** Anna Kazarina*, Keerthi mandyam and Ananda Nanjundaswamy
11-2	12:15 PM	**Soil Physical Characteristics across Three Ecuadorian Regions: A Soil Judgers Prospective.** Elizabeth Gray*, Antonio Leon, John M. Galbraith and A. Ozzie Abaye
11-3	12:30 PM	**Assessment of Long-Term Effects of Conservation Reserve Program Enrollment on Soil Quality Indicators.** Stella Pey*
11-4	12:45 PM	**Soil Organic Carbon and Mineralization Rates at the Woolsey Wet Prairie Mitigation Project in Fayetteville, Arkansas.** Zachary Tipton*, Lisa Wood and Mary C Savin
11-5	1:00 PM	**Effects of Vermicompost and Vermicompost Tea on Ginseng Production at 3 Wisconsin Sites.** Brooke Bembeneck*, Lindsey E Carlson, Jacob Reed Prater, Daniel Keymer and Robert C. Michitsch
11-6	1:15 PM	**Legacy of Lead Paint Use and Its Impact on Soil Contamination at a California University Campus.** Jaclyn Carry*, Christopher S. Appel, Craig P. Stubler, Adrian Broz, Rachel Schultz, Sarena Bromberg, Zoe Dascalos, Holly Deniston-Sheets, Erik Hoffnagle, Kylen Maple, Chandler Reller, Haley Schlageter and Brian Whetsler
11-7	1:30 PM	**Differences in Phytosiderophore Production of Grain Sorghum Cultivars.** Keren Duerksen*, Colby J. Moorberg, Nathan Ryan, Lucas Scott and Hannah Wallace
11-8	1:45 PM	**Effects of Tillage and Fertility on Weed Communities over 46 Years in Southern Illinois.** Sarah J. Dintelmann*, Ronald F. Krausz and Karla L Gage
11-9	2:00 PM	**Plant Development and Soils Conditions Effected By Planting Date and Maturity Group.** William Singer*, Barbara A. Darroch and Paula M. Gale
11-10	2:15 PM	**Impact of Fertigation on Corn and Soybean Health in Indiana.** Lindsey Mckinzie*

SESSION NO. 12—12:30 PM–3:00 PM

Marriott Tampa Waterside, Grand Ballroom G, Second Level

Undergraduate Research Contest - Oral II

Students of Agronomy, Soils and Environmental Sciences (SASES)

12-1	12:00 PM	**The Allelopathic Effects of Palmer Amaranth (Amaranthus palmeri) on the Growth of Soil Fungal Pathogens.** Kayla Broster*, Arjun L Subedi, Joe L Mattews, Karla L Gage and Ahmad M Fakhoury
12-2	12:15 PM	**Do Specific Drift Minimizing Adjuvants Affect the Application Behavior of Dicamba Technology in a Large Scale Trial?** Cody Guenther*
12-3	12:30 PM	**Fungicide Effectiveness on Established Cranberry Stands.** Kayla Smith*
12-4	12:45 PM	**Optimizing Adjuvants and Dicamba Combinations for RR2 Xtend Soybeans.** Kathryn Henk*
12-5	1:00 PM	**Assessing Genetic Diversity within Natural Populations of Smooth Cordgrass to Ensure Effective Restoration Efforts.** Michelle Gaynor* and Eric Hoffman
	12:00 AM	**A Reliable Breeding Index for Stalk Lodging.** Witold de la Chapelle*, Ting-Che Lin, Xiao Lu, Douglas Cook and Daniel J Robertson
12-6	1:15 PM	**Response of Soybean to Defoliation in a Limit Grazing System.** Amanda Modglin*, Ben M. Goff and Chad Lee
12-7	1:30 PM	**Effects of Moisture Stress on Germination of Fiber Crops Utilized As Forage.** Alyssa Culpepper*, Ben M. Goff and David Williams
12-8	1:45 PM	**Effects of Strobilurin Containing Fungicides on Soybean Grain Yield and Disease Control.** Madison Decker*
12-9	2:00 PM	**Seed Germination Responses to Osmotic Stress in Corn Cultivars.** Charles Walne*
12-10	2:15 PM	**Foliar Applications of Fungicide to Corn in Southern Minnesota.** Hailey Dykes*

SESSION NO. 13—3:15 PM–4:45 PM

Marriott Tampa Waterside, Grand Ballroom I, Second Level

SASES National Speech Contest Prelims: I

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 14—3:15 PM–4:45 PM

Marriott Tampa Waterside, Grand Ballroom G, Second Level

SASES National Speech Contest Prelims: II

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 15—3:00 PM–5:00 PM

Tampa Convention Center, Room 7, First Floor

Symposium--Improving the Competitiveness of Natural Fibers to Increase Market Share

ASA Section: Agronomic Production Systems

Moderator: Eric Hequet

	3:00 PM	**Introductory Remarks**
15-1	3:05 PM	**Wither Natural Fiber Consumption? Why and What Can be Done?** Darren Hudson*
15-2	3:35 PM	**Can Cotton Save the Oceans from Environmental Catastrophe?** Mary Ankeny*
15-3	4:05 PM	**Length Matters: How Might We Narrow the Quality Gap between Cotton and Synthetic Fibers?** Andrew H. Paterson*
	4:35 PM	**Questions and Answers**
	4:45 PM	**Community Planning Session**
	5:00 PM	**Adjourn**

SESSION NO. 16—3:30 PM–5:00 PM

Marriott Tampa Waterside, Florida Salon I-III, Second Level

Hot Topics in Agronomy and Soil Science

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 17—3:40 PM–5:30 PM

Tampa Convention Center, Room 13, First Floor

Graduate Student Oral Competition

C02 Crop Physiology and Metabolism

Moderator: Felix Fritschi

	3:40 PM	**Introductory Remarks**
17-1	3:45 PM	**Soybean Seedling Growth and Root System Architecture in Response to Temperature.** Firas Ahmed Alsajri*, Chathurika Wijewardana and K. Raja Reddy
17-2	4:00 PM	**Transgenerational Stress Memory Impacts Seed Quality and Early Development of Peanut (Arachis hypogaea L.).** Kelly Racette*, Diane L. Rowland and Barry L. Tillman
17-3	4:15 PM	**Elevated [CO2] Modified the Drought Acclimation Response in Peanut.** Haydee Laza*, James R. Mahan, Jeffrey T. Baker, Dennis C. Gitz III, Barry L. Tillman, Diane L. Rowland, David Tissue and Paxton Payton
17-4	4:30 PM	**Examining the Effects of Phytohormones and Arbuscular Mycorrhizal Fungi in Peanut (Arachis hypogaea L.).** Erin Doughtie*
17-5	4:45 PM	**Impact of Prior Corn Nitrogen Fertilizer Application on Peanut Nodulation and Life History Analysis of Nodule Senescence in a Corn-Peanut Rotation.** David Hensley*, Diane L. Rowland and Michael Dukes
17-6	5:00 PM	**Impact of Seeding Time on Apical Development in Annual Canarygrass: A Case of Vernalization Requirement?** Konstantinos Xyntaris*, Rosalind Bueckert and Pierre Hucl
17-7	5:15 PM	**Effect of Interseeded Clovers on Forage Quality of Annual Ryegrass Pastures Grazed By Stocker Cattle.** Phillip Gunter*, Russell Muntifering, Mary Kimberly Mullenix and Rob Peacock
	5:30 PM	**Adjourn**

SESSION NO. 18—4:00 PM–5:30 PM

Tampa Convention Center, Room 14, First Floor

Turf Industry Session

C05 Turfgrass Science

4:00 PM	**Introductory Remarks**
4:10 PM	**Industry Overview-Marketplace, Products and Consolidation**
5:15 PM	**Discussion**
5:25 PM	**Concluding Remarks**
5:30 PM	**Adjourn**

SESSION NO. 19—4:00 PM–6:00 PM

Tampa Convention Center, Ballroom D, First Floor

Graduate Student Networking Session - Building Professional Relations Workshop

Sponsored by DuPont Pioneer

ACS238 Graduate Student Committee

SESSION NO. 20—10:45 AM–12:15 PM

Marriott Tampa Waterside, Grand Ballroom F Foyer

SASES Club Poster Contest

Students of Agronomy, Soils and Environmental Sciences (SASES)

Educating the Washington County Public on the Importance of Environmentally Conscious Gardening and the Role of Pollinators. Patience Vaught* and Paul Wolf
Virginia Tech Agronomy Club: Serving the University Community and Beyond. Jamie Hodnett*, Mathew Harris, Eric Scruggs, Hunter Davis and A. Ozzie Abaye
ISU Experience Agronomy Day. Elizabeth Widder* and Heather Wilson
Fifty Years of Promoting Agronomy and Soil Conservation at the University of Wisconsin-Platteville. Christopher Baxter and Katelynn Mauk*
CSU Ag Adventure - Growing Our Youth. Rachel Vorwerck* and Jason Gerlich
Oklahoma State University. Brooke Zimmer*, Liza Van der Laan, Grace Ogden, Sergio Manacpo Abit Jr. and Beatrix J. Haggard
Aggies for Agronomy. Caitlin Lakey*, Nicole Shigley, Braden Stockton, Savanna Shelnutt, Terry J. Gentry and Megan Teel
Earning and Giving. Dakota Westphal* and Sarah Harden
Significance of Educating the Public about General Agronomy. Nick Hurdle* and Paula M. Gale
Sharing the Harvest. Kristin Horstmann* and Kyle Stephen Hilger
Analysis of Key Soil Nutrients and Physical Properties on a Managed Grazing Operation in Junction City, WI. Joel Ebert*
Down to the Roots: Teaching Soil Health to 1st Grade Students. Kolby Grint*, Shawn McDonald, Samantha Teten and Rodger Farr
Illinois State University Club Poster Abstract. Hannah Meyer*
Promoting Plant Science through an Arbor Day Celebration. Elena Brookover*, Alexis Aday and Elora Ellison
Eat Local. Eat Healthy. Eat Wheat. Keren Duerksen*, Steven Sutton and Tara Wilson

SESSION NO. 21—6:00 PM–7:00 PM

Tampa Convention Center, Ballroom C, First Floor

ASA, CSSA and SSSA Opening Keynote

Keynote/Plenary Sessions

Moderator: Mark Westgate, Steven Evett, Richard Dick

	6:00 PM	**Introductory Remarks**
21-1	6:15 PM	**Global Food Security: Building the Needed Research Platforms.** Catherine Woteki*
	7:00 PM	**Adjourn**

SESSION NO. 22—(Monday) 9:00 AM–10:00 AM

Marriott Tampa Waterside, Grand Ballroom G

SASES National Speech Contest - Finals

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 23—9:15 PM–11:00 PM

Tampa Convention Center, Room 22 and 23, First Floor

SASES Quiz Bowl

Students of Agronomy, Soils and Environmental Sciences (SASES)

Monday, Oct. 23

SESSION NO. 24—7:00 AM–9:00 AM

Marriott Tampa Waterside, Grand Ballroom E and F, Second Level

CSSA Breakfast, Awards, and Plenary (Betty Klepper Endowed Lectureship)

Keynote/Plenary Sessions

Moderator: E. Charles Brummer, Mark Westgate, Michael Grusak

	7:00 AM	**CSSA Breakfast** (ticket required)
	7:30 AM	**Introductory Remarks**
	7:40 AM	**CSSA Awards**
	8:20 AM	**Presidential Address and CEO Remarks**
24-1	8:40 AM	**Partitioning and Passion, Potholes and Partnerships: A Journey with Tropical Maize.** Gregory O. Edmeades*, Marianne Banziger, Kenneth Fischer and Tsedeke Abate
	9:00 AM	**Adjourn**

SESSION NO. 25—7:50 AM–9:50 AM

Tampa Convention Center, Room 10, First Floor

Symposium--If You Use It, They Will Come: Using Social Media to Gain an Audience for Agriculture

ASA Section: Education and Extension

Section or Division Cosponsor: ASA Section: Global Agronomy

	7:50 AM	**Introductory Remarks**
25-1	7:55 AM	**Using Social Media in the Classroom: Perspective on an Evolving Classroom Pedagogy.** Cale Bigelow*
25-2	8:20 AM	**IPM (Integrated Participatory Management): Using Social Media to Cultivate and Engage a Network of Those Who Care and Share.** Karen Jeannette*
25-3	8:45 AM	**Social Media for Academia: Making an Impact through Social Media.** Michelle Harrolle* and Janelle Wells
25-4	9:10 AM	**Agricultural Experiences and Social Media.** Jennifer L. Burton* and Julia R. Pennington
	9:35 AM	**Community Planning Session**
	9:50 AM	**Adjourn**

SESSION NO. 26—7:55 AM–10:00 AM

Marriott Tampa Waterside, Grand Ballroom A, Second Level

Symposium--Data, Big Data and Statistical Analysis for Soils Investigations

SSSA Division: Consulting Soil Scientists

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

	7:55 AM	**Introductory Remarks**
26-1	8:00 AM	**NRCS Soils Data.** Shannon Gomes*
26-2	8:20 AM	**Digital Technologies and Analytics in Soil Science and Agronomy.** Harold van Es*
26-3	8:40 AM	**Sample Size Calculations in Multi-Locational on-Farm Studies Focused on Improving Soils.** Peter M. Kyveryga* and Suzanne Fey
26-4	9:00 AM	**Opportunities & Gaps in Science-Driven Insights in Ag.** Frank G. Dohleman*
26-5	9:20 AM	**Leveraging Soil-Based Information for Improving Job Performance.** Kevin L. Armstrong*, Than Hartsock, John C. Mann and Chad Yagow
26-6	9:40 AM	**Implementing State-of-Art Soil Study on Unconventional Soils of Playa for Monitoring, Modeling and Mitigating Dust Emissions.** Brian Schmid*, Jacob Kollen, Ben Cheng, Mark Roberson, Chuan-Shin Chong, Dane Williams, Aaron Smith, Clint Kellar and George Paul
	10:00 AM	**Adjourn**

SESSION NO. 27—7:55 AM–11:25 AM

Marriott Tampa Waterside, Florida Salon V, Second Level

Forest, Range and Wildland Soils General Oral

SSSA Division: Forest, Range and Wildland Soils

Moderator: Lauren Matosziuk, Adrian Gallo, David Frey, Tyler Weiglein

	7:55 AM	**Introductory Remarks**
27-1	8:00 AM	**Utilizing NEON Resources to Enhance Research in Soil Science.** Michael D. Sanclements*, Maggie Bowman, Adrian C. Gallo, Jeff Hatten, Katherine Heckman, Lucas E. Nave, Brian Strahm and Maggie Bowman
27-2	8:15 AM	**Forest and Grassland Cover Increased Greenhouse Gas Emissions during Spring Thaw in the Agricultural Landscape in Western Canada.** Jin-Hyeob Kwak, Sang-Sun Lim, Mark Baah-Acheamfour, Woo-Jung Choi, Farrah Fatemi, Cameron Carlyle, Edward Bork and Scott X. Chang*
27-3	8:30 AM	**Spatial Variability of Soil Depth in Two Carolina Slate Belt Ephemeral Drainages.** Rajpreet S. Butalia*
27-4	8:45 AM	**Belowground Wood Stake Decomposition in Forest Soils in the Northeast and Midwest.** Mary Beth Adams*, Martin Jurgensen, John M. Kabrick, Rich Hallett, Ian Yesilonis, Brian Palik, Megan Lang and Deborah S. Page-Dumroese
27-5	9:00 AM	**Terrestrial Carbon and Nitrogen Eight Years after Bark Beetle-Caused Forest Mortality.** Urszula Norton*, Ada Harris, Susan Schmidt and Jay Norton
27-6	9:15 AM	**Distribution of Phytophthora Cinnamomi in Appalachian Forests.** Kenton Sena*, Tyler Dreaden, Ellen Crocker, Chase Clark, Geoffrey Bell and Christopher D. Barton
27-7	9:30 AM	**Forest Biogeochemical Response to Nitrogen and Sulfur Additions.** Christine Goodale*, Andrew Castagno, Spencer J Debenport, Charlotte Levy, Bhavya Sridhar, Timothy Fahey and Daniel H Buckley
	9:45 AM	**Break**
27-8	9:55 AM	**Why Ice Storms Aren't Cool: New Research at Hubbard Brook Experimental Forest Targets Impacts of Extreme Winter Weather Events on Northern Hardwood Forest Ecosystems.** Lindsey Rustad*, John L. Campbell, Charles Driscoll, Timothy Fahey, Paul Schaberg, Peter M Groffman, Katharine Hayhoe, Robert Fahey, Joseph Staples, Sarah Garlick, Wendy Leuenberger and Gary Hawley
27-9	10:10 AM	**Soil Chemical Properties in a Tolerant Hardwood Ecosystem Response to Acid Deposition and Forest Harvesting.** Paul W. Hazlett*
27-10	10:25 AM	**Comparing Soil Chemical Properties between Deciduous and Coniferous Tree Stands.** Jason R. Burgess-Conforti*, Philip Moore, David Miller, Phillip R. Owens, Michelle Evans-White, Kelsey Anderson and Daniel H. Pote
27-11	10:40 AM	**Top-Down Effects of Wildlife and Bottom-up Drivers of Soils and Productivity in Intensively Managed Forest Plantations.** David Frey*, Jeff A. Hatten, Matt Betts and Thomas Stokely
27-12	10:55 AM	**Acquisition of N By Plants from 15N-Labeled Root and Leaf Litter.** Kai Coshow Rains*
27-13	11:10 AM	**Less Than 50% Nitrogen Retention Under High N Additions in the Western Douglas-fir Region of Oregon and Washington.** Stephani Michelsen-Correa* and Rob Harrison
	11:25 AM	**Adjourn**

SESSION NO. 28—7:55 AM–12:00 PM

Marriott Tampa Waterside, Florida Salon I-III, Second Level

General Nutrient Management Oral

ASA Section: Agronomic Production Systems

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

Moderator: Randal Simonson

	7:55 AM	**Introductory Remarks**
28-1	8:00 AM	**Uneven Spread of Dry N in Production Corn Fields.** Peter C. Scharf*
28-2	8:15 AM	**Effects of Two Enhanced-Efficiency Urea Fertilizer Technologies on Agronomic and Economic Performance of Southern Great Plains Winter Wheat.** Curtis Adams*, Santanu Bikram Thapa, Yubing Fan and Seong Park
28-3	8:30 AM	**Effect of Nitrogen and Seeding Rate on Plant Height, Seed Maturity and Seed Yield of Quinoa and Hulless Barley Grown in No-till in the Palouse.** Cedric Habiyaremye*, David White, Dan Packer, Kurtis L. Schroeder and Kevin M. Murphy
28-4	8:45 AM	**How Nutrient Loss Inhibitors Fit in the Illinois Nutrient Loss Reduction Strategy.** Michael H. Wilson*
28-5	9:00 AM	**Tools to Monitor Effectiveness of Nutrient Management Plans in Southeastern Illinois.** Michael H. Wilson*
28-6	9:15 AM	**In-Field Variability of Illinois Soil Nitrogen Test and Loss-on-Ignition for Nitrogen Management.** Angel Maresma* and Quirine M. Ketterings
28-7	9:30 AM	**Harnessing a Model-Based Tool to Improve Nitrogen Management for Maize Production: Summarizing 6 Years of Experience with Adapt-N.** Rebecca Marjerison*, Shai Sela, Jeff Melkonian, Harold van Es, Bianca Moebius-Clune, Daniel Moebius-Clune and Gregory Levow
	9:45 AM	**Break**
28-8	10:00 AM	**Ecophysiological Root Traits Asses of Maize and Soybean Under Contrasting Field Conditions in Iowa.** Raziel A. Ordóñez*, Michael J. Castellano, Emily Wright and Sotirios V Archontoulis
28-9	10:15 AM	**Nitrogen Management to Optimize Sugar Beet Production in the RED River Valley.** Amitava Chatterjee*
28-10	10:30 AM	**Using Controlled Release Fertilizer to Increase Nitrogen-Use Efficiency for Overhead Irrigated Snap Bean (Phaseolus vulgaris L.) Production in Florida.** Xiaolin Liao and Guodong Liu*
28-11	10:45 AM	**Evaluate Different N Fertilizers to Improve Nitrogen Use Efficiency, Yield, and Quality of Potato Cultivation Under Rainfed and Irrigated Fields.** Lakesh Sharma*, Ahmed A Zaeen, Sukhwinder Kaur Bali and James D. Dwyer
28-12	11:00 AM	**Twin-Row Soybean/Corn Rotation Response to Increased NPK Fertility.** M. Wayne Ebelhar*

28-13	11:15 AM	**Determining Optimum Rate and Timing for Applying Poultry Manures on a Perennial Grass.** Derek Hunt* and Shabtai Bittman
28-14	11:30 AM	**Corn-Palisadegrass Intercropping Effects on Nitrogen (N) Budget.** Silas Maciel de Oliveira*, José Laércio Favarin and Ignacio A. Ciampitti
	11:45 AM	**Community Planning Session**
	12:00 PM	**Adjourn**

SESSION NO. 29—7:55 AM–12:35 PM

Tampa Convention Center, Room 13, First Floor

Cover Crop Management Oral (includes student competition)

ASA Section: Land Management and Conservation

Moderator: Jay Norton, Gretchen Sassenrath

	7:55 AM	**Introductory Remarks**
29-1	8:00 AM	**Management and Implications of Cover Crops in No-till Corn and Soybean Systems in Nebraska.** Katja Koehler-Cole* and Roger W. Elmore
29-2	8:15 AM	**Effect of Cover Crops on Yield, Quality, and Soil Properties in No-till Baby Corn.** Atinderpal Singh*, Sanjit K Deb, Sukhbir Singh and Jasjit Singh Kang
29-3	8:30 AM	**Cover Crop Influence on Stored Soil Water Availability to Subsequent Crops.** Ricardo St Aime*, Sruthi Narayanan and Geoffrey W. Zehnder
29-4	8:45 AM	**Optimizing Management for Establishment of Alfalfa Interseeded into Silage Corn.** William R. Osterholz*, Mark J. Renz and John H. Grabber
29-5	9:00 AM	**The Effect of Cool Season Grass Cover Crops on Nitrogen Cycling in Soil.** Jaimie R West* and Matthew D. Ruark
29-6	9:15 AM	**Tracking Deep Soil Nitrogen in Cover Crop Systems: A N-15 Isotope Study.** Sarah Marie Hirsh* and Ray R Weil
29-7	9:30 AM	**Using Diverse Cover Crop Mixtures to Increase Biomass and Nitrogen Production.** Bethany Wolters*, Mark S. Reiter, William Hunter Frame, Ryan Stewart, Steven C. Hodges and Charles W. Cahoon
29-8	9:45 AM	**Short-Term Benefits of Cover Crops on Labile Carbon and Nitrogen Pools in Soil.** Kavya Krishnan*, Jaimie R West and Matthew D. Ruark
	10:00 AM	**Break**
29-9	10:15 AM	**Forage Radish and Winter Rye Cover Crop Performance in Corn Silage Cropping Systems.** Kirsten Workman*, Jeffrey Carter and Sidney C. Bosworth
29-10	10:30 AM	**Cereal Rye (*Secale cereale* L.) Fall Planting Date to Determine Cover Crop Biomass Production in the US Midwest.** Angela Bastidas*, Christopher Proctor and Roger W. Elmore
29-11	10:45 AM	**Planting Green: Delayed Cover Crop Termination As a Tool for Soil Conservation, Water Management, and IPM.** Heidi Myer*, Heather D. Karsten, William S Curran, John Tooker and Sjoerd Williem Duiker
29-12	11:00 AM	**Effects of Cover Crops and Compost on Phosphorus Cycling in Calcareous Soils.** Erin Rooney* and Jay Norton
29-13	11:15 AM	**Interseeding Cover Crops in Corn in Michigan.** Aaron Brooker*, Karen A. Renner, Christy L. Sprague and Lisa Tiemann
29-14	11:30 AM	**Interseeded Cover Crop Effects on Dynamic Indicators of Soil Health.** Yeukai Katanda*, Mehdi Sharifi, Laura L Van Eerd and David Hooker
29-15	11:45 AM	**Impacts of Cover Crop and Grazing Management Under Integrated Crop Livestock System on Soil Microbial Parameters.** Vishal Seth* and Sandeep Kumar
29-16	12:00 PM	**Cover Crop and No-Tillage Impacts on Soil Health Indicators over a Growing Season.** Jennifer D. Woodyard*, Stacy M. Zuber and Eileen J. Kladivko
29-17	12:15 PM	**Interseeding Cover Crops into Early Season Corn.** Melissa Geiszler*, Joel Ransom and Marisol T. Berti
	12:20 PM	**Community Planning Session**
	12:35 PM	**Adjourn**

SESSION NO. 30—8:00 AM–10:05 AM

Tampa Convention Center, Room 9, First Floor

Symposium--Agricultural Management Practices Effect on Greenhouse Gas Emissions, Mitigation Strategies, and Modeling

ASA Section: Environmental Quality

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

Moderator: Sindhu Jagadamma, Keith Paustian

	8:00 AM	**Introductory Remarks**
30-1	8:05 AM	**GHG Mitigation By Lignocellulosic Bioenergy Cropping Systems: Potentials and Pitfalls.** G. Philip Robertson*
30-2	8:25 AM	**Choice of Spatial Scale Effects in up Scaling Net Primary Productivity and Greenhouse Gas Emissions: A Model Simulation Study.** Jagadeesh Yeluripati*, Matthias Kuhnert and Peter Smith
30-3	8:45 AM	**Flux Variance Partitioning: A New Approach to Advance Eddy Covariance Observations for Greenhouse Gas Emissions.** Ray G. Anderson*, Dong Wang, Todd H. Skaggs, Joseph G Alfieri and William Kustas
30-4	9:05 AM	**Opportunities for Reducing GHG Emissions in Canada through Increased C Input to Cropland.** Brian G. McConkey*, Jianling Fan, Arumugam Thiagarajan, Chang Liang and Darrel Cerkowniak
30-5	9:25 AM	**Soil Greenhouse Gas Emissions Under Long-Term Conservation Management in a Continuous Cotton Cropland in West Tennessee.** Sean M. Schaeffer*, Julie Konkel, Virginia L. Jin, Jennifer M. DeBruyn and Donald D. Tyler
30-6	9:45 AM	**Eight Years of Tillage, Crop Rotation, and Cultural Practice Impact on Soil Carbon and Nitrogen.** Upendra M. Sainju*, Andrew W. Lenssen, Brett L. Allen, William B. Stevens and Jalal D Jabro
	10:05 AM	**Adjourn**

SESSION NO. 31—8:00 AM–10:15 AM

Tampa Convention Center, Room 14, First Floor

Modeling in Soil Physics and Hydrology

SSSA Division: Soil Physics and Hydrology

Moderator: Matthew Levi, Yohannes Yimam

	8:00 AM	**Introductory Remarks**
31-1	8:05 AM	**Effect of Diffusive Tortuosity on Longitudinal Dispersivity in Undisturbed Soil.** Poulamee Chakraborty* and Bhabani Sankar Das
31-2	8:20 AM	**Selected Applications of Hydrus Models for the Numerical Analysis of the Hydrological/ Thermal Behavior of Various Engineering Systems.** Giuseppe Brunetti and Jirka Simunek*
31-3	8:35 AM	**Erosion Alters Depth to the Argillic Horizon: What Impacts on Hillslope Interflow?** Rachel Ryland*, Daniel Markewitz, David E. Radcliffe, Aaron Thompson and Lori Sutter
31-4	8:50 AM	**Evaluating Drywells for Stormwater Management and Enhanced Aquifer Recharge.** Salini Sasidharan*, Scott A. Bradford, Jirka Šimůnek, Stephen Kraemer and Dave Goodrich
31-5	9:05 AM	**Validation of a New Scheme for Determination of Irrigation Depths Using a Numerical Model of Crop Response to Irrigation and Quantitative Weather Forecasts.** Hassan Abd El Baki*, Haruyuki Fujimaki, Ieyasu Tokumoto and Tadaomi Saito
	9:20 AM	**Break**
31-6	9:30 AM	**Obtaining Soil Hydraulic Parameters from Data Assimilation Under Different Climatic/ Soil Conditions.** Javier Valdes-Abellan*, Yakov A. Pachepsky and Gonzalo Martinez
31-7	9:45 AM	**Influence of Data Availability and Pedotransfer Functions on the Modeling of Soil Moisture Dynamics.** Cristina P. Contreras*, Sara E Acevedo and Carlos A. Bonilla
31-8	10:00 AM	**Drawing a Representative Sample from the NCSS Soil Database: Building Blocks for the National Wind Erosion Network.** Matthew R. Levi* and Nicholas Webb
	10:15 AM	**Adjourn**

SESSION NO. 32—8:00 AM–10:25 AM

Marriott Tampa Waterside, Room 12, Third Level

Soil Enzymes: Methods of Analyses and Mechanisms Oral (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

	8:00 AM	**Introductory Remarks**
32-1	8:05 AM	**Microplate Format Assay of Soil Enzymes and Method Standardization.** Shiping Deng* and Richard P. Dick
32-2	8:25 AM	**Methodological Recommendations for Optimizing Assays of Enzyme Activities in Soil Samples.** Andrew J. Margenot*, Yuhei Nakayama and Sanjai J. Parikh
32-3	8:40 AM	**Soil Enzyme Activity Assays: Protocols and Interpretations.** Richard P. Dick*, Nicola Lorenz and Shipeng Deng
32-4	9:00 AM	**Depolymerization of Organic Matter As a Bottleneck for C Cycling.** Delphine Derrien*, Julien Sainte-Marie, Matthieu Barrandon, Francis Martin, Eric Gelhaye and Laurent Saint-André
	9:15 AM	**Break**
32-5	9:30 AM	**Enzyme Specificity for the Degradation of Phytate: Isotope As a Proxy for Tracking Active Enzyme in the Environment.** Mingjing Sun* and Deb P. Jaisi
32-6	9:45 AM	**Biotechnological Use of Phytases to Improve Organic Phosphorus Availability to Crops.** Daniel Blackburn*
32-7	10:05 AM	**Advances in the Study of Phytases and Phosphatases in Bacteria Associated with Plants Grown in Chilean Extreme Environments.** MILKO ALBERTO JORQUERA*
	10:25 AM	**Adjourn**

SESSION NO. 33—8:00 AM–10:50 AM

Marriott Tampa Waterside, Room 3, Second Level

Development of Tools for Precision Agriculture I (includes student competition)

ASA Section: Agronomic Production Systems

Moderator: Antonio Asebedo, Lakesh Sharma

	8:00 AM	**Introductory Remarks**
33-1	8:05 AM	**Utilizing an Aerial Platform to Assess Cotton Plant Population.** Shawn Butler*, Tyson Brant Raper and Michael Buschermohle
33-2	8:20 AM	**Cotton Growth Variability in Relation to Topography and Soil Physical Properties in the High Plains.** Jasmine Neupane*, Wenxuan Guo, Abir Raihan, Zhe Lin, John Edward Bennett and Charles P. West
33-3	8:35 AM	**Study of Irrigation and Nitrogen Rate Impact on Corn Yield and Spectral Reflectance in Alabama.** Mariana Del Corso*, Brenda V. Ortiz and Christian Brodbeck
33-4	8:50 AM	**Use of Pulse-Width Modulation Sprayers to Optimize Enlist Duo® Applications.** Thomas R. Butts*, Chase A. Samples, Lucas X. Franca, Darrin M. Dodds, Daniel B. Reynolds, Jason W. Adams, Richard K. Zollinger, Kirk A. Howatt and Greg R. Kruger
33-5	9:05 AM	**Integrating Management Zones and Canopy Sensing for Improved Nitrogen Recommendation Algorithms.** Joel D. Crowther*, John Parrish, Richard B. Ferguson, Joe D. Luck, Keith L. Glewen, Tim M. Shaver, Dean Krull, Laura Thompson, Nathan D. Mueller, Brian Krienke, Taro Mieno and Troy Ingram
	9:20 AM	**Break**
33-6	9:35 AM	**Integration of Reactive Sensor and Maize-N Model Approaches for Nitrogen Rate Fertigation in Corn.** Mohammed A Naser*, Richard B. Ferguson, Brian Krienke, Keith Glewen, Suat Irmak, Daran R. Rudnick, Charles Shapiro and Tim Shaver
33-7	9:50 AM	**Utilizing Mobile Applications and RGB Imagery for Estimating Grain Yield in Winter Wheat.** Ashley Lorence* and Antonio Ray Asebedo

33-8	10:05 AM	**Comparison of Ground-Based Active and Aerial Passive Sensors for in-Season Nitrogen Management.** John Parrish*, Richard B. Ferguson, Joe D. Luck, Keith L. Glewen, Laura Thompson, Brian Krienke, Nathan D. Mueller, Joel D. Crowther, Troy Ingram, Dean Krull, Tim M. Shaver and Taro Mieno
33-9	10:20 AM	**Foliar Fertilization As a Tool to Accelerate Peanut Seed Maturation.** Anne Krystel Pierre*, Michael J. Mulvaney, Diane L. Rowland, Barry L. Tillman, Timothy L. Grey and C Wesley Wood
33-10	10:35 AM	**Sensor Comparison of Nitrogen Stress Assessment and Remediation.** Leonardo M. Bastos*, Luciano Shozo Shiratsuchi and Richard B Ferguson
	10:50 AM	**Adjourn**

SESSION NO. 34—8:00 AM–11:35 AM

Marriott Tampa Waterside, Florida Salon IV, Second Level

Nitrogen - Soil Fertility and Plant Nutrition

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Terry Tindall

	8:00 AM	**Introductory Remarks**
34-1	8:05 AM	**Relating Soil Nitrogen to Corn Crop N Need.** Emerson D. Nafziger*
34-2	8:20 AM	**Maximizing Soil Nitrogen Credits through Soybean Maturity Group Selection.** Carrie Ortel*, Trenton L. Roberts, Richard J. Norman, Larry C. Purcell and Jarrod T Hardke
34-3	8:35 AM	**The Changing Nature of the Corn Yield Response to N: Role of Residual Soil N.** John H. Grove*
34-4	8:50 AM	**Crop Rotation and Cultural Practice Impact on Soil Residual Nitrogen.** Upendra M. Sainju*, Andrew W. Lenssen, Brett L. Allen, William B. Stevens and Jalal D Jabro
34-5	9:05 AM	**Developing Soil Tests to Predict Nitrogen Availability to Corn in Ohio.** Anthony M. Fulford*, Steve Culman, Tunsisa T. Hurisso, Peter R. Thomison, Gregory A. LaBarge and Harold D. Watters
34-6	9:20 AM	**Combined Poultry Litter and Cover Crop Effects on Corn Productivity, N Cycling, and Soil Quality and Health Indicators.** Jac J. Varco*, Apisit Boupai and Rachel Seman-Varner
34-7	9:35 AM	**Optimum Nitrogen Fertilizer Management Strategies for High-Yielding Spring Wheat in Manitoba.** Amy Mangin*, John Heard and Don Flaten
	9:50 AM	**Break**
34-8	10:05 AM	**Evaluation of Nitrogen Stabilizers on Nitrogen Use Efficiency of Poultry Litter.** Syam K. Dodla*, Hari Bohara, Jim J. Wang and Murali Darapuneni
34-9	10:20 AM	**Effects of Different Levels of Urea Fertilizer on Growth Performance of Celosia Argentea in Ikorodu Agro Ecological Zone of Nigeria.** Kehinde Oseni Sanni* and Kolawole Gbemavo Godonu
34-10	10:35 AM	**Climate Resilient Soil Fertility Management Strategy for Rice Production in Submergence Prone Areas in Northern Ghana.** Sampson Agyin-Birikorang*, Wilson Dogbe and Cisse Boubakary
34-11	10:50 AM	**Corn Yield and Nitrogen Use Efficiency Response to ESN and Urea Blends in the Deep South.** Michael J. Mulvaney* and Heather A Enloe
34-12	11:05 AM	**Effects of Soil Properties and Fertilizer Additives on Ammonia Volatilization from Urea.** Brent Sunderlage and Rachel L. Cook*
34-13	11:20 AM	**Effects of an Experimental Nitrification Inhibitor When Used with Fall and Spring Applied Anhydrous Ammonia.** Gregory J. Schwab*, Daniel J. Schaefer, Kelly A. Nelson, Richard B. Ferguson and Matthew J Helmers
	11:35 AM	**Adjourn**

SESSION NO. 35—8:00 AM–11:35 AM

Marriott Tampa Waterside, Grand Ballroom D

Ph.D. Oral Competition I

SSSA Division: Soil Fertility and Plant Nutrition

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

Moderator: Charles Shapiro

	8:00 AM	**Introductory Remarks**
35-1	8:05 AM	**Beneficial Nitrogen Fixation in Dry Bean Cultivars Inoculated with *Rhizobia*.** Debankur Sanyal*, Robert J. Goos, Juan M. Osorno and Amitava Chatterjee
35-2	8:20 AM	**Why the Different Responses between Single and Split Nitrogen Applications?** Jason Clark*, Fabian G. Fernandez, James Camberato, Paul R. Carter, Richard B. Ferguson, David W. Franzen, Newell R Kitchen, Carrie A.M. Laboski, Emerson D. Nafziger, John E. Sawyer and John Shanahan
35-3	8:35 AM	**Evaluation of Soil Mineral Nitrogen Content in Different Irrigation Systems during Potato Crop Development.** Andre Biscaia*, Lincoln Zotarelli, Michael Dukes, Senthold Asseng, Shinsuke Agehara and Edzard van Santen
35-4	8:50 AM	**Soil Macro- and Micro-Nutrient Pools' Role in Yield and Nitrogen Use Efficiency Responses of Maize Hybrids to N in Africa.** Heather Pasley*, Jill Cairns, Mike Olsen, Eileen J. Kladivko, James Camberato and Tony J. Vyn
35-5	9:05 AM	**Nitrogen Availability and Corn Production in Minnesota Following Cover Crops.** Sabrina Badger*, Daniel E. Kaiser and M. Scott Wells
35-6	9:20 AM	**Interseeding of 15 Cover Crops and Impacts on Nitrogen Availability.** Michelle Dobbratz*, Sharon L Lachnicht Weyers and M. Scott Wells
35-7	9:35 AM	**Synchronizing Soil Nitrogen Supply to Vegetable Nitrogen Uptake By Available Carbon in Greenhouse Cultivation System.** Yanfang Tian*, Guitong Li, Lin Qimei and Zhao Xiaorong
	9:50 AM	**Break**
35-8	10:05 AM	**Adaptive Nitrogen and Irrigation Management Strategies Improve Agronomic and Environmental Outcomes from Potato Production.** Brian J. Bohman*, David Mulla and Carl J. Rosen
35-9	10:20 AM	**Yield Response of Winter Canola to Poultry Litter Fertilization.** Yaru Lin*, Dexter B. Watts and H. Allen Torbert

35-10	10:35 AM	**Nitrogen Contributions from Late-Summer Planted Cover Crops to Winter Wheat in a Conservation Tillage Cropping System.** Arun D Jani*, Michael J. Mulvaney, John Erickson, Ramon G Leon, C Wesley Wood and Diane L. Rowland
35-11	10:50 AM	**Comparison of Statistical Approaches to Determine Nitrogen Needs of Winter Cereals.** Sarah E Lyons*, Zhehan Tang, James Booth and Quirine M. Ketterings
35-12	11:05 AM	**Soybean Nitrogen Fixation : The Nitrogen Budget.** Silvia Carolina Córdova*, Ranae Dietzel, Mark A. Licht, Sotiris V. Archontoulis and Michael J. Castellano
35-13	11:20 AM	**Corn Yield and NUE with Nitrogen Application at Early Vegetative and Reproductive Stage.** Andrew Stammer* and Dorivar A. Ruiz Diaz
	11:35 AM	**Adjourn**

SESSION NO. 36—8:00 AM–11:45 AM

Marriott Tampa Waterside, Room 11, Third Level

Microbial Transformations of Minerals, Metals and Organic Matter I.: Impacts on Contaminant Dynamics and Carbon Storage Oral (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

	8:00 AM	**Introductory Remarks**
36-1	8:05 AM	**Relationship between Nutrient Availability, Microbial Activities, Mineral Transformations and Partitioning of Constituents of Potential Concern Under End Pit Lake Scenario.** Najmeh Samadi*, Petr Kuznetsov, Kai Wei, Ania Ulrich and Tariq Siddique
36-2	8:20 AM	**Transport and Transformation of Particulate Organic Matter in Permeable Riverbed Sediments.** Sarah Bessey, Jacqueline Mejia, Noah Stern, Eric E Roden, Steven Loheide and Matthew A. Ginder-Vogel*
36-3	8:35 AM	**Effect of Climate Change on Coupled Biogeochemistry of Carbon, Sulfur, and Mercury in Northern Peatlands.** Jessica Gutknecht*, Cameron Blake, Olga Furman, Sona Psarska, Anna Krupp, Stephen Sebestyen, Randall K. Kolka, Ed Nater, Dwayne Elias, Ann Wymore, Geoffrey Christensen, Eric M Pierce and Brandy Marie Toner
36-4	9:10 AM	**Composition-Dependent Sorptive Fractionation of Anthropogenic Organic Matter on Fe-Rich Clay Minerals.** Robert B. Young*, Shani Avneri-Katz, Amy M. McKenna, William Bahureksa, Tamara Polubesova, Benny Chefetz and Thomas Borch
36-5	9:25 AM	**Mn(III)-Driven Litter Decomposition Along Oxic-Anoxic Interfaces in Temperate Forest Soils.** Morris Jones* and Marco Keiluweit
36-6	9:40 AM	**Characterizing Interaction of Copper and Dissolved Organic Matters in Soils from Coal Mine Land Subsidence Areas Using 3D-EEM Fluorescence Spectroscopy.** Qingjun Meng*, qiyan Feng, Wenyuan He, Xiaomeng Li and Yuncong Li
36-7	9:55 AM	**Electron Acceptor Constraints on Soil Carbon Mineralization and Metal Cycling in Soils.** Hannah Naughton* and Scott Fendorf
	10:10 AM	**Break**
36-8	10:25 AM	**Carbon in Transit - Implications of Microbial Energetics for Carbon and Contaminant Fate in Transitory Systems.** Kristin Boye*, Malak Tfaily, Anke M Herrmann, Vincent Noël, John Bargar and Scott Fendorf
36-9	10:45 AM	**The Potential for Iron Reduction in Upland Soils in Calhoun Critical Zone Observatory.** Chunmei Chen, Nadia Noor, Diego Barcellos, Caitlin Hodges and Aaron Thompson*
36-10	11:00 AM	**The Impact of Redox Fluctuations on Iron-Organic Carbon Associations.** Chunmei Chen* and Aaron Thompson
36-11	11:15 AM	**Elucidating the Mechanisms of Bacteriogenic Iron Oxide Reduction and Its Effects on Cr(VI) Sorption.** Andrew Hays Whitaker*, Owen Duckworth and Jasquelin Pena
36-12	11:30 AM	**Biogeochemical Fate and Stability of Iron Oxide-Organic Carbon Complexes.** Dinesh Adhikari*, Dawit Wordofa, Qian Zhao, Sarrah Dunham-cheatham, Jacqueline Mejia, Kamol Das, Rixiang Huang, Simon Poulson, Yuanzhi Tang, Eric E Roden and Yu Yang
	11:45 AM	**Adjourn**

SESSION NO. 37—8:00 AM–11:55 AM

Marriott Tampa Waterside, Grand Ballroom I, Second Level

Soils and Environmental Quality General Oral I

SSSA Division: Soils and Environmental Quality

Moderator: Robert Dungan, Deli Chen

	8:00 AM	**Introductory Remarks**
37-1	8:05 AM	**Determination of the Impact of Tillage on Soil and Water Quality in a Paired Watershed Study.** Warren Ashley Hammac*, Diane E. Stott and Javier M. Gonzalez
37-2	8:20 AM	**Soil Quality Assessmnet Using Long-Term Conservation Reserve Program.** Raut Yogendra*, Warren A Dick, Mark Sulc and Norman Fausey
37-3	8:35 AM	**Enhancing Soils Quality Using the Integrated Crop-Livestock Systems in Northern Great Plains, USA.** Sandeep Kumar*
37-4	8:50 AM	**Building a Quantitative Analogy for Soil Classification Systems.** Mark A. Chappell*, Jennifer M. Seiter, Haley M West, Brian D. Durham, Matthew A Middleton, Beth E. Porter and Cynthia L. Price
37-5	9:05 AM	**Impact of a Winter Rye Cover Crop on Edge-of-Field Nutrient Losses and Corn Silage Production.** Keegan Griffith* and Eric O. Young
37-6	9:20 AM	**Effect of No-till, Conventional and Vertical Tillage Practices on Nitrate and Phosphorus Losses in Southern Ontario.** Chin Tan*, T.Q. Zhang, Katie Stammler and Michael John Dick
37-7	9:35 AM	**Agronomic Gain: Evolution of Integrated Spatial Agronomy Programs.** Khagendra Raj Baral*, David Guerena, Shashish Maharjan and Andrew J. McDonald
	9:50 AM	**Break**
37-8	10:05 AM	**Controls on the Immobilization of Radium and Uranium in Natural Aquifers.** Michael Chen* and Benjamin Kocar

37-9 10:20 AM **The Effect of Natural Humic Acid Derived from Leonardite on Uranium Species in Soil.** Fande Meng*, Fengxiang Han, Guodong Yuan and Zikri Arslan

37-10 10:35 AM **Plant-Microbe-Uranium Interactions in Phytoremediation of Uranium Contaminated Soil Using Sunflower.** Decheng Jin*, Lixiang Zhou, Fengxiang Han, Kai Guo, Fande Meng and Zikri Arslan

37-11 10:50 AM **Heavy Metal Contents in Cuban Soils.** Olegario Muniz Ugarte*, Mirelys Rodriguez and Alfredo Montero

37-12 11:05 AM **Field-Based Investigations on Stabilization of a Contaminated Military Site Via Combined Use of Soil Amendments and Biofuel Crop Growth.** Zafer S Alasmary*, Ganga M. Hettiarachchi, Kraig L. Roozeboom, Lawrence C. Davis,, Larry E. Erickson, Azil Nurzanova, Tetyana Stefanovska, Valentina Pidlisnyuk and Mary Beth Kirkham

37-13 11:20 AM **A Model to Simulate Microbial Denitrification with Epic: Description, Evaluation, and Applications.** Roberto C. Izaurralde*, William B. McGill, Jimmy R. Williams, Curtis D Jones, Robert P Link, David H. Manowitz, D. Elisabeth Schwab, Xuesong Zhang, G. Philip Robertson and Neville Millar

37-14 11:35 AM **Heavy Metals in Subsurface Waters of Reclaimed Frac Sand Mine Soils.** Holly A.S. Dolliver* and Paul T. Kivlin

11:50 AM **Concluding Remarks**

11:55 AM **Adjourn**

SESSION NO. 38—8:00 AM–4:15 PM

Marriott Tampa Waterside, Grand Ballroom B

General Bioenergy Systems Oral

ASA Section: Agronomic Production Systems

Moderator: Jason de Koff, Thandiwe Nleya

8:00 AM **Introductory Remarks**

38-1 8:05 AM **Nitrogen and Irrigation Effects on Seed Yield, Oil Content and Nitrogen Use Efficiency of Camelina.** Kevin F. Bronson*, Doug J. Hunsaker, Kelly Thorp and Jeffrey W. White

38-2 8:20 AM **Nitrogen Source and Rate Effects on Camelina Seed Yield and Biomass Production Irrigated with Sewage Effluent Wastewater in Nevada.** Dhurba Neupane*, Juan K. Q. Solomon and Jason Davison

38-3 8:35 AM **Effects of Plant Growth Regulator Source, Rate and Timing on Brassica Carinata Agronomic Performance.** Ramdeo Seepaul*, Sheeja George, Ian Small and David L. Wright

38-4 8:50 AM **Sulfur Nutrition Its Relationship to the Production of Glucosinolates in Brassica Carinata.** Theodor Stansly* and David L. Wright

38-5 9:05 AM **Seeding Rate and Nitrogen Fertilization Rate Effects on Growth and Yield of Ethiopian Mustard (Brassica carinata).** Thandiwe M. Nleya*, Phillip Alberti and Sandeep Kumar

38-6 9:20 AM **Electrochemical and Chemometrics-Based Methods to Evaluate the Quality Traits of Sweet Sorghum Stalk Juice Bioenergy Feedstock.** Minori Uchimiya*

38-7 9:35 AM **Energy Cane Production and Characteristics in Georgia.** William F. Anderson*, Ali M Missaoui, Joseph Knoll and Anna Hale

38-8 9:50 AM **Impact of Straw Removal in Sugarcane Yields in Brazil.** Rafael Otto*, Camilo Ernesto Bohórquez Sánchez, Sarah Tenelli, Saulo Augusto Quassi Castro, Renata Alcarde Sermarini and Joao Luis Nunes Carvalho

10:05 AM **Break**

38-9 10:15 AM **Corn Grain Yield Response to Stover Removal Under Variable Nitrogen, Irrigation, and Carbon Amendments.** Marty R. Schmer*, Virginia L. Jin, Aaron J. Sindelar, Richard B. Ferguson and Brian J. Wienhold

38-10 10:30 AM **Assessing Farm Operations, Technology, and Management As Indicators for Corn Stover Harvest.** John F Obrycki* and Douglas L. Karlen

38-11 10:45 AM **Composition and Morphology As Predictors of Stalk Strength.** Pearl Rwauya, Ushna Usman, Zachary W Brenton, Stephen Kresovich, Daniel Robertson and Douglas Cook*

38-12 11:00 AM **Biochar and Nitrogen Effects on Yield, Plant Nutrients and Soil Health Characteristics in Switchgrass Production.** Jason P. de Koff* and Priya Saini

38-13 11:15 AM **Nitrogen, Phosphorus and Potassium Removal By Perennial Energy Grasses Grown on Wet Marginal Land.** Danielle R Cooney*, Moonsub Lee, Maria B. Villamil and Dokyoung Lee

38-14 11:30 AM **Nitrogen Cycling Microbial Community Affected By Perennial Energy Crops on Riparian Buffer.** Hyemi Kim*, Moonsub Lee, Anthony C. Yannarell and Dokyoung Lee

38-15 11:45 AM **Cell Wall Components and Heading Date in Switchgrass.** Megan Taylor*

12:00 PM **Lunch Break**

38-16 1:30 PM **Miscanthus Productivity and Nutrient Export on 22 Producer Fields.** Matt A. Yost*, Newell R Kitchen and Kenneth A Sudduth

38-17 1:45 PM **Nitrogen Fertilization Makes *Miscanthus x Giganteus* Grow Faster but Not Bigger: A Closer Look at Phenology.** Mauricio Tejera* and Emily A. Heaton

38-18 2:00 PM **Bioenergy Perennial Grass Species and Nitrogen Fertilization Efect on Root Biomass, Root/Shoot Ratio, and Soil Water.** Upendra M. Sainju*, Brett L. Allen, Andrew W. Lenssen and Rajan Ghimire

38-19 2:15 PM **Impacts of Shrub Willow Integration in an Agricultural Landscape on Soil Quality and Biodiversity.** Colleen Zumpf*, Maria Cristina Negri, Dokyoung Lee, Julian Cacho and Patty Campbell

38-20 2:30 PM **Methane Production through Anaerobic Digestion of Various Energy Crops Irrigated with Wastewaters.** Sonia Shilpi*, Balaji Seshadri, Nanthi S Bolan and Ravi Naidu

2:45 PM **Break**

38-21 3:00 PM **Leaching Export of Dissolved Organic Carbon and Dissolved Nitrogen from Agricultural Soils in Southern Michigan.** Mir Zaman Hussain*, STEPHEN K HAMILTON, Ajay Bhardwaj, Bruno Basso and G. Philip Robertson

38-22 3:15 PM **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., Joshua Gamble, Jacob Jungers, Nicole Tautges, David Smith, Gary Wyatt and Craig C. Sheaffer

38-23	3:30 PM	**Using Marginal Lands to Produce Cellulosic Bioenergy Feedstocks in the US Midwest: Production Capacity, Greenhouse Gas Emissions, and Environmental Impacts.** Xuesong Zhang*, Stephen LeDuc, Ilya Gelfand, ritvik Sahajpal, Christopher Michael Clark, Roberto C. Izaurralde, Katherine L. Gross and G. Philip Robertson
38-24	3:45 PM	**The Reclusive Internodes of Prairie Cordgrass: Tip of the Potential Biomass Iceberg.** Arvid Boe* and Dokyoung Lee
38-25	4:00 PM	**Construction of High-Density Genetic Linkage Map of Napiergrass (Pennisetum purpureum).** Dev Paudel*, Baskaran Kannan, Fredy Altpeter and Jianping Wang
	4:15 PM	**Adjourn**

SESSION NO. 39—8:10 AM–11:30 AM

Tampa Convention Center, Ballroom A, First Floor

Symposium--Advances in Crop Modeling Applications to Secure Food and Environmental Sustainability

ASA Section: Climatology and Modeling

Moderator: Bruno Basso

	8:10 AM	**Introductory Remarks**
39-1	8:15 AM	**Modeling Record Corn Yields, Water Use and Transpiration Efficiency.** Joe T. Ritchie* and Bruno Basso
39-2	8:35 AM	**Integrating Crop Models and Precision Agriculture Technologies to Understand Spatial and Temporal Variability of Crop Yield.** Bruno Basso*
39-3	8:55 AM	**Phenotypic Prediction Augmented through Crop Model-Whole Genome Prediction.** Carlos D. Messina*, Tom Tang, Randy Clark, Carla Gho, Belay Kassie and Mark Cooper
39-4	9:15 AM	**Approaches to Model Nitrogen Leaching in Agroecosystems: Current Status and Future Challenges.** Sotirios V Archontoulis*
	9:35 AM	**Break**
39-5	9:50 AM	**Global Wheat Production Affected By Increasing Temperature and Elevated CO2.** Senthold Asseng*
39-6	10:10 AM	**Advances in Empirical Models of Denitrification and Nitrous Oxide Production.** Peter R Grace*
39-7	10:30 AM	**Agroecosystem Modeling and Decision Support for California's Soil Health Initiative.** Keith Paustian*, Mark Easter, Amy Swan, Kevin D Brown and Adam Chambers
	10:50 AM	**Discussion**
	11:10 AM	**Break**
	11:15 AM	**Community Planning Session**
	11:30 AM	**Adjourn**

SESSION NO. 40—8:15 AM–10:15 AM

Tampa Convention Center, Room 31, Third Floor

Symposium--Beef and Dairy Systems: Economics and Environmental Footprint

ASA Section: Environmental Quality

	8:15 AM	**Introductory Remarks**
40-1	8:20 AM	**Steps to Sustainable Ruminant Livestock Production.** Michael Lee*
40-2	8:55 AM	**Complex Systems Science to Build Resilience in Beef Cattle and Dairy Production Systems: The Role of the Caps.** Matthew D. Ruark*, Jean L. Steiner and Charles W. Rice
40-3	9:10 AM	**Flexibility to Cope: Producers Perceptions of Uncertainty and Adaptive Strategies to Maintain Resilience.** Amber Campbell*, Audrey King, Terrie Becerra, Barbara Brown, Gerad Middendorf and Peter J. Tomlinson
40-4	9:25 AM	**Multi-scale Measurements and Modeling of Greenhouse Gases (CO2, CH4 and N2O) Emissions from Beef and Dairy Cattle in Grazing Environments.** Xiangming Xiao*
40-5	9:40 AM	**Life Cycle Assessment of Beef and Dairy Systems.** Greg Thoma*, Ali Saleh and Narayanan Kannan
40-6	10:00 AM	**Breakthroughs in Beef and Dairy Systems: Implementation of Science.** Charles W. Rice*, Matthew D. Ruark, Jean L. Steiner and Charles Rice
	10:15 AM	**Adjourn**

SESSION NO. 41—8:15 AM–11:10 AM

Marriott Tampa Waterside, Grand Ballroom H, Second Level

Soil Biology and Biochemistry General Session I

SSSA Division: Soil Biology and Biochemistry

Moderator: Lindsey Slaughter

	8:15 AM	**Introductory Remarks**
41-1	8:20 AM	**Bacterial Community Composition Associated with Pyrogenic Organic Matter Varies with Its Pyrolysis Temperature and Colonization Environment.** Zhongmin Dai*, Philip Brookes and Jianming Xu
41-2	8:35 AM	**Controls on Soil C:N Stoichiometry and Implications for Carbon Accrual.** M. Francesca Cotrufo*, Emanuele Lugato, Michelle Haddix, Maria Giovanna Ranalli and Johan Six
41-3	8:50 AM	**Anaerobic Microsites Have an Unaccounted Role in Soil Carbon Stabilization.** Marco Keiluweit* and Scott Fendorf
41-4	9:05 AM	**Nematode Community Succession in Vertebrate Carcass Decomposition Soil Hot Spots.** Lois Taylor*, Gary Phillips, Sarah W. Keenan, Ernest C. Bernard and Jennifer M. DeBruyn
41-5	9:10 AM	**Does Inorganic N Fertilizer Affect Soil Organic Matter Mineralization?** Navreet Kaur Mahal*, Fernando Miguez, William R. Osterholz, Hanna Poffenbarger, John E. Sawyer and Michael J. Castellano
41-6	9:15 AM	**The Effect of Prescribed Fires in Biotic and Abiotic Factors on South Region of Puerto Rico.** Rebecca Tirado-Corbala*, Mario Flores Mangual, Jose Vigo-Agosto and Wilfredo Robles-Vazquez
41-7	9:20 AM	**Effects of *Achillea* Plant Essential Oil and Some *Rhizobium* Bacteria Inoculation on Soil Enzyme Activity in Bean *(Phaseolus vulgaris)* Plant.** Serdar Bilen* and Veysel Turan
	9:25 AM	**Question and Answer**
	9:30 AM	**Break**

41-8	9:45 AM	**Investigating How Spatial Confinement May Drive Microbial Interactions in Soils and Sediments.** Jared Lee Wilmoth*, Michelle C Halsted, Nannan Jiang, Tse-Yuan S Lu, Andrea C Timm, Patricia M Blair, Dale Pelletier, Peter W Doak, Miguel Fuentes-Cabrera, Frank Loeffler, Mitchel J Doktycz and Scott T Retterer
41-9	10:00 AM	**Influence of Land Management and Soil Type on Soil C Pool Turnover.** Gary J Lanigan* and Gemma Torres
41-10	10:15 AM	**Clay-Associated Organic Matter: A Hidden Source of Nitrogen in Agricultural Soils?** Andrea Jilling*, Marco Keiluweit, Alexandra Contosta, Serita Frey, Joshua Schimel, Jörg Schnecker, Richard G. Smith, Lisa Tiemann and A. Stuart Grandy
41-11	10:30 AM	**How to Evaluate Nitrogen Release Process from Compost.** Zemeng Ma, Guitong Li*, Yanfang Tian, Xiaorong Zhao and Qimei Lin
41-12	10:45 AM	**Soil Microbial Community Dynamics over the Growing Season of a Corn Agroecosystem after Winter Cover Cropping.** Clayton J. Nevins*, Corey Lacey, Lori A. Hoagland, Ronald F. Turco, Cindy Nakatsu and Shalamar D. Armstrong
	11:00 AM	**Discussion**
	11:10 AM	**Adjourn**

SESSION NO. 42—8:25 AM–11:00 AM

Tampa Convention Center, Room 7, First Floor

Soils 101: From the Pulpit to the Pit

SSSA Division: Soil Education and Outreach

Moderator: Garrett Liles

	8:25 AM	**Introductory Remarks**
42-1	8:30 AM	**A Survey of Introductory Soil Science Curricula at 2- and 4-Year Institutions in the United States.** Nicolas A. Jelinski*, Colby J. Moorberg, Michel D. Ransom and James Bell
42-2	8:45 AM	**A Comparison of Different Teaching Strategies in a Soil Science Class.** Salvador Ramirez* II, Martha Mamo, Meghan E. Sindelar, Timothy Kettler and Carol Speth
42-3	9:00 AM	**Engaging Students in a Soils Discussion.** Michael L. Mashtare* Jr. and John G. Graveel
42-4	9:15 AM	**Integrating Lecture and Lab Activities in Introductory Soils.** Gordon L. Rees*
42-5	9:30 AM	**Delivery and Student Perceptions of Drive-through Laboratory Sessions.** Sergio Manacpo Abit* Jr., James Lasquites and Patrick Curl
	9:45 AM	**Break**
42-6	10:00 AM	**Dirty Hands = an Active Mind!.** Garrett C. Liles*
42-7	10:15 AM	**Engaging Students in Lecture: Flipping a Nutrient Management Course.** Mark Keck*, Martha Mamo, Meghan E. Sindelar, Leah Sandall and Sydney Brown
42-8	10:30 AM	**A Single Framework for the Pedagogy of Nutrient Cycling.** David E. Ruppert*
42-9	10:45 AM	**Soil Quality Assessment: Opening Minds to a Different View of the Soil.** V. Steven Green* and David Saarnio
	11:00 AM	**Adjourn**

SESSION NO. 43—8:25 AM–11:45 AM

Marriott Tampa Waterside, Grand Ballroom J, Second Level

Global Impacts of Environmental Contamination I (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Chemistry, SSSA Division: Soil Biology and Biochemistry, SSSA Division: Soils and Environmental Quality

Moderator: Wei Zhang, Jennifer DeBruyn

	8:25 AM	**Introductory Remarks**
43-1	8:30 AM	**Pharmaceutical Residues, Antibiotic Resistance Genes, and Bacterial Communities in Lettuce Under Overhead and Surface Irrigation.** Wei Zhang*, Yike Shen, Gemini D. Bhalsod, Robert Stedtfeld, James M. Tiedje and Hui Li
43-2	8:45 AM	**Insight into Distributions of Pharmaceuticals in Soil-Water-Radish Systems.** Yuanbo Li*, J. Brett Sallach, Wei Zhang, Stephen A. Boyd and Hui Li
43-3	9:00 AM	**Characteristics of Extended-Spectrum β-Lactamase Genes in Escherichia coli Isolated from Different Animal Sources.** Abasiofiok M. Ibekwe*
43-4	9:15 AM	**Bioavailability of Tetracycline Sorbed By Carbonaceous Sorbents to Escherichia coli for Expression of Antibiotic Resistance.** Yingjie Zhang*, Wei Zhang, Stephen A. Boyd, Brian J. Teppen, James M. Tiedje and Hui Li
43-5	9:30 AM	**Cosorption Mechanism of Zn and Tetracycline on Al2O3 and Montmorillonite: Insights from EXAFS, ATR-FTIR, XRD Analyses.** Yujun Wang*, Ting-Ting Fan, Juan Gao, Mengqiang Zhu and Dong-Mei Zhou
43-6	9:45 AM	**Adsorption of Biosolids-Derived Dissolved Organic Matter and Selected Endocrine Chemicals to Two Iowa Soils.** Fritzie Rivas and Michael L. Thompson*
	10:00 AM	**Break**
43-7	10:15 AM	**Biodegradable Plastic Agricultural Mulches: Microbial Degradation and Implications for Soil Health.** Jennifer M. DeBruyn*, Sreejata Bandopadhyay, Henry Sintim, Marie English, Xianfang Wen, Jose Liquet y Gonzalez, Sean M. Schaeffer, Markus Flury, Kyle Bonifer, Todd Reynolds and Douglas G Hayes
43-8	10:30 AM	**Biodegradable Plastic Mulch: Impacts on Soil Quality and Degradation in Soil and Compost.** Henry Sintim*, Sreejata Bandopadhyay, Marie English, Andy Bary, Jennifer M. DeBruyn, Sean M. Schaeffer and Markus Flury
43-9	10:45 AM	**Specialty Crop Growers' Perceptions of Soil Health Impacts from Polyethylene and Biodegradable Plastic Mulches.** Susan Schexnayder*, Jessica Goldberger and Markus Flury
43-10	11:00 AM	**A Sprayable Biodegradable Polymer Membrane for Use in Crop Production.** Keith L. Bristow*, Raju Adhikari, Phil Casey, George Freischmidt, Priscilla Johnston, Michael Braunack, Jirka Simunek and Cameron Way
43-11	11:15 AM	**The Role of Biodegradable Plastic Mulches in Soil Organic Carbon Cycling.** Marie English*, Sean M. Schaeffer, Henry Sintim, Markus Flury, Sreejata Bandopadhyay, Jennifer M. DeBruyn and Douglas G Hayes

43-12	11:30 AM	**Remediation of Heavy Metals-Contaminated Soils through Phosphate-Induced Immobilization Technology: From Lab to Field.** Xinde Cao*
	11:45 AM	**Adjourn**

SESSION NO. 44—8:30 AM–10:00 AM

Marriott Tampa Waterside, Room 8 and 9

SASES Club Presidents' Round Table

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 45—8:30 AM–12:00 PM

Tampa Convention Center, Room 33, Third Floor

Soil and Water Management and Conservation General Oral I

SSSA Division: Soil and Water Management and Conservation

Moderator: Diane Stott, Julie Konkel

	8:30 AM	**Introductory Remarks**
45-1	8:35 AM	**Spring Canola Critical Growth Stages for Water Management.** Sultan Begna*, Krishna Katuwal, Sukhbir Singh, Young Cho and Sangamesh Angadi
45-2	8:50 AM	**Developing Urban Irrigation Water Conservation Strategies Using Smart Soil Moisture Sensor-Based Controllers.** Amir Haghverdi* and Somayeh Ghodsi
45-3	9:05 AM	**Managed Groundwater Recharge on Agricultural Lands: Implications for Nitrate Contamination of Groundwater.** Hannah Waterhouse*, William R. Horwath, Helen Dahlke, Philip Bachand and Sandra Bachand
45-4	9:20 AM	**Modeling the Effect of Changing Precipitation Inputs on Deep Soil Water Utilization in a Southeast US Loblolly Pine Plantation.** Ji Qi*, Daniel Markewitz and David E. Radcliffe
45-5	9:35 AM	**Irrigation Scheduling and Soil Moisture Dynamics Influence Water Uptake By Citrus Trees.** Davie Mayeso Kadyampakeni* and Kelly T. Morgan
45-6	9:50 AM	**Performance Assessment of Mobile Drip Irrigation Under Full and Deficit Conditions in West Central Nebraska.** Turner Dorr*, Daran R. Rudnick and Tsz Him Lo
	10:05 AM	**Break**
45-7	10:15 AM	**Anatomy of the 2016 Drought in New York State: Implications for Agriculture and Water Resources.** Shannan Sweet*
45-8	10:30 AM	**Novel Design and Field Performance of Phosphorus-Sorbing and Denitrifying Bioreactors.** Andry Ranaivoson*, Jeffrey S. Strock, Gary W. Feyereisen, Kurt A. Spokas, David Mulla and Marta Roser
45-9	10:45 AM	**Impacts of Cultivation Practices and Water Management in the Post-Vegetative Stage on Rice Grain Yield and Water Productivity.** Amod Kumar Thakur*, Krishna Gopal Mandal, Rajeeb Kumar Mohanty and Sunil Kumar Ambast
45-10	11:00 AM	**An Index for Plant Water Deficit Based on Root-Weighted Soil Water Status and Its Applications.** Shi Jianchu*, Qiang Zuo and Alon Ben-Gal
45-11	11:15 AM	**Effect of Soil Water Management Status on Corn and Soybean Root Growth.** Jeffrey S. Strock*, Axel Garcia y Garcia and Andry Ranaivoson
45-12	11:30 AM	**Soil Water Content As Affected By Crop Growth Stages, Different Management Practices and Soil Depth Under Dryland Conditions.** Erick Sebetha*
45-13	11:45 AM	**Soil Water Movement As Affected By Hydraulic Conductivity, Initial Soil Moisture and Irrigation Intensity.** Xi Zhang* and Ole Wendroth
	12:00 PM	**Adjourn**

SESSION NO. 46—8:45 AM–3:35 PM

Marriott Tampa Waterside, Room 1, Second Level

Applied Soybean Research (includes student competition)

Sponsored by Monsanto

ASA Section: Agronomic Production Systems

Moderator: John Orlowski

	8:45 AM	**Introductory Remarks**
46-1	8:50 AM	**Do Soybeans Respond to Management? Identifying Which Management Factors Have the Greatest Impact on Soybean Yields.** Tryston August Beyrer* and Frederick E. Below
46-2	9:05 AM	**Effect of Maturity Group and Seed Rate on Double-Crop Soybean Grain Yield in the Ohio River Valley Region.** Stephen Boersma*, John Bailey, Dan Davidson, Carrie A. Knott, Laura Lindsey, William J. Wiebold and Shaun Casteel
46-3	9:20 AM	**Is Soybean Yield Limited By Nitrogen Supply?** Nicolas Cafaro La Menza*, Juan Pablo Monzón, James Specht and Patricio Grassini
46-4	9:35 AM	**Quantifying Foliar Nitrogen Effects on Soybean Relative Maturity, Grain Yield, and Grain Quality.** John C Craft*, Alexander Lindsey, Laura Lindsey and David J. Barker
46-5	9:50 AM	**Effects of Soybean Release Year and Intensive Management on Seed Fill.** Kathryn Graf*, James Camberato, Kiersten Wise and Shaun Casteel
46-6	10:05 AM	**Cultivar and Agronomic Management Affect Recovery and Yield of Flooded Soybean in Mississippi.** William Lassiter* and John M. Orlowski
	10:20 AM	**Break**
46-7	10:30 AM	**Input Management for Improving Double-Crop Soybean Management.** Kody Leonard*, Josh Lofton, Emily Kate Landoll and Victor Bodnar
46-8	10:45 AM	**Effect of Soybean Planting Date and Relative Maturity on Grain Yield.** Michelle Shepherd* and Laura Lindsey
46-9	11:15 AM	**Evaluation of Narrow Row Irrigated Soybean in Mississippi.** Richard Mitchell Smith* and John M. Orlowski
46-10	11:30 AM	**Managements Practices to Close Yield Gaps in Soybeans.** Guillermo R. Balboa*, William M. Stewart, Fernando Salvagiotti, Fernando O. Garcia, Eros Artur Bohac Francisco Sr. and Ignacio A. Ciampitti

46-11	11:45 AM	**Effect of Centibar Thresholds at Soybean Growth Stages on Yield and Irrigation Water Use Efficiency.** Clinton Wood*, L. Jason Krutz, Trent Irby, William Brien Henry, J. M. Orlowski and Larry Falconer
	12:00 PM	**Lunch Break**
46-12	1:30 PM	**On-Farm Evaluation of Foliar Applied Fungicide and Insecticide on Soybean in Iowa.** Brett McArtor*, Peter M. Kyveryga and Anthony Martin
46-13	1:45 PM	**Canadian Soybean Honeymoon: Agronomy and Cropping System Shifts in Manitoba.** Yvonne E. Lawley* and Kristen P MacMillan
46-14	2:00 PM	**Growth and Yield of Soybean Biotechnology Varieties Under Semi-Arid No-till Condition.** Gautam Prasad Pradhan, Jerald W. Bergman, James A. Staricka, Emma Link*, Austin Link, Kyle Dragseth and David Weltikol
46-15	2:15 PM	**Comparative Advantage of Narrow Row Spacing and Low Seeding Rate of Soybean Under Semi-Arid No-till Condition.** Gautam Prasad Pradhan*, Jerald W. Bergman, James A. Staricka, Tyler J Tjelde, Emma Link, Austin Link, Justin Jacobs, Kyle Dragseth and David Weltikol
46-16	2:30 PM	**Agronomic Evaluation of a High-Speed Planter in Soybean Production.** Peter Kovacs* and Shaun Casteel
46-17	2:45 PM	**Amaranthus Palmeri in South Dakota and Herbicide Options.** Brian Van De Stroet* and Sharon A. Clay
46-18	3:00 PM	**Unravelling the Influence of on-Farm Management on US-North Central Soybean Yields.** Spyridon Mourtzinis*, Juan Ignacio Rattalino Edreira, Patricio Grassini, Adam Roth, Ignacio A. Ciampitti, Mark A. Licht, Herman J. Kandel, Peter M. Kyveryga, Laura Lindsey, Daren S Mueller, Seth L. Naeve, Emerson D. Nafziger, Jordan Standley, Staton J Michael, Shaun Casteel and Shawn P. Conley
	3:15 PM	**Concluding Remarks**
	3:20 PM	**Community Planning Session**
	3:35 PM	**Adjourn**

SESSION NO. 47—8:55 AM–11:00 AM

Tampa Convention Center, Room 10, First Floor

Symposium--Gaining Access to Food Security in Developing Countries: A Systematic Approach to Modernizing Productivity

ASA Section: Global Agronomy

Moderator: Stella Salvo

	8:55 AM	**Introductory Remarks**
47-1	9:00 AM	**Increasing Farmer Access to High Quality Inputs, Credit, and Markets: Perspective of an Economist and a Development Practitioner.** Mywish K. Maredia*
47-2	9:15 AM	**Improving Crop Improvement and Seed Delivery Systems for Small Holders in Sub-Saharan Africa.** Jeffrey D. Ehlers* and Gary N. Atlin
47-3	9:30 AM	**Addressing the Yield Gap in Asia.** James Neilsen*
47-4	9:45 AM	**Decision Resources for Fertilizer Use Optimization in Africa.** Charles Wortmann and Idriss Serme*
47-5	10:00 AM	**Improving Access to Mechanization in Sub-Saharan Africa.** Kerry M. Clark*, Kristin Bilyeu, Gabriel A.Z. Abdulai and Peter Goldsmith
47-6	10:15 AM	**Technology Awareness and Implementation for Smallholder Farmers.** Jim Gaffney*
47-7	10:30 AM	**A Systems Approach to Modernizing Agriculture in the Developing World, an Industry's Perspective.** Todd A. DeGooyer*
	10:45 AM	**Community Planning Session**
	11:00 AM	**Adjourn**

SESSION NO. 48—9:00 AM–11:35 AM

Tampa Convention Center, Room 12, First Floor

Pedology General Oral

SSSA Division: Pedology

	9:00 AM	**Introductory Remarks**
48-1	9:05 AM	**Soil Carbon in Sandy Soils across the World.** Jenifer L. Yost* and Alfred E. Hartemink
48-2	9:20 AM	**Soil Properties and Phosphorus Fractions across a Climatic Gradient in Sankuru Region, Central Democratic Republic of Congo (DRC).** Esakakondo Lohese*, Andrew J. Margenot and Nicolas A. Jelinski
48-3	9:35 AM	**Soil Property and Class 100-Meter Grid Maps of the Conterminous United States: Soilgrids+.** Amanda Ramcharan, Tomislav Hengl, Travis Nauman*, Colby Brungard, Sharon W. Waltman, Skye A. Wills and James A. Thompson
48-4	9:50 AM	**Cryostratigraphy and Soil Development in Ice Wedge Polygons on Arctic Coastal Plains, Alaska.** Chien-Lu Ping*, Julie D. Jastrow, Roser Matamala, Gary J Michaelson, Umakant Mishra and Yuri L Shur
48-5	10:05 AM	**Permafrost-Affected Soils and Ecological Sites in the Copper River Basin, Alaska.** Nicolas A. Jelinski*, Dennis Mulligan, Andrea Williams, Josh Feinberg and Michele Stillinger
48-6	10:20 AM	**Assessing Quality of Citizen Scientists' Soil Hand Texture Estimates.** Shawn Salley* and Jeff Herrick
48-7	10:35 AM	**Detection of Fabricated Macropore Networks Using 3-D Laser Scanning.** Daniel Hirmas*, Daniel Gimenez, Ali Al-Sarraji and Aoesta Mohammed
	10:50 AM	**Break**
48-8	11:05 AM	**Regolith Evolution over Granitic Rock at Mid-Elevations of the Southern Sierra Nevada, California.** Zhiyuan Tian*, Anthony Toby O'Geen and Peter Hartsough
48-9	11:10 AM	**Utilizing Soils to Understand Maya Water Management at El Peru-Waka', Guatemala.** Matthew C. Ricker*, Damien B. Marken and Alexander Rivas
48-10	11:15 AM	**State of Gender Parity in Soil Science.** Asmeret Asefaw Berhe, Eric C. Brevik, Tracy Christopherson, Chelsea Duball, Deborah S. Page-Dumroese, Suzann Kienast-Brown, David L. Lindbo, Lorene A. Lynn, Urszula Norton, Carolyn G. Olson, Yamina Pressler, Pam Thomas, Karen L. Vaughan*, Stacey Weems, Samantha C Ying, Caitlin Price Youngquist, Amanda Pennino, Zoe Ash-Kropf, Maria Tsiafouli, Leigh Winowiecki and Jessica Chiartas
48-11	11:20 AM	**The Prairie Soil - Forest Soil Boundary.** Curtis Monger*

11:25 AM **Question and Answer**
11:35 AM **Adjourn**

SESSION NO. 49—9:00 AM–4:25 PM

Tampa Convention Center, Room 5, First Floor

Agricultural Remote Sensing General Oral (includes student competition)

ASA Section: Climatology and Modeling

Moderator: Ana Wagner

9:00 AM **Introductory Remarks**
49-1 9:05 AM **Quantifying Cumulative Effects of Machine Traffic and Slash Loading from Harvesting on Aspen Regeneration.** Landon Sealey* and Kenneth Cornelius J. Van Rees
49-2 9:20 AM **Improving Nitrogen Use in California Rice.** Telha Rehman*, Andre Reis, Nadeem Akbar and Bruce Linquist
49-3 9:35 AM **Utilizing Remote Sensing for Variable-Rate Nitrogen and Irrigation Management in Potato.** Tyler John Nigon*, Brian J. Bohman, Carl J. Rosen and David Mulla
49-4 9:50 AM **High-Throughput Technologies for Alfalfa Germplasm Evaluation in the Field.** Alexandre-Brice Cazenave*, Michael R Komp, Kushendra N Shah, Tresa A Trammell, Jeremy Joshua Pittman, Justin K. Hoffman, Christy M. Motes and Maria J. Monteros
49-5 10:05 AM **Unmanned Aerial Vehicle (UAV) for High Throughput Phenotyping of Sorghum Crop.** Sanaz Shafian*, Nithya Rajan, Ronnie W. Schnell, Dale Cope, ian Gates and Andrew Vree
49-6 10:20 AM **Development and Evaluation of a Field-Based Phenotyping System for Cotton.** Miles Mikeska*, Nithya Rajan, Gaylon D. Morgan and Steve Hague
10:35 AM **Break**
49-7 10:45 AM **Evaluating Spatial and Temporal Changes in Dung Distribution between Grazing Strategies Using an Unmanned Aerial Vehicle (UAV).** Amanda Shine Sanford*
49-8 11:00 AM **Evaluation of Spring Wheat Senescence Using Multispectral Data.** Breno Bicego Vieitez de Almeida*, Aaron Wipf, Scott Powell and Jessica A Torrion
49-9 11:15 AM **Accuracy of in-Season Maize Yield Estimation with Unmanned Air Vehicle (UAV) in Smallholder Maize-Based Farms.** Julius B. Adewopo*, Alpha Y Kamara, Bernard Vanlauwe and Peter Craufurd
49-10 11:30 AM **Unmanned Aerial System (UAS)-Based Panicle Size Extraction for Grain Sorghum Yield Estimates.** Murilo Maeda*, Jinha Jung, Juan Landivar-Bowles, Anjin Chang, Junho Yeom, William L. Rooney, Nicholas Ace Pugh, David W. Horne and Geraldo Carvalho Jr.
49-11 11:45 AM **Uashub: Online Research Collaboration Portal for UAS Data.** Jinha Jung*, Anjin Chang, Junho Yeom, Juan Landivar-Bowles and Murilo Maeda
12:00 PM **Lunch Break**
1:30 PM **Introduction Afternoon**
49-12 1:45 PM **Evapotranspiration Modeling over Irrigated Crops in South Central Arizona.** Andrew French*, Douglas Hunsaker, Lahouari Bounoua and Arnon Karnieli
49-13 2:00 PM **Bushland Evapotranspiration and Agricultural Remote Sensing System (BEARS) Software.** Jerry E. Moorhead*, Prasanna H. Gowda, Brett A Ponder and David K. Brauer
49-14 2:15 PM **Tillage Detection with Sentinel-1 Radar Data.** Guillaume Chomé, Urs Schulthess*, Kai Sonder, Mangi Lal Jat, Bruno Gerard and Pierre Defourny
49-15 2:30 PM **Using Uav Imagery for Crop Analytics.** Casey Adams*
49-16 2:45 PM **Applying Random Forest Regression Algorithm in EVI Data for Soybean Yield Estimation.** Jonathan Richetti*, Kenneth J. Boote, Willyan Ronaldo Becker, Alex Paludo, Laiza Cavalcante, Jerry Adriani Johann and Miguel Angel Uribe Opazo
3:00 PM **Break**
49-17 3:10 PM **Analysis of Plant Growth and Yield Using an UAS (Unmanned Aircraft System)-Based Remote Sensing Platform.** Juan Landivar-Bowles*, Jinha Jung, Murilo Maeda, Anjin Chang and Junho Yeom
49-18 3:25 PM **Growth Monitoring of Corn Using UAS (Unmanned Aerial Systems).** Sebastian Varela*, Pruthvidharreddy Dhodda and Ignacio A. Ciampitti
49-19 3:40 PM **Monitoring Areas Under Potential Risk during Extreme Events Using the National Agricultural Statistics Service Decision Support System.** Noemi Guindin*, Clyde W. Fraisse, Ana Wagner, Jose H Andreis, Daniel Dantas Barreto, Vinicius Andrei Cerbaro, Eduardo Gelcer, Doris Liu, Daniel Perondi, Enrique Pinedo, Xiaozhen Shen, Diego N. L. Pequeno, Caroline G. Staub and Oxana Uryasev
49-20 3:55 PM **The Power of Indicators in Agriculture Decision Support Systems: Integrating Climate, Remote Sensing, and Crop Phenology.** Ana Wagner*, Clyde W. Fraisse, Noemi Guindin, Diego N. L. Pequeno, Daniel Dantas Barreto and Eduardo Gelcer
4:10 PM **Community Planning Session**
4:25 PM **Adjourn**

SESSION NO. 50—9:20 AM–11:30 AM

Tampa Convention Center, Room 24, First Floor

Crop Breeding & Genetics Oral I

C01 Crop Breeding and Genetics

Moderator: Seth Murray

9:20 AM **Introductory Remarks**
50-1 9:25 AM **Molecular Marker Analysis of Progeny Origins in Sibling-Mating and Crossing Populations of Inbred Lowland Switchgrass.** John H. Baker, Yanqi Wu*, Michael P. Anderson, Vijaya Gopal Kakani and Lan Zhu
50-2 9:40 AM **What's Changing from 55 Years of Sorghum Breeding?** Brian K. Pfeiffer*, Dennis R. Pietsch, Ronnie W. Schnell and William L. Rooney
50-3 9:55 AM **A MAGIC Population-Based Genome-Wide Association Study Reveals Functional Association of GhRBB1_A07 Gene with Superior Fiber Quality in Cotton.** David Fang*, Sarifu Islam, Gregory Thyssen, Johnie N. Jenkins, Linghe Zeng, Jack McCarty and Donald C. Jones

50-4 10:10 AM **Dissection of Soil Waterlogging Tolerance in Soft Red Winter Wheat through Integration of Genomic Approaches.** Andrea Acuna*, Richard Esten Mason, Amanda Holder, Maria Arguello Blanco, Habibullah Hayat, Dennis Nicuh Lozada and Gina L Brown-Guedira

50-5 10:25 AM **Breeding Cowpea for Resistance to Striga Gesnerioides in the Nigerian Dry Savannas Using Marker Assisted Selection.** Lucky O Omoigui*, Alpha Y. Kamara and Michael P Timko

50-6 10:40 AM **Evidence of Local Adaptation in Breeding Wheat for Weed-Competitive Ability.** Lisa Kissing Kucek*, Heather M. Darby, Julie Dawson, Michael Davis and Mark E. Sorrells

50-7 10:45 AM **Plant Population Response of New Aflatoxin-Resistant Corn Hybrids in Georgia.** Joseph E. Knoll*

50-8 10:50 AM **Effect of Soybean Genotypes on the Carry-over Nitrogen Supplied to Winter Rye Cover Crop.** Raphael Lemes Hamawaki*, Curtis Wolf and Stella Kantartzi

50-9 10:55 AM **Role of the Epicuticular Wax Locus Bloomless2 in Sugarcane Aphid (Hemiptera: Aphididae) Resistance.** Karen Harris-Shultz*, Somashekhar Punnuri, Joseph Knoll, Xinzhi Ni and Hongliang Wang

50-10 11:00 AM **Introgression from Triticum Turgidum Ssp. Polonicum into Durum and Bread Wheat.** John Giles Waines* and Adam J. Lukaszewski

50-11 11:05 AM **Rapid Isolation of Loss of Function Mutations for Dominant Traits: A Case Study Using Photoperiod Response Gene in Cotton.** Linglong Zhu and Vasu Kuraparthy*

50-12 11:10 AM **Identifying Potential Avenues for Increasing GRAIN Number UNDER Post Anthesis HEAT Stress Condition.** Sumit Pradhan Shrestha*, Jahangir Khan, Muhsin Avci, Dipendra Shahi, Jia Guo, Atik Rahman and Md A. Babar

11:15 AM **Question and Answer**

11:30 AM **Adjourn**

11:30 AM **Continue with C-1 Oral 5min and Poster**

SESSION NO. 51—9:25 AM–2:30 PM

Tampa Convention Center, Room 19, First Floor

Robert F Barnes Ph.D. Oral Contest

C06 Forage and Grazinglands

Moderator: Esteban Rios

9:25 AM **Introductory Remarks**

51-1 9:30 AM **Interseeding Sunn Hemp into Existing Tall Fescue Pasture for Improved Summer Forage Productivity and Nutritive Value.** Isaac Lepcha* and Harley D. Naumann

51-2 9:45 AM **Soil Organic Carbon and Nitrogen Dynamics of Year-Round Legume- or Nitrogen-Fertilized Grass-Based Forage Systems Defoliated By Grazing or Clipping.** Liliane Severino da Silva*, Mary Kimberly Mullenix, Lynn Sollenberger, Maria Lucia A. Silveira, Marta Moura Kohmann, Erin Stenklyft, Parmeshwor Aryal, Katie D. Cooley, Jose Carlos Batista Dubeux Jr. and Joao M.B. Vendramini

51-3 10:00 AM **Effects of Low Lignin Alfalfa and Alfalfa-Grass Mixtures on Yield and Nutritive Values.** Iryna McDonald* and Doohong Min

51-4 10:15 AM **Effects of Long-Term Weather Variations on Alfalfa Production in the Midwestern United States.** Xuan Xu* and Doohong Min

51-5 10:30 AM **Environment and Management Factors Affect Biomass Partitioning of Rhizoma Peanut during Establishment.** Parmeshwor Aryal*, Lynn E. Sollenberger, Marta Moura Kohmann, Liliane Severino da Silva, Erin Stenklyft, Katie D. Cooley, Diane L. Rowland and Jose Carlos Batista Dubeux Jr.

10:45 AM **Break**

51-6 11:00 AM **Enteric Methane Emissions from Cattle in N-Fertilized Grass or Grass-Legume Pastures during Cool- and Warm-Seasons.** Liza Garcia*, Jose Carlos Batista Dubeux Jr., Lynn E. Sollenberger, Joao M.B. Vendramini, Nicolas DiLorenzo, Erick Rodrigo da Silva Santos, David Jaramillo, Maria Alejandra Gutierrez-Beltran and Martin Ruiz-Moreno

51-7 11:15 AM **Sunn Hemp for Alternative Forage Production: Field Management and Forage Characteristics in the Northeast.** Samantha Glaze-Corcoran* and Masoud Hashemi

51-8 11:30 AM **Performance of Bahiagrass Varieties Under Low-N Input Systems.** Erick Rodrigo da Silva Santos*, Jose Carlos Batista Dubeux Jr., Ann Blount, Cheryl Mackowiak, Liza Garcia, David Jaramillo, Jose Diogenes Neto and Martin Ruiz-Moreno

51-9 11:45 AM **Profiling Canopy Light Interception and Growth Forms to Predict Forage Yield and Nutritive Value for Meadow Bromegrass-Alfalfa Mixtures.** Dennis S. Ashilenje* and M. Anowarul Islam

51-10 12:00 PM **Yield and Forage Nutritive Value of Reduced Lignin and Reference Alfalfa Varieties Subject to Diverse Cutting Treatments.** Amanda M. Grev*, M. Scott Wells, Debby Samac, Krishona L. Martinson and Craig C. Sheaffer

12:15 PM **Lunch Break**

51-11 1:30 PM **Litter Deposition and Decomposition Under Grass-Legume Mixed Systems.** David Jaramillo*, Jose Carlos Batista Dubeux Jr., Luana Dantas Queiroz, Liza Garcia, Daciele Sousa de Abreu, Martin Ruiz-Moreno and Erick Rodrigo da Silva Santos

51-12 1:45 PM **Almanac and Apsim Models for Simulating Old World Bluestem Growth and Water Use Under Limited Irrigation.** Yedan Xiong* and Charles P West

51-13 2:00 PM **Potential Warm Season Forages for Beef Production in the Southern Great Plains.** Gurjinder S. Baath*, Brian K. Northup, Prasanna H. Gowda and Alexandre C. Rocateli

51-14 2:15 PM **Breeding Annual Ryegrass (Lolium multiflorum) for Improved Heat Stress Tolerance.** Eric Billman*, Jesse Morrison and Brian S. Baldwin

2:30 PM **Adjourn**

SESSION NO. 52—9:30 AM–11:00 AM

Tampa Convention Center, Ballroom D

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

Special Sessions

Section or Division Cosponsor: ACS530 Early Career Members, SSSA Division: Consulting Soil Scientists

Moderator: Deepak Joshi

SESSION NO. 53—9:30 AM–11:30 AM

Tampa Convention Center, Room 36, Third Floor

Special Session Symposium--Improving Synergistic Activities between the Agro-Ecosystem and Botanic/Public Garden Communities

Special Sessions

Moderator: Ari Novy

	9:30 AM	**Introductory Remarks**
53-1	9:35 AM	**Agriculture and Public Garden Collaborations Yield Meaningful Impacts.** Sarah Beck*
53-2	9:50 AM	**Exposed: Science Isn't Just for Scientists.** Jerry Glover* and Jim Richardson
53-3	10:05 AM	**Gardens and Agro-Ecologists: Alliances for the Future of Food and Food Security.** Tara Moreau*
53-4	10:20 AM	**Following the Garden Path; Local, State and Federal Cooperation in a Community Garden-Based, Participatory Breeding Project for Chili Pepper (Capsicum annuum).** Jude E Maul*
53-5	10:35 AM	**Rising to the Challenge.** Jeff Kuehny*
53-6	10:50 AM	**Conservation Planning for Crop Wild Relatives Brings Botanic Gardens and Agricultural Organizations to the Same Table.** Colin K. Khoury*, Stephanie Greene, Karen A. Williams and Chrystian C. Sosa
53-7	11:05 AM	**Presenting Agriculture in the Urban Context.** Ari Novy*
	11:20 AM	**Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 54—9:30 AM–11:30 AM

Marriott Tampa Waterside, Grand Ballroom C, Second Level

Symposium--Innovative Applications of Crop Sensors for Improved Nutrient Management

ASA Section: Agronomic Production Systems

Moderator: Olga Walsh

	9:30 AM	**Introductory Remarks**
54-1	9:35 AM	**Dr. Brenda Ortiz's Abstract.** Brenda V. Ortiz*
54-2	10:05 AM	**Improving Optical Sensor Calibration for Winter Wheat Nitrogen Management in on-Farm Conditions.** Stanislaw Marek Samborski*, Dariusz Gozdowski, Olga Walsh, Michał Stępień and Elżbieta Bodecka
54-3	10:35 AM	**Digitizing/Calibrating the Human Sensor.** William R. Raun*, Jagmandeep Singh Dhillon, Bruno Morandin Figueiredo, Alimamy Fornah, Eva Nambi and Gwen Wehmeyer
	11:05 AM	**Question and Answer**
	11:15 AM	**Community Planning Session**
	11:30 AM	**Adjourn**

SESSION NO. 55—9:30 AM–11:30 AM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Symposium--Economic Viability of Short- Vs Long-Term Cropping Systems

C03 Crop Ecology, Management and Quality

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

Moderator: Joseph Lauer

	9:30 AM	**Introductory Remarks**
55-1	9:35 AM	**Crop Yield, Economics and Soil Microbiome Changes in Corn Cropping Systems.** Joseph G. Lauer*
55-2	10:00 AM	**Is Corn/Soybean Really the Most Economic Crop Rotation for Farmers?** Bill Deen*
55-3	10:25 AM	**Crop Rotation Effects on Corn and Soybean Yields and Economic Returns in the Mid-South United States.** Gurpreet Kaur*, J. M. Orlowski, Bobby R. Golden, William Jeremy Ross, Gene Stevens, Trent Irby, Josh Copes, Clark B. Neely, Matthew Rhine, Daniel L. Hathcoat and Ronnie W. Schnell
55-4	10:50 AM	**Cropping Systems: Where Is the Economics?** Stanley M Fletcher*
	11:15 AM	**Question/Answer and Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 56—9:30 AM–12:00 PM

Marriott Tampa Waterside, Room 4, Second Level

Synergy in Soil Health: Integrated Practices for Agroecosystem Management

SSSA Division: Soil Biology and Biochemistry

Moderator: Sarah Strauss

	9:30 AM	**Introductory Remarks**
56-1	9:35 AM	**Soil Health: An Emergent Set of Soil Properties That Result from Synergy Among Agricultural Management Practices.** Michael Lehman* and Shannon L. Osborne
56-2	9:50 AM	**A Holistic Assessment of the Soil Health and Agronomic Effects of Dryland Crop Rotations.** Steven T. Rosenzweig*, Steven J Fonte, Mary E. Stromberger and Meagan E. Schipanski
56-3	10:05 AM	**Soil Enzyme Activities As Indicators of Soil Health in Long-Term CRP and CRP Converted to Cropland.** Chenhui Li*, Jennifer Moore-Kucera, Veronica Acosta-Martinez and Lisa M. Fultz
56-4	10:20 AM	**Nematodes As Indicators of Changes in Agricultural Management.** Laura Ney*, Dorcas H. Franklin, Kishan Mahmud, Miguel L. Cabrera and Mussie Y. Habteselassie

56-5	10:35 AM	**Integrated Soil Fertility Management Has Altering Effects on Soil Health and Crop Productivity across Sites in Kenya.** Christine Dazil Sprunger*, Steven W. Culman, Cheryl Palm and Bernard Vanlauwe
	10:50 AM	**Break**
56-6	11:00 AM	**Does Soil Biology Control Nutrient Availability of Organic Matter Amendments in Orchards?** Sat Darshan S. Khalsa*, Stephen C. Hart, Jeffery A. McGarvey and Patrick H. Brown
56-7	11:15 AM	**Biological Soil Crust Occurrence and Nitrogen Cycling in an Agroecosystem.** Sarah Strauss*, Catherine L. Reardon and Patrick W. Inglett
56-8	11:30 AM	**The Impact of Increasing Diversity of Crop Rotations on Soil Microbial Communities Under Variable Rates of Nitrogen Fertilization.** Salvador Ramirez* II, Rhae A. Drijber, Virginia L. Jin, Humberto Blanco-Canqui and Elizabeth Sue Jeske
56-9	11:45 AM	**Rotational Effects of Oilseed Crops on Subsequent Wheat Crops As Related to the Soil Microbial Community.** Jeremy C. Hansen*, William F. Schillinger, Tarah S. Sullivan and Timothy C. Paulitz
	12:00 PM	**Adjourn**

SESSION NO. 57—9:30 AM–12:15 PM

Tampa Convention Center, Room 22

Turf Ecology and Management (includes student competition)

C05 Turfgrass Science

	9:30 AM	**Introductory Remarks**
57-1	9:35 AM	**Effect of Application Timing on Turf Colorant Transfer and Quality.** Drew Pinnix*, Grady L. Miller and Raymond McCauley
57-2	9:50 AM	**Early Spring Blooming Bulbs in Warm Season Lawns.** Michelle Wisdom*, Michael D. Richardson, Douglas E. Karcher and Garry V. McDonald
57-3	10:05 AM	**Irrigation Requirements for Establishing Tall Fescue Cultivars.** Daniel Sandor*, Douglas E. Karcher and Michael D. Richardson
57-4	10:20 AM	**Effects of Ethylene Inhibition on Creeping Bentgrass and Annual Bluegrass Survival of Ice Cover Stress.** Kevin Laskowski*, Emily B Merewitz and Kevin W. Frank
57-5	10:35 AM	**The Natural Resources of Golf: A Natural Resources Curriculum Utilizing Ecological-Based Golf Course Management.** Carson Letot* and Frank S. Rossi
	10:50 AM	**Break**
57-6	11:00 AM	**The Relationship between Sand Topdressing and Earthworm Casting in Warm-Season Turfgrass.** Paige Boyle*, Michael D. Richardson, Mary Savin and Douglas E. Karcher
57-7	11:15 AM	**Changes in Carbohydrate Status of Winter Overseeded Bermudagrass.** Kevin Jackson*, Cale Bigelow, Gregg C. Munshaw, Michael D. Richardson, Xunzhong Zhang and James M. Goatley
57-8	11:30 AM	**Assessment of Turfgrass Health Using Aerial Images from Small Unmanned Aircraft.** Henry Sommer*, Timothy T. Lulis and John E. Kaminski
57-9	11:45 AM	**Spatiotemporal Relationship of Plant and Soil Properties on Natural Turfgrass Sports Fields.** Gerald M. Henry*, Chase Straw and Becky Grubbs
57-10	12:00 PM	**Transcriptional Profiling and Identification of Heat-Responsive Genes in Perennial Ryegrass By RNA-Sequencing.** Xin Huang*
	12:15 PM	**Adjourn**

SESSION NO. 58—9:30 AM–12:15 PM

Tampa Convention Center, Room 23

Turf Nutrition, Soils-Rootzones and Water Quality (includes student competition)

C05 Turfgrass Science

Moderator: William Kreuser

	9:30 AM	**Introductory Remarks**
58-1	9:35 AM	**Nitrogen Required for Newly-Sodded and Established Bermudagrass Fertilized By Slow-Release and Soluble Fertilizers.** Kaiyuan Tang*, Travis W. Shaddox, J. Bryan Unruh and Jason Kruse
58-2	9:50 AM	**A New Index for Sodicity Risk Assessment of Irrigation Water.** Qiyu Zhou*, William Bleam, Ph.D. and Douglas J. Soldat, Ph.D.
58-3	10:05 AM	**Analysis of Sand Capping Depth Based on Moisture Retention Curves.** Philip Brown*, Lambert B. McCarty, Virgil L. Quisenberry, Bill Smith and L Ray Hubbard
58-4	10:20 AM	**Unique Methods for Assessing Water Stress of *Agrostis Stolonifera* and *C. Dactylon x C. Transvaalensis* .** Travis L Roberson*, Chenxi Zhang, Erik H Ervin and David S. McCall
58-5	10:35 AM	**Use of Infrared Thermography to Measure Water Use in Turf.** Joseph Foral* and William Collin Kreuser
	10:50 AM	**Break**
58-6	11:00 AM	**Accuracy of Handheld and Buried Moisture Sensors in a Saline Soil.** Matteo Serena*, Elena Sevostianova, Dawn VanLeeuwen and Bernhard Leinauer
58-7	11:15 AM	**Correlating Field, Greenhouse, and Laboratory Measurements of Nitrogen Release By Controlled-Release Fertilizers.** Joseph C Wolfe*, Christian M Baldwin, Kwame Owusu-Adom and Ling Ou
58-8	11:30 AM	**Utilizing Branched-Chain Amino Acids to Promote Increases in Shoot Density of Creeping Bentgrass (*Agrostis stolonifera* L.).** Isaac Mertz*, Nick E. Christians, Adam Thoms and Benjamin Pease
58-9	11:45 AM	**Salinity Tolerance in Kentucky Bluegrass Hybrids.** Paul Harris*
58-10	12:00 PM	**Reference Ranges: A Novel Interpretation.** Travis W. Shaddox*, Christopher D. Ryan and Kaiyuan Tang
	12:15 PM	**Adjourn**

SESSION NO. 59—9:40 AM–12:00 PM

Tampa Convention Center, Room 3, First Floor

Crop Physiology and Metabolism General Oral I

C02 Crop Physiology and Metabolism

Moderator: Walid Sadok

9:40 AM **Introductory Remarks**

59-1 9:45 AM **QTL Mapping for Reduced Chlorophyll Degradation Under Heat Stress in Wheat.** Jianming Fu*, Robert L. Bowden and S.V. Krishna Jagadish

59-2 10:00 AM **Heat Stress Induced Accelerated Senescence of Flag Leaves, Spikes and Awns in Winter Wheat Using Non-Invasive Chlorophyll Fluorescence.** David Sebela*, Blake Bergkamp and SV Krishna Jagadish

59-3 10:15 AM **High Night Temperature Exposure Alters Physiological and Bio-Chemical Parameters Affecting Pod Yield and Oil Quality in Canola.** Meghnath Pokharel*, Anuj Chiluwal, Michael J. Stamm and S.V. Krishna Jagadish

59-4 10:30 AM **Effect of Heat Stress on Reproductive Success and Grain Yield in Spring Wheat.** Raju Bheemanahalli*, Gautam Saripalli, P.V. Vara Prasad, Kulvinder Gill and S.V. Krishna Jagadish

10:45 AM **Break**

59-5 11:00 AM **Impact of Post-Flowering Heat Stress on Kansas Winter Wheat.** Blake Bergkamp*, Impa Muthappa Somayanda, Allan K Fritz and S.V. Krishna Jagadish

59-6 11:15 AM **Effect of High Temperature in Pollen Morphology and Plant Growth in Quinoa.** Leonardo Hinojosa* and Kevin M. Murphy

59-7 11:30 AM **An Episode of High Temperature before or after Tuber Initiation Impairs Potato Tuber Growth.** Charles Obiero*, Stephen Milroy and Richard Bell

59-8 11:45 AM **Morpho-Physiological Characterization of Diverse Rice Lines for High- and Low-Temperature Tolerance.** K. Raja Reddy*, Salah Jumaa, Ajaz A Lone, Chathurika Wijewardana, Firas Ahmed Alsajri, Naqeebullah Naqeebullah, Shasthree Taduri and Edilberto D. Redoña

12:00 PM **Adjourn**

SESSION NO. 60—10:00 AM–11:15 AM

Marriott Tampa Waterside, Room 2, Second Level

Outcomes of an Innovative Public-Industry Corn Nitrogen Research Partnership

ASA Section: Agronomic Production Systems

Moderator: Paul Carter

10:00 AM **Introductory Remarks**

60-1 10:02 AM **Overview of a Public-Industry Partnership for Enhancing Corn Nitrogen Research and Datasets.** John Shanahan*, Newell R. Kitchen, Curtis Ransom, Chris Bandura, Gregory Mac Bean, James Camberato, Paul R. Carter, Jason Clark, Richard B. Ferguson, Fabian G. Fernandez, David W. Franzen, Carrie A.M. Laboski, Emerson D. Nafziger, John E. Sawyer and Matthew Shafer

60-2 10:10 AM **Improving the Performance of Active-Optical Reflectance Sensor Algorithms Using Soil and Weather Information.** Gregory Mac Bean* and Newell R Kitchen

60-3 10:16 AM **Site Characteristics Influence the Value of in-Season N Application for Sustainable Midwestern Corn Production.** Chris Bandura and Carrie A.M. Laboski*

60-4 10:22 AM **Incorporating Soil and Weather Measurements to Improve Nitrogen Management in the Midwest.** Jason Clark*, Fabian G. Fernandez and Kristen S. Veum

60-5 10:28 AM **Soil and Environmental Factors Affecting Internal N Efficiency of Maize.** James Camberato*, Matt Shafer, Paul R. Carter, Richard B. Ferguson, Fabián G. Fernández, David Franzen, Newell R Kitchen, Carrie A.M. Laboski, Emerson D. Nafziger, Robert L. Nielsen, John Shanahan and John E. Sawyer

60-6 10:34 AM **The Best and Worst of Corn Nitrogen Rate Recommendation Tools Used in the Midwest.** Curtis Ransom* and Newell R Kitchen

60-7 10:40 AM **Evaluation of the Soil Health Nutrient Tool for Corn Nitrogen Recommendations across the Midwest.** Matt A. Yost*

60-8 10:46 AM **Potentially Mineralizable Nitrogen: Methods and Utility As a Soil Health Indicator.** Kristen Sloan Veum*

60-9 10:52 AM **Projected Outcomes of a Public-Industry Partnership for Enhancing Corn Nitrogen Research and Datasets.** Newell R Kitchen*

11:00 AM **Discussion**

11:15 AM **Adjourn**

SESSION NO. 61—10:00 AM–12:00 PM

Marriott Tampa Waterside, Room 8 and 9

CCA Career Accelerator Round Table

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 62—10:00 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom G, Second Level

Grad School Workshop for Undergrads

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 63—10:00 AM–12:05 PM

Tampa Convention Center, Room 11, First Floor

Symposium--Managing Water Resources for a Secure Future

ASA Section: Global Agronomy

Moderator: Gary Feng

10:00 AM **Introductory Remarks**

63-1 10:05 AM **Climatic Influences on Water Resources Formation and Conversion in Arid Region of Northwest China.** Yaning Chen*

63-2	10:20 AM	**SWAT-Modflow: Hydrologic and Water Quality Modeling Tool for Coupled Land Surface / Groundwater Systems.** Ryan Bailey*
63-3	10:35 AM	**Spatio-Temporal Characteristics of Drought and Its Effect on Wheat Yield in Southwestern China.** Liping Feng*
63-4	10:50 AM	**A Groundwater Transfer and Injection Project to Address the Sustainability of Irrigated Agriculture in the Lower Mississippi River Basin.** J.R. Rigby*
63-5	11:05 AM	**Adopting Minimum Irrigation Strategy for Sustainable Underground Water Use in the North China Plain.** Xiying Zhang*
63-6	11:20 AM	**Water Quality Responses to Biomass Production in the Tennessee River Basin.** Gangsheng Wang*, Henriette I Jager, Latha M Baskaran, Tyler F Baker and Craig C Brandt
63-7	11:35 AM	**Evaluation of Agricultural Managements on Groundwater Storage and Recharge.** Prem Parajuli*
63-8	11:50 AM	**Sediment Budget: From Hillslope to in-Stream Processes.** John J. Ramirez-Avila*
	12:05 PM	**Adjourn**

SESSION NO. 64—10:00 AM–12:05 PM

Tampa Convention Center, Room 21, First Floor

Symposium--Next Generation Trait Mapping & Molecular Breeding for Accelerating Genetic Gains

C07 Genomics, Molecular Genetics and Biotechnology

Section or Division Cosponsor: C01 Crop Breeding and Genetics, C08 Plant Genetic Resources, C02 Crop Physiology and Metabolism

	10:00 AM	**Introductory Remarks**
64-1	10:05 AM	**Delivering Higher Rates of Genetic Gain to Farmers in the Developing World through Genomics-Assisted Breeding.** Gary N. Atlin*
64-2	10:35 AM	**Integration of Genomics-Assisted Selection into Soybean Breeding to Accelerate Genetic Gain.** Benjamin Stewart-brown, Justin Vaughn, Qijian Song and Zenglu Li*
64-3	11:05 AM	**Application of Genomic Models with Genotype-By-Environment Interaction to Maize and Wheat Hybrid Prediction and Line Cross-Prediction.** Jose Crossa*, Paulino Perez-Rodriguez, Fernando Toledo and Juan Diego Hernandez Jarquin
64-4	11:35 AM	**Beyond Genomewide Selection in Plants.** Rex Bernardo* and Sushan Ru
	12:05 PM	**Adjourn**

SESSION NO. 65—10:10 AM–12:00 PM

Tampa Convention Center, Room 9, First Floor

Greenhouse Gas Emissions from Integrated-Crop Livestock System Oral

ASA Section: Environmental Quality

Moderator: Bhupinder Farmaha, Vitalis Temu

10:10 AM **Introductory Remarks**

65-1	10:15 AM	**Manure Application Method Effect on Alfalfa Yield, and Nitrous Oxide and Ammonia Emissions.** Jess Sherman*, William Jokela and Jason Cavadini
65-2	10:30 AM	**Linking Community Structure and Gene Expression in Methanogen Populations to Methane Emission from Stored Liquid Dairy Manure with Different Inoculant Levels.** Jemaneh Habtewold*, Rob Gordon, Vera Sokolov, Andrew VanderZaag, Claudia Wagner-Riddle and Kari Dunfield
65-3	10:45 AM	**Estimating Cattle Methane Emissions Using Eddy Covariance in Grazing Rangelands.** Trevor Coates*, Thomas Flesch, Ed Charmley, Mei Bai and Deli Chen
65-4	11:00 AM	**Legacy Effect of Long-Term Moderate Grazing on Methane and Nitrous Oxide Fluxes at Shortgrass Steppe.** Kris Nichols*, Stephen J. Del Grosso, Jorge A. Delgado and Justin D Derner
65-5	11:15 AM	**Fertilizer Management Controls the Long-Term Carbon Intensity of Bioenergy Feedstocks.** Virginia L. Jin*, Marty R. Schmer, Catherine Stewart, Candiss Williams, Robert B. Mitchell, Gary E. Varvel, Ronald F. Follett, Kenneth P. Vogel and Brian J. Wienhold
65-6	11:30 AM	**Co-Locating Fresh Cover Crop Residues with Manure Triggers Nitrous Oxide Emissions from Organic Cropping Systems.** Debasish Saha*, Armen R. Kemanian, Jason P. Kaye, Felipe Montes and John M. Wallace
65-7	11:45 AM	**Costs and Potential of Raising the Groundwater Table As a Greenhouse Gas Mitigation Option for Grasslands in Peatland Areas.** Thorsten Reinsch*, Ernst Albrecht, Arne Poyda, Christian Henning and Friedhelm Taube
	12:00 PM	**Adjourn**

SESSION NO. 66—10:20 AM–11:25 AM

Tampa Convention Center, Room 6

AgMIP: Recent Findings of the AgMIP Projects

ASA Section: Climatology and Modeling

	10:20 AM	**Introductory Remarks**
66-1	10:25 AM	**Modeling Canopy Temperature As a Driver of Heat Stress in Wheat.** Jeffrey W. White*, Heidi Webber, Bruce A. Kimball, Frank Ewert, Senthold Asseng, Ehsan E Rezaei, Paul J Pinter, Jerry L. Hatfield, Matthew P. Reynolds, Behnam Ababaei, Marco Bindi, Jordi Doltra, Roberto Ferrise, Henning Kage, Belay T. Kassie, Kurt C. Kersebaum, Adam Luig, Jørgen E Olesen, Mikhail Semenov, Pierre Stratonovitch, Arne M Ratjen and Pierre Martre
66-2	10:40 AM	**Prediction of Evapotranspiration and Yields of Maize: An Inter-Comparison Among 31 Maize Models.** Bruce A. Kimball*, Kenneth J. Boote, Jerry L. Hatfield, Lajpat R. Ahuja, Claudio O. Stockle, Sotirios V Archontoulis, Christian Baron, Bruno Basso, Patrick Bertuzzi, Ming Chen, Julie Constantin, Delphine Deryng, Benjamin Dumont, Jean-Louis Durand, Frank Ewert, Thomas Gaiser, Sebastian Gayler, Tim Griffis, Munir Hoffman, Qianjing Jiang, Soo-Hyung Kim, Jon I Lizaso, Sophie Moulin, Claas Nendel, Philip Parker, Taru I Palosuo, Eckart Priesack, Zhiming Qi, Amit Srivastava, Tommaso Stella,

Fulu Tao, Kelly Thorp, Dennis J. Timlin, Tracy Twine, Heidi Webber, Magali Willaume and Karina Williams

66-3 10:55 AM **Interpreting Apsim and DSSAT Maize Model Responses to Carbon Dioxide, Temperature, Water, and Nitrogen Under Degraded Soil Conditions.** Kenneth J. Boote*, John Dimes, John Hargreaves, Peter J Thorburn, Cheryl Porter, James W. Jones, Dilys MacCarthy, Wiltrud Durand, Davide Cammarano, Patricia Masikati, Sridhar Gummadi, Dakshina Murthy, Sonali McDermid and alex ruane

66-4 11:10 AM **Understanding the Impact of Sustainable Water Use on US Irrigated Agriculture.** Jose Roberto Lopez*, Jonathan M Winter, Joshua Elliott and Alex C Ruane

11:25 AM **Adjourn**

SESSION NO. 67—10:25 AM–11:55 AM

Tampa Convention Center, Room 1, First Floor

Nutrient Dynamics and Management in Livestock Production Systems Oral (includes student competition)

ASA Section: Environmental Quality

Moderator: Lordwin Jeyakumar, Suduan Gao

10:25 AM **Introductory Remarks**

67-1 10:30 AM **Environmental Assessment of Grassfed Beef Production Systems in Pennsylvania.** Jasmine Dillon* and Alan Rotz

67-2 10:45 AM **Benchmarking Farm-Gate Nitrogen and Phosphorus Balances and Use Efficiencies of Nationally Representative Beef and Dairy Farms in Ireland to Encourage Improvements.** Ian Alistair Thomas*, Cathal Buckley, Edel Kelly, Emma Dillon, John Lynch, Brian Moran, Thia Hennessy and Paul N.C. Murphy

67-3 11:00 AM **Manure Management Practices and Educational Needs of Florida Small Scale Equine Operations.** Carissa L Wickens*, Mary G Lusk, Jemy Hinton, Jamie Wallace, Chaz LaRiche and Valerie J Harwood

67-4 11:15 AM **Processes Controlling Nutrient Loss in Runoff from Winter Applied Dairy Manure.** Peter A. Vadas*, Melanie Stock, Gary W. Feyereisen and Francisco Arriaga

67-5 11:30 AM **Assessment of the Integrated Farm System Model for Predicting Nitrate-Nitrogen Losses in Drainage Water from Manured Cropping Systems.** Kristan Reed, Joshua D. Gamble*, John Baker, Peter A. Vadas and Gary W. Feyereisen

11:45 AM **Discussion**

11:55 AM **Adjourn**

SESSION NO. 68—10:25 AM–12:00 PM

Tampa Convention Center, Room 31, Third Floor

Sustainable Intensification in Integrated Crop-Livestock Systems

ASA Section: Environmental Quality

10:25 AM **Introductory Remarks**

68-1 10:30 AM **An Economic Analysis of Integrated Crop-Livestock Systems in Iowa, USA.** Hanna Poffenbarger*, Georgeanne Artz, Garland Dahlke, William Edwards, H Hanna, James R. Russell, Harris Sellers and Matt Liebman

68-2 10:45 AM **Integrating Ruminant Livestock and Cropping Systems: Strategies to Balance Agricultural Productivity and Environmental Quality for Sustainable Intensification.** Jessica Williamson*, Heather D. Karsten and Kathy Soder

68-3 11:00 AM **Distribution of Dairy Production Strategies in the US and Environmental Impact.** Michael Holly*, Peter J.A. Kleinman, C. Alan Rotz and Tamie L. Veith

68-4 11:15 AM **Resilience and Productivity in Integrated Crop and Livestock Systems.** Valentin Picasso* and Gregg Sanford

68-5 11:30 AM **Potential Water Quality Outcomes from Integrated Crop-Livestock Systems in the Northern Great Plains.** Derek R. Faust*, Sandeep Kumar, David W. Archer, John Hendrickson, Scott L. Kronberg and Mark A. Liebig

68-6 11:45 AM **Sustainable Intensification: A Case Study Based on a Farm in Lucas Do Rio Verde, Mato Grosso, Brazil.** Jose Eduardo de Macedo Soares Jr., Luis Ignacio Prochnow* and Eros Artur Bohac Francisco Sr.

12:00 PM **Adjourn**

SESSION NO. 69—10:25 AM–12:00 PM

Tampa Convention Center, Room 14, First Floor

Recent Advances in Soil Physics Instrumentation and Sensors

SSSA Division: Soil Physics and Hydrology

Moderator: Scott Jones, Michael Cosh

10:25 AM **Introductory Remarks**

69-1 10:30 AM **A Novel Probe Design to Optimize Soil Profiling Measurements.** Dirk V Baker*, Chod Stephens, Jonathan Phillips, Jared Campbell and Kyle Campbell

69-2 10:45 AM **A Novel Dielectric Tensiometer Enabling Precision PID-Based Irrigation Control of Polytunnel Grown Strawberries in Coir.** Martin S Goodchild*, Malcolm D Jenkins, Richard R. Whalley and Chris W Watts

69-3 11:00 AM **The Integral Suspension Pressure Method (ISP) for Precise Particle-Size Analysis By Gravitational Sedimentation.** Wolfgang Durner*, Sascha Iden and Georg von Unold

69-4 11:15 AM **Development of a Combination Water Content and Water Potential Sensor Using Precision Tensiometer and Capacitance Sensor Technology.** Leonardo Daniel Rivera* and Andi Steins

69-5 11:30 AM **Long Term Time Series Analysis of Co-Incident Soil Water Content Sensor at the Marena Oklahoma in Situ Sensor Testbed.** Michael H. Cosh*, Tyson E. Ochsner, Lynn McKee, Evan Coopersmith, Jingnuo Dong, Steven R. Evett, Chadi Sayde, Eric Small, Susan Steele-Dunne and Marek Zreda

69-6 11:45 AM **Printed Circuit Board Time Domain Reflectometry Sensors for Near-Surface Soil Moisture Measurement.** Wenyi Sheng*, Rong Zhou, Morteza Sadeghi, Ebrahim Babaeian, Markus Tuller, Scott K Anderson and Scott B. Jones

12:00 PM **Adjourn**

SESSION NO. 70—10:30 AM–11:45 AM

Marriott Tampa Waterside, Room 12, Third Level

Sustainable Soils in Urban Environments-Urban Forestry, Water, Carbon, Mapping, Assessment and Reclamation I Oral (includes student competition)

SSSA Division: Urban and Anthropogenic Soils

Section or Division Cosponsor: SSSA Division: Forest, Range and Wildland Soils

Moderator: Tara Trammell

	10:30 AM	**Introductory Remarks**
70-1	10:35 AM	**A Rapid Urban Site Index for Assessing the Quality of Street Tree Planting Sites.** Bryant Scharenbroch*
70-2	10:50 AM	**Nitrogen in Residential Stormwater Runoff.** Siti Jariani Mohd Jani* and Gurpal S Toor
70-3	11:05 AM	**Soil Quality in Semi-Arid Cities: Are We Giving Urban Trees Good Enough Growth Conditions?** Eduardo C. Arellano*, Cynnamon Dobbs, Rosanna Ginocchio and Nadia Rojas
70-4	11:20 AM	**Biosolids-Based Amendments Effects on Tall Fescue Establishment in Urbanized Soil.** Mike Badzmierowski*, Gregory Evanylo and Erik H Ervin
	11:35 AM	**Discussion**
	11:45 AM	**Adjourn**

SESSION NO. 71—11:00 AM–12:00 PM

Tampa Convention Center, Room 20, First Floor

Martin and Ruth Massengale Lectureship

C02 Crop Physiology and Metabolism

Section or Division Cosponsor: C05 Turfgrass Science, C06 Forage and Grazinglands

Moderator: Glen Ritchie

	11:00 AM	**Introductory Remarks**
71-1	11:05 AM	**Response of Food Grain Crops to Changing Environments.** Vara Prasad*
	12:00 PM	**Adjourn**

SESSION NO. 72—11:00 AM–12:00 PM

Tampa Convention Center, Room 7, First Floor

SSSA Business Meeting--Soil Education and Outreach

SSSA Division: Soil Education and Outreach

SESSION NO. 73—11:15 AM–12:00 PM

Marriott Tampa Waterside, Room 10, Third Level

Poster and 5 Minute Rapid--Soil Fertility and Plant Nutrition

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Dan Sullivan

	11:15 AM	**Introductory Remarks**
73-1	11:20 AM	**Phosphate Uptake of Corn As Influenced By Applications of Phosphate-Enhancing Polymers.** Tonny Hoang*, Diana Godlevskaya, Sarah Doydora, Dean Hesterberg, Aziz Amoozegar and Carl Crozier
73-2	11:25 AM	**Nutrient Availability in Surface- and Sub-Soils Along the Precipitation Gradient of Eastern WA.** Tai McClellan Maaz*, Isaac J Madsen, Ryan W. Higginbotham and William L Pan
73-3	11:30 AM	**Estimating in-Situ N Mineralization Rate with a Buried Bag Method.** Dan M. Sullivan* and Amber D. Moore
73-4	11:35 AM	**Developing a Tool for Growers to Predict Sulfur Availability in Their Soils.** Sakthi Kumaran Subburayalu*, Steven W. Culman and Warren A Dick
73-5	11:40 AM	**Performance of Polyhalite As a Multi Nutrient Fertilizer for Potato in Brazil.** Simone Da Costa Mello*, Kiran Pavuluri, Rachel Tonhati, Francis J. Pierce and Durval Dourado Dourado Neto
73-6	11:45 AM	**Soil-Based, Field-Specific Nitrogen Fertilizer Recommendations in Corn.** Chester Eugene Greub*, Trenton L. Roberts, Nathan A. Slaton, Richard J. Norman, Jason Kelley and Kelsey L. Hoegenauer
73-7	11:50 AM	**Replacement Nutrient Quantities Strongly Influenced By Fertiliser Management.** Malcolm McCaskill*, Amanda Pearce, Aaron Vague, Brendan Christy, Robert M. Norton, Debra Partington and Penny Riffkin
	11:55 AM	**Question and Answer**
	12:00 PM	**Adjourn**

SESSION NO. 74—11:25 AM–12:05 PM

Marriott Tampa Waterside, Florida Salon V, Second Level

5 Minute Rapid--Forest, Range and Wildland Soils

SSSA Division: Forest, Range and Wildland Soils

Moderator: Brian Strahm

	11:25 AM	**Introductory Remarks**
74-1	11:30 AM	**Is the Effect of Aspen on Soil Carbon Consistent across Its North American Distribution?** JEROME LAGANIERE*, Antra Boca, Helga Van Miegroet and David Paré
74-2	11:35 AM	**Carbon Stock of a Teak Plantation in Rainforest Zone of Nigeria.** Joseph S. Ogeh*
74-3	11:40 AM	**The Effect of Forest Harvest on Soil Carbon: A Global Meta-Analysis.** Jason Nathaniel James* and Rob Harrison
	11:45 AM	**Volunteer Presentations and Discussion**
	12:05 PM	**Adjourn**

SESSION NO. 75—11:30 AM–11:55 AM

Tampa Convention Center, Room 6

ASA Business Meeting--Climatology and Modeling

ASA Section: Climatology and Modeling

SESSION NO. 76—11:30 AM–12:15 PM

Tampa Convention Center, Room 24, First Floor

Poster and 5 Minute Rapid--Crop Breeding & Genetics Oral II

C01 Crop Breeding and Genetics

Moderator: Joseph Anderson

	11:30 AM	**Introductory Remarks**
76-1	11:35 AM	**Phenotypic Characterization of a Day-Neutral Exotic Cotton Population.** Kari Hugie*, B. Todd Campbell, Philip J. Bauer, Kenneth C. Stone and Donald C. Jones
76-2	11:40 AM	**Seed Size and Ginning Efficiency in Upland Cotton (Gossypium hirsutum L.).** Efrem Bechere* and Robert G. Hardin IV
76-3	11:45 AM	**Discovering Pest Resistances in Primary Synthetics Using Genotyping-By-Sequencing and Their Application in Winter Wheat Breeding.** Shuyu Liu*, Jackie C. Rudd, Amir M.H. Ibrahim, Qingwu Xue, Xiangyang Xu, Ming-Shun Chen, Shichen Wang, Richard Metz, Charles Johnson, Yan Yang, Smit Dhakal, Jason Baker, Ravindra N. Devkota, Hangjin Yu, Xiaolong Yang and Lisa Garza
76-4	11:50 AM	**Yield Prediction Using Temporal High-Throughput Phenotyping in Wheat Breeding Nurseries in Bangladesh.** Mohammad Mokhlesur Rahman*, Jared Crain, Ravi Prakash Singh and Jesse Poland
76-5	11:55 AM	**Spectral and Three-Dimensional High-Throughput Phenotypes As Indicators of Plant Variability in a Maize Breeding Program.** Nathalia Penna Cruzato*, Seth C Murray, Dale Cope, Anjin Chang, Jinha Jung, Steven L. Anderson II and Colby Ratcliff
76-6	4:00 PM	**Exploring the Genetic Variation in Maize Height Utilizing Unmanned Aerial Systems (UAS).** Steven L. Anderson* II, Lonesome Malambo, Sorin Popescu and Seth C. Murray
76-7	12:05 PM	**The Sorghum Epicuticular Wax Deposition Genes *Bm2* and *Blmc* Are Allelic.** Somashekhar Punnuri*, Karen Harris-Shultz, Joseph Knoll, Xinzhi Ni and Hongliang Wang
	12:10 PM	**Question and Answer**
	12:15 PM	**Adjourn**

SESSION NO. 77—12:00 PM–1:30 PM

Marriott Tampa Waterside, Grand Ballroom E, Second Level

Pop in with the Presidents

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 78—12:00 PM–1:30 PM

Marriott Tampa Waterside, Grand Ballroom A, Second Level

SASES Advisor Luncheon

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 79—1:00 PM–2:30 PM

Tampa Convention Center, Room 25, First Floor

Special Session--Tips from the Experts on the Job Application and Interviewing Process

ACS530 Early Career Members

Moderator: Adam Gaspar

SESSION NO. 80—1:00 PM–5:00 PM

Marriott Tampa Waterside, Room 5 and 6, Second Level

CrossDiv--Symposium--Innovative Soil Health Research

Sponsored by The Nature Conservancy

SSSA Cross-Divisional Symposium

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

Moderator: Kristen Veum

	1:00 PM	**Introductory Remarks**
80-1	1:15 PM	**Microbial Underpinnings of Soil Health.** Kate M. Scow*
80-2	1:35 PM	**A Practitioner's Perspective on Opportunities and Challenges in Assessment of Ecosystem Services.** Nick Goeser*
80-3	1:55 PM	**The Journey Towards Global Soil Health Indicators.** Jennifer Dungait* and Claire Horrocks
80-4	2:15 PM	**Round Table Discussions #1.** Kristen Sloan Veum*
	3:00 PM	**Break**
80-5	3:15 PM	**Moderated Table Discussions #2.** Kristen Sloan Veum*
80-6	4:00 PM	**Report out from moderated table discussions.** Kristen Sloan Veum*
	5:00 PM	**Adjourn**

SESSION NO. 81—1:10 PM–2:55 PM

Tampa Convention Center, Room 14, First Floor

Symposium--Recent Advances in Soil Physics Instrumentation and Sensors

SSSA Division: Soil Physics and Hydrology

Moderator: Scott Jones, Michael Cosh

1:10 PM **Introductory Remarks**

81-1	1:15 PM	**Measuring Soil Properties and Processes with Thermo-Time Domain Reflectometry Sensors.** Robert Horton*, Tusheng Ren, Joshua L Heitman and Yili Lu
81-2	1:35 PM	**Low-Cost, Low-Power Sensors Everywhere: The Arduino Revolution.** Ryan Stewart* and Brandon Lester
81-3	1:55 PM	**High Resolution Soil Extensometer and Its Applications in Soil Physics.** Colby Thrash*
81-4	2:15 PM	**Towards Multi-Scale Tracking of Water Movement across the Soil-Plant-Atmosphere Continuum Using Heated Fiber Optics.** Chadi Sayde*, Christoph Thomas and John Selker
81-5	2:35 PM	**P-Band Signals of Opportunity: A New Approach to Remote Sensing of Root Zone Soil Moisture.** James Garrison*, Jeffrey R. Piepmeier, Yao-Cheng Lin, Rajat R. Bindlish, Benjamin Nold, Manuel R. Vega, Michael H. Cosh and Cornelis F Du Toit
	2:55 PM	**Adjourn**

SESSION NO. 82—1:30 PM–2:55 PM

Tampa Convention Center, Room 8

By-Product Gypsum Uses in Agriculture General Oral

ASA Section: Environmental Quality

	1:30 PM	**Introductory Remarks**
82-1	1:35 PM	**Status of US-EPA Risk Evaluation and Possible Regulations on FGD-Gypsum Uses in Agriculture.** H. Allen Torbert*, Rufus L Chaney and Dexter B. Watts
82-2	1:50 PM	**Effects of FGD Gypsum on Crop Yield and Soil Properties of an on-Farm Study.** Dexter B. Watts* and H. Allen Torbert
82-3	2:05 PM	**Percent Sodium, Electrical Conductivity, and Alfalfa Yield Affected By Application of Sodic-Soil Amendments.** Thomas M. DeSutter*, Maria Breker, Amitava Chatterjee, Abbey Foster Wick, Francis X.M. Casey and Caley Gasch
82-4	2:20 PM	**Effect of FGD-Gypsum Application Rates on the Concentration of Nutrients in a Silt-Loam in Arkansas.** Leonel Espinoza* and Mukhammadzakhrab Ismanov
	2:35 PM	**Concluding Remarks**
	2:40 PM	**Community Planning Session**
	2:55 PM	**Adjourn**

SESSION NO. 83—1:30 PM–3:05 PM

Tampa Convention Center, Room 36, Third Floor

Global Climate Change: More Recent Observations and Adaptations (includes student competition)

ASA Section: Climatology and Modeling

	1:30 PM	**Introductory Remarks**
83-1	1:35 PM	**Future Atmospheric CO2 Concentrations and Heat Wave Effects on Lentil (*Lens culinaris*): A FACE Experiment.** Maryse Bourgault*, Shahnaj Parvin, Sabine Tausz-Posch, Markus Loew, Jason Brand, Roger Armstrong, James Nuttall, Garry O'Leary, Glenn J. Fitzgerald and Michael Tausz
83-2	1:50 PM	**Climate Variability Differentially Impacts Rice Production Systems in the Philippines Depending on Temporal and Spatial Scale.** Malte Stuecker, Michelle Tigchelaar and Michael Benjamin Kantar*
83-3	2:05 PM	**Insights on Drought and Long-Term Climatic Trends: Retrospective Analyses of Crop Insurance Data.** Julian Reyes*, Emile Elias, Andrew Eischens, Mark Shilts and Rachel Steele
83-4	2:20 PM	**N2 Fixation and Related Traits of Two Lentil Genotypes Grown Under Free Air CO2 Enrichment (FACE) Facilities in a Semi-Arid Environment.** Shahnaj Parvin*, Shihab Uddin, Glenn J. Fitzgerald, Sabine Tausz-Posch, Maryse Bourgault, Ute Roessner and Michael Tausz
83-5	2:35 PM	**Water Use and Soil Water Depletion Patterns of Dry-Land Wheat Grown Under Elevated CO2 in a Free Air CO2 Enrichment (FACE) Facility.** Shihab Uddin*, Markus Löw, Shahnaj Parvin, Glenn J. Fitzgerald and Michael Tausz
	2:50 PM	**Community Planning Session**
	3:05 PM	**Adjourn**

SESSION NO. 84—1:30 PM–3:20 PM

Tampa Convention Center, Room 4

Enhanced-Denitrification Technologies (includes student competition)

ASA Section: Environmental Quality

Moderator: Laura Christianson

	1:30 PM	**Introductory Remarks**
84-1	1:35 PM	**Controlled Drainage As Measure to Reduce Nitrate Leaching in Winter Wheat Production System in Denmark.** Christen Duus Borgesen*, Ingrid Kaag Thomsen, Finn Pilgaard Vinther, Mette V Carstensen, Søren K Hvid, Niels B Ovesen and Brian Kronvang
84-2	1:50 PM	**Preliminary Nitrate and Dissolved Phosphorus Removal from a Saturated Buffer in Illinois.** Janith Chandrasoma*, Paul Davidson, Richard A. Cooke and Laura Christianson
84-3	2:05 PM	**Direct and Indirect Nitrous Oxide Emissions from Saturated Riparian Buffers and Woodchip Bioreactors: Are We Trading a Water Quality Problem for and Air Quality Problem?** Morgan P. Davis*, Thomas M. Isenhart, Dan B. Jaynes, Timothy Parkin, Kirsten Hofmockel and Tyler A. Groh
84-4	2:20 PM	**Saturated Riparian Buffer in Situ and Potential Denitrification.** Tyler A. Groh*, Morgan P. Davis, Thomas M. Isenhart, Dan B. Jaynes and Timothy Parkin
84-5	2:35 PM	**Smaller, Better, Faster Bioreactors: Do Baffles Improve Bioreactor Hydraulic Efficiency?** Hannah M Dougherty* and Laura Christianson
84-6	2:50 PM	**Increasing Tile Drainage Nitrate Removal in Bioreactors By Treating More Water.** Gary W. Feyereisen*
	3:05 PM	**Community Planning Session**
	3:20 PM	**Adjourn**

SESSION NO. 85—1:30 PM–3:30 PM

Marriott Tampa Waterside, Grand Ballroom I and J, Second Level

Special Session Symposium--Citizen Science, on-Farm Trials and the Future of Agricultural Research

Sponsored by Gylling Data Management

Special Sessions

Moderator: Peter Claussen

	1:30 PM	**Introductory Remarks**
85-1	1:35 PM	**Citizen Science in Natural Resources: Lessons Learned from Stakeholder Engagement in Participatory Research Using Collaborative Adaptive Management.** Justin D Derner, Hailey Wilmer, David J Augustine*, David D. Briske, Lauren M Porensky, Maria E Fernandez-Gimenez, Leslie M. Roche and Kenneth W. Tate
85-2	1:58 PM	**Value and Limitations of on-Farm Research: A Crop Genetics Company Perspective.** Mark Jeschke*
85-3	2:21 PM	**The Next Generation of Environmental Research and Action: Citizen Science and a Stakeholder-Oriented Approach to Experimental Design.** Monica D Ramirez-Andreotta*
85-4	2:44 PM	**Growing the on-Farm Soybean Research Program in South Dakota.** Graig Reicks*, David E. Clay and Sharon A. Clay
85-5	3:07 PM	**Technical and Social Guidelines for Effective on-Farm Research.** Thomas F. Morris*, Peter M. Kyveryga, Janet McAllister and Alexandra Bell
	3:30 PM	**Adjourn**

SESSION NO. 86—1:30 PM–3:30 PM

Tampa Convention Center, Ballroom D

Crops Judging Contest Showcase

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 87—1:30 PM–3:30 PM

Marriott Tampa Waterside, Florida Salon I-III, Second Level

Symposium--Engineering Solutions and New Machines for Organic Agriculture

Sponsored by Organic Valley

ASA Section: Agronomic Production Systems

Moderator: Patrick Carr

	1:30 PM	**Introductory Remarks**
87-1	1:35 PM	**In Crop Mechanical Weed Control in Grain Crops.** Steven Shirtliffe*, Alexander Alba, Angelena Syrovy, Katherine Stanley and Eric N. Johnson
87-2	1:55 PM	**Air-Propelled Abrasive Grit for Selective Postemergence Weed Control.** Frank Forcella*, Daniel Humburg, Sam Wortman and Sharon A. Clay
87-3	2:15 PM	**Flame Weeding: New Tool for Weed Management.** Stevan Knezevic*
87-4	2:35 PM	**Mechanical Weed Control Using Mowing in Organic No-till.** Gabriel A.Z. Abdulai, J. Benton Naylor, Ricardo Costa Silva, Reid J. Smeda and Kerry M. Clark*
87-5	2:55 PM	**Novel Cover Crop Planting Equipment and Methods for Vegetables and Strawberries.** Eric B. Brennan*
	3:10 PM	**Discussion**
	3:15 PM	**Community Planning Session**
	3:30 PM	**Adjourn**

SESSION NO. 88—1:30 PM–3:30 PM

Marriott Tampa Waterside, Room 11, Third Level

Symposium--Managing Water and Salinity through Variable Rate Irrigation

ASA Section: Agronomic Production Systems

Moderator: Susan O'Shaughnessy

	1:30 PM	**Introductory Remarks**
88-1	1:35 PM	**Variable Rate Drip Irrigation.** Itamar Nadav*
88-2	2:00 PM	**Variable Rate Drip Irrigation for Horticulture: Potential and Challenges.** Alon Ben-Gal*
88-3	2:25 PM	**Dynamic Variable Rate Irrigation Management Using Soil Moisture and Canopy Temperature Sensors in the Southeastern USA.** George Vellidis*, John Snider, Vasileios Liakos, Wesley Porter and Calvin Perry
88-4	2:50 PM	**Maximising the Value of Irrigation.** Carolyn Hedley*
	3:15 PM	**Community Planning Session**
	3:30 PM	**Adjourn**

SESSION NO. 89—1:30 PM–3:30 PM

Tampa Convention Center, Room 12, First Floor

Symposium--Advances in Measuring and Modeling Crop Water Requirements

ASA Section: Climatology and Modeling

Moderator: Ole Wendroth, Saseendran Anapalli

	1:30 PM	**Introductory Remarks**
89-1	1:35 PM	**Long-Term Observations of Crop Water Use with Eddy Covariance Stations and Coupling with Crop Simulation Models.** Jerry L. Hatfield, Bruno Basso, Sotiris V. Archontoulis, Christian Dold*, John H. Prueger and Thomas J. Sauer
89-2	1:55 PM	**Uncertainties of Eddy Covariance ET in Bushland, Texas.** Xiaomao Lin*, Seth Kutikoff, Jerry E. Moorhead, Gary W. Marek, Paul D. Colaizzi, Steven R. Evett, Prasanna H. Gowda and David K. Brauer
89-3	2:10 PM	**Impact of Water Use Efficiency Parameterization on Partitioning Evapotranspiration with the Eddy Covariance Flux Variance Method.** Ray G. Anderson*, Dong Wang, Todd H. Skaggs, Joseph G Alfieri, Todd M Scanlon and William Kustas

89-4	2:25 PM	**Evaluation of Evapotranspiration from Eddy Covariance and Surface Layer Scintillometry.** Jerry E. Moorhead*, Gary W. Marek, Xiaomao Lin, Prasanna H. Gowda, Paul D. Colaizzi and Steven R. Evett
89-5	2:40 PM	**Evapotranspiration Estimates from Surface Energy Balance Compared Against Eddy Covariance, Surface Renewal, Water Balance and Crop Coefficient Method.** George Paul*, Brian Schmid, Tom Hawkins, Chuan-Shin Chong, Mark Roberson, Dane Williams, Aaron Smith and Clint Kellar
89-6	2:55 PM	**Comparison of Simulated Crop Evapotranspiration with Eddy Covariance Measurements.** Nithya Rajan* and Dorothy Menefee
89-7	3:05 PM	**Measurement and Modeling of Soybean Water Requirements.** Gary Feng*, Ying Ouyang, Dennis Reginelli and Johnie N. Jenkins
89-8	3:15 PM	**Eddy Covariance and Energy Balance Methods for Rapidly Estimating ET and Crop Coefficients in the Mississippi Delta Region.** Saseendran Anapalli*, Daniel K. Fisher, Krishna Reddy, Ruixiu Sui, Larry Jason Krutz, Pradeep Wagle and Prasanna H. Gowda
	3:30 PM	**Adjourn**

SESSION NO. 90—1:30 PM–3:30 PM

Marriott Tampa Waterside, Florida Salon V, Second Level

Symposium--Physiological Traits for High Throughput Phenotyping of Abiotic Stress Tolerance

C02 Crop Physiology and Metabolism

Section or Division Cosponsor: C01 Crop Breeding and Genetics, C03 Crop Ecology, Management and Quality, C08 Plant Genetic Resources

Moderator: Bingru Huang

	1:30 PM	**Introductory Remarks**
90-1	1:35 PM	**Challenges and Opportunities for High-Throughput Phenotyping of Leaf Angle and Photosynthetic Rate Under Abiotic Stress.** Maria G. Salas Fernandez*
90-2	2:00 PM	**What's Going on Down There? - Imaging Technologies and Computational Approaches to Understand Root Growth Dynamics and Genetics.** Christopher Topp*
90-3	2:25 PM	**Analysis of Crop Metabolites and Molecular Traits for Phenotyping Drought Tolerance.** Tim L. Setter* and Michael A Gore
90-4	2:50 PM	**Phenotyping for Heat Adaptive Traits.** Matthew P. Reynolds*
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 91—1:30 PM–3:30 PM

Tampa Convention Center, Room 18, First Floor

CrossDiv--Symposium--Global Impacts of Environmental Contamination II

SSSA Cross-Divisional Symposium

Section or Division Cosponsor: SSSA Division: Soil Chemistry, SSSA Division: Soil Biology and Biochemistry, SSSA Division: Soils and Environmental Quality

Moderator: Michael Thompson, Yijun Wang, Jianming Xu

	1:30 PM	**Introductory Remarks**
91-1	1:35 PM	**Global Threats of Indigenous Contaminants to Soil and Water Quality.** Scott Fendorf*
91-2	2:00 PM	**Global Perspective of Chemicals of Emerging Concern-Occurrence, Impacts, and Challenges.** Kang Xia*
91-3	2:25 PM	**Uptake of Engineered Nanomaterials in Plants and Implication to Food Quality and Safety.** Baoshan Xing*
91-4	2:50 PM	**Paddy Soil Contamination and Remediation Strategies in China.** Dong-Mei Zhou*
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 92—1:30 PM–3:30 PM

Tampa Convention Center, Room 31, Third Floor

Symposium--Technological Advances in Soil Water Conservation and Management

SSSA Division: Soil and Water Management and Conservation

Section or Division Cosponsor: SSSA Division: Soil and Water Management and Conservation, SSSA Division: Soil Physics and Hydrology

Moderator: Alvin Smucker

	1:30 PM	**Introductory Remarks**
92-1	1:35 PM	**Sensors and Sensor Network Systems for Improved Irrigation Scheduling.** Susan O'Shaughnessy*, Steven R. Evett, Paul D. Colaizzi and Manuel A. Andrade
92-2	1:55 PM	**Optimum Soil Water, Nutrient and Oxygen Contents in Soil Water Retention Technology (SWRT) Improved Sustainable Agricultural Production on Highly Permeable Soils.** Alvin J.M. Smucker*, Brian C. Levene, Jin Han, James M. Tiedje, Jim J. Cole and John F. Quensen III
92-3	2:15 PM	**Photosynq a Rapid Measure of Plant, Soil, Water, and Environmental Parameters for Big Data Analyses Globally.** David M. Kramer, Dan TerAvest*, Brian C. Levene and Alvin J.M. Smucker
92-4	2:35 PM	**Scheduling from Full to Deficit Irrigation and Its Effect on Irrigation Water Use Efficiency.** Daran R. Rudnick*, Tsz Him Lo, Jasreman Singh, Turner Dorr and Chuck Burr
92-5	2:55 PM	**Thermal and Optical Imagery to Understand Spatial and Temporal Variation of Crop Water Use.** Bruno Basso*, Bernardo Maestrini, Ruben Ulbrich and Rich Price

3:15 PM **Discussion**
3:30 PM **Adjourn**

SESSION NO. 93—1:30 PM–3:30 PM

Tampa Convention Center, Room 37

Symposium--Marginal Lands: Biotic Forces Impacting Ecosystem Resilience

SSSA Division: Soil Biology and Biochemistry

Moderator: Aditi Sengupta, Julia Neilson

1:30 PM **Introductory Remarks**
93-1 1:35 PM **Cross-Scale Interactions and Ecosystem Resilience in Drylands.** Debra Peters, Jeffrey E. Herrick*, Greg Okin and Brandon Bestelmeyer
93-2 2:00 PM **Biological Soil Crusts: How Will a Changing World Affect Their Ecological Roles?** Jayne Belnap*
93-3 2:25 PM **Characterization of Growing Microbial Populations in Mcmurdo Dry Valley Soils through Stable Isotope Probing with 18O-Water.** Egbert Schwartz*, Dave van Horn and Cristina Takacs-Vesbach
93-4 2:50 PM **Increasing Aridity Impacts the Network Cohesion of the Arid Soil Microbiome.** Julia Neilson*, Cesar Cardona, Jack Gilbert, J. Gregory Caporaso and Raina M Maier
93-5 3:05 PM **Heterogeneity of Microbial Community Dynamics in Incipient Soils.** Aditi Sengupta*, James Stegen, Julia Neilson and Raina M Maier
3:20 PM **Discussion**
3:30 PM **Adjourn**

SESSION NO. 94—1:30 PM–3:30 PM

Tampa Convention Center, Room 32

Sustainable Soils in Urban Environments-Water, Carbon, Mapping , Assessment and Reclamation II Oral (includes student competition)

SSSA Division: Urban and Anthropogenic Soils

Moderator: James Montgomery, Girisha Ganjegunte

1:30 PM **Introductory Remarks**
94-1 1:35 PM **Assessment of EQ Biosolids Products for Urban Gardens.** Odiney Alvarez-Campos*, Gregory Evanylo and W Lee Daniels
94-2 1:50 PM **Screening for Bioaccessible Pb in Soils Using a Rapid XRF Analyzer Method.** Anna Paltseva* and Zhongqi Cheng
94-3 2:05 PM **Investigating Soil Quality and Carbon Balance for Ohio State University Soils.** Tania Burgos Hernández* and Brian Slater
94-4 2:20 PM **Evaluation of Traditional Soil Testing Methods to Estimate Lead (Pb) Bioaccessibility.** Shannon Plunkett* and Douglas J. Soldat
94-5 2:35 PM **Effect of Suspended Sediments on Phosphorus Transport in Bioretention Cells.** Hallie Douglas*, Thorsten Knappenberger, Eve Brantley and Julie A. Howe
94-6 2:50 PM **Spatial and Depth Trends in Lead Bioaccessibility in Urban Household Soils, Minneapolis-St. Paul, Minnesota.** Nicolas A. Jelinski and Michael Sousa*
94-7 3:05 PM **Heavy Metal Contamination in Urban Soils of Newark, New Jersey.** Omanjana Goswami* and Ashaki Rouff
3:20 PM **Discussion**
3:30 PM **Adjourn**

SESSION NO. 95—1:30 PM–3:30 PM

Tampa Convention Center, Room 11, First Floor

Wetland Restoration: Soil Processes, Indicators, and Global Significance

SSSA Division: Wetland Soils

Moderator: Todd Osborne

1:30 PM **Introductory Remarks**
95-1 1:35 PM **Northern Appalachian Wetland Ecological Sites and Their States of Disturbance for Select Benchmark Soils.** Patrick J. Drohan*, Yuri Kusuda Plowden, Joseph Kraft and David Kingsbury
95-2 1:50 PM **Assessing Alternative Uses of IRIS Tubes in Constructed Mitigation Wetlands.** Cole Liggett*, Thorsten Knappenberger, Joey N. Shaw and Eve Brantley
95-3 2:05 PM **Marsh Restoration Using Thin Layer Sediment Application.** Jacob F. Berkowitz*, Christine VanZomeren and John R. White
95-4 2:20 PM **Soil Carbon and Phosphorus Responses to Hydrologic Management Scenarios in Everglades Restoration.** Todd Z. Osborne*, H. Carl Fitz and Stephen E. Davis
95-5 2:35 PM **Soil Building Processes in Created Everglades Tree Islands.** Leonard J. Scinto*, Alexandra Serna, Diana N Johnson, Andres Felipe Rodriguez, Fred H. Sklar, Eric Cline and Thomas Dreschel
95-6 2:50 PM **Spatial Distribution in Everglades Nutrient Budgets and Their Effects on Biogeochemical Processes.** Saoli Chanda*, Alexandra Serna, Sanku Datta Mudi, Diana Johnson, Jennifer H Richards, Leonard Scinto, Daniel J Scheidt and Peter Kalla
95-7 3:05 PM **Potential Effects of Hydrologic Loading on Nutrient Content, Microbial Activity, and Other Ecological Parameters in Northeast Shark River Slough (NESS) of Everglades National Park (ENP).** Sanku Dattamudi*, Leonard Scinto, Saoli Chanda, Diana Johnson and Carlos Pulido
3:20 PM **Discussion**
3:30 PM **Adjourn**

SESSION NO. 96—1:30 PM–3:35 PM

Tampa Convention Center, Room 21, First Floor

Special Session Symposium-- How Can We Improve Our Estimates of Indirect N2O Emissions?

Special Sessions

Moderator: Rodney Venterea

1:30 PM **Introductory Remarks**
96-1 1:35 PM **Recent Daycent Model Development and Testing for N Gas Volatilization and Nitrate Leaching.** Stephen J. Del Grosso*, William J. Parton and Ram Gurung

96-2	1:55 PM	**Lessons from the Field: Insights for Modelling N_2O Emissions from Riverine Ecosystems.** Helen Baulch*, Madeline Rosamond, Jason Venkiteswaran, Sherry Schiff, Nick Dylla and Colin Whitfield
96-3	2:15 PM	**Modeling Nitrous Oxide Emission from Rivers: A Global Assessment.** Dingjiang Chen*
96-4	2:35 PM	**Top-Down Constraints on Regional-Scale Indirect N_2O Emissions.** Tim Griffis*, Zichong Chen, John Baker, Dylan B Millet, Congsheng Fu, Xuhui Lee, Jeff Wood, Peter A. Turner and Rodney Venterea
96-5	2:55 PM	**Nitrous Oxide Emissions from Riverine Networks.** Alessandra Marzadri*, Daniele Tonina, Alberto Bellin, Martha Dee and Jennifer L Tank
96-6	3:15 PM	**Direct and Indirect Nitrous Oxide Emissions: Contrasting Effects of Nitrogen Management Practices in Their Mitigation Efforts.** Bijesh Maharjan* and Rod Venterea
	3:35 PM	**Adjourn**

SESSION NO. 97—1:30 PM–3:35 PM

Marriott Tampa Waterside, Florida Salon IV, Second Level

Semiarid Dryland Cropping Systems Oral

ASA Section: Agronomic Production Systems

	1:30 PM	**Introductory Remarks**
97-1	1:35 PM	**Cropping Systems to Enhance Water and Soil Conservation in Semi-Arid Regions of Texas.** Katie L. Rothlisberger-Lewis*, Joseph Burke, Terry Wheeler and J. Wayne Keeling
97-2	1:50 PM	**Tillage Effects on Infiltration of Simulated Rain and Sediment Transport from Grazed Wheat-Sorghum-Fallow.** R. Louis Baumhardt*, Grant L Johnson, Robert C. Schwartz and David K. Brauer
97-3	2:05 PM	**Nitrogen Application Effects on Forage Sorghum Dry Matter Production and Nitrate Concentration.** Augustine K Obour*, Johnathon D. Holman and David B. Mengel
97-4	2:20 PM	**Warm-Season Crop Choices in the Northern Great Plains.** Patrick M. Carr*, Simon Fordyce and Sally Dahlhausen
97-5	2:35 PM	**Whole-Farm Economics of Long Fallowing in Semi-Arid Dryland Australian Wheat Production Systems.** David Cann* and James Hunt
97-6	2:50 PM	**Optimizing Planting Date, Seeding Rate, and Row Spacing to Maximize Wheat Yields.** Tyler Taylor* and Cody Creech
	3:05 PM	**Concluding Remarks**
	3:10 PM	**Break**
	3:20 PM	**Community Planning Session**
	3:35 PM	**Adjourn**

SESSION NO. 98—1:30 PM–3:35 PM

Marriott Tampa Waterside, Room 2, Second Level

Symposium--Future of Weed Science: Thinking Beyond Herbicides in the Agricultural Landscape

ASA Section: Agronomic Production Systems

	1:30 PM	**Introductory Remarks**
98-1	1:35 PM	**Using Molecular Tools to Understand and Combat Herbicide Resistance.** Todd Gaines*
98-2	2:05 PM	**Microbial Role of Plant-Soil Negative Feedback Processes and Implications for Weed Management.** Jenny Kao-Kniffin*
98-3	2:35 PM	**Automated Weed Control: New Technology to Solve an Old Problem in Vegetable Crops.** Steven A Fennimore*
98-4	3:05 PM	**Multiple Stresses and the Case for Ecologically Based Weed Management.** Eric Gallandt*
	3:35 PM	**Adjourn**

SESSION NO. 99—1:30 PM–3:35 PM

Tampa Convention Center, Ballroom A, First Floor

Biochar Production and Technology: Global Advancement, Risks and Success

ASA Section: Environmental Quality

Moderator: Kristin Trippe, Kurt Spokas

	1:30 PM	**Introductory Remarks**
99-1	1:35 PM	**Development of a Pacific Northwest Biochar Atlas: Translating the Results of Biochar Studies into Usable Information for Growers.** Kristin Trippe*, Claire L Phillips, Sarah Light and Stephanie Chiu
99-2	1:50 PM	**Improving Carbon Sequestration Capacity of Biochar By Pre-Treating Biomass.** Wei Zheng*, Ling Zhao and Nancy Lee Holm
99-3	2:05 PM	**Soil Hydraulic and Thermal Properties of a Highly Weathered Biochar Amended Soil.** Dedrick D. Davis*
99-4	2:20 PM	**Effect of Biochar on the Unsaturated Hydraulic Conductivity of Two Amended Soils.** Karolina Villagra-Mendoza* and Rainer F. Horn
	2:35 PM	**Break**
99-5	2:50 PM	**Effects of Biochars Treated with Peroxide and Montmorillonite on Aggregation and Water Retention in a Mexican Clayey Soil.** Marcelo Takeda Ono* and Shinjiro Sato
99-6	3:05 PM	**Influence of 13 Biochars on N2O Sources during Rewetting-Drying Cycles.** Nicole Wrage-Moennig*, Sebastian Fiedler, Teresa Fuertes-Mendizábal, José Mª Estavillo, James A. Ippolito, Nils Borchard, Mariluz Cayuela, Kurt A. Spokas, Jeffrey M. Novak and Claudia Kammann
99-7	3:20 PM	**Swine Manure Odor Removal Using Biochar.** Okhwa Hwang, Sungback Cho, Deug Woo Han, Sang Ryong Lee, Heechul Choi, Jeong Hoon Kwak, Kyoung S Ro*, Mindy Spiehs, Bryan L. Woodbury and Philip J Silva
	3:35 PM	**Adjourn**

SESSION NO. 100—1:30 PM–3:35 PM

Marriott Tampa Waterside, Grand Ballroom H, Second Level

Symposium--the Prominent Role of Plant Genetic Resources: Endophytes and Discovering the Plant Microbiome

C08 Plant Genetic Resources

Section or Division Cosponsor: C04 Seed Physiology, Production and Technology, C06 Forage and Grazinglands

	1:30 PM	**Introductory Remarks**
100-1	1:35 PM	**Dominant Members of the Plant Microbiome: Seed Transmitted Endophytes.** Carolyn Young*
100-2	2:05 PM	**The Effect of Host Genetics on Maize-Microbiome Interactions.** Jason Wallace*, Mohsen Mohseni, Karl Kremling, William A Walters, Nicholas Lepak, Ruth E Ley and Edward S Buckler IV
100-3	2:35 PM	**Patterns and Consequences of Breeding-Induced Metagenome Variation in Maize.** Maggie R. Wagner*, Posy Busby, James Holland and Peter Balint-Kurti
100-4	3:05 PM	**Dissecting Drivers of Root Microbiome Composition.** Sarah Lebeis*
	3:35 PM	**Adjourn**

SESSION NO. 101—1:30 PM–3:35 PM

Tampa Convention Center, Room 1, First Floor

Symposium--Mineral Weathering Across Scales

SSSA Division: Soil Mineralogy

Section or Division Cosponsor: SSSA Division: Pedology, SSSA Division: Forest, Range and Wildland Soils

Moderator: Judith Turk

	1:30 PM	**Introductory Remarks**
101-1	1:35 PM	**Biological Weathering, Scale and the Brush of Picasso.** George Dragos Zaharescu*
101-2	2:05 PM	**Examining the Incipient Stages of Mineral Weathering in Semiarid and Humid Landscapes.** Rebecca Lybrand*
101-3	2:35 PM	**Biogeochemical Cycling and Mineral Weathering in Soil.** Megan Y. Andrews*, Owen W. Duckworth and Jay J. Ague
101-4	3:05 PM	**Soil Production and the Soil Clay Factory.** Daniel deB. Richter*
	3:35 PM	**Adjourn**

SESSION NO. 102—1:30 PM–3:40 PM

Tampa Convention Center, Room 10, First Floor

Phosphorus Sources and Management, Plant Uptake Efficiency and Environmental Fate

SSSA Division: Nutrient Management and Soil and Plant Analysis

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

Moderator: Nathan Slaton

	1:30 PM	**Introductory Remarks**
102-1	1:35 PM	**Impact of Phosphorus Source on Soil Test Phosphorus Increase.** Stephen J. Crittenden, Quirine M. Ketterings* and Kevin Dietzel
102-2	1:50 PM	**Environmental and Agronomic Efficiency of Phosphorus in No-Tillage Corn-Soybean Rotation with Cover Crops.** Elliott Carver*, Nathan O. Nelson, Gerard J. Kluitenberg, Kraig L. Roozeboom, Peter J. Tomlinson and Jeffery R. Williams
102-3	2:05 PM	**Seasonal Variation and Potential Sources of Particulate Phosphorus in the Susquehanna River in the Chesapeake Bay Watershed.** Qiang Li*, Dengjun Wang, Yan Jin and Deb P. Jaisi
102-4	2:20 PM	**Phosphorus Stratification and Edge of Field Phosphorus Losses in the Western Lake Erie Basin.** Emily W. Duncan*, Kevin King, Lindsay Pease, Mark Williams, Gregory A. LaBarge and Doug R Smith
102-5	2:35 PM	**Agrosica: A Novel Product for Promoting Increased P Use Efficiency in Tropical Soils.** Lucas Alberth Ribeiro Valle, Sergio Leite Rodrigues, Sílvio Junio Ramos, Jose Oswaldo Siqueira, Maurício Cunha Almeida Leite, Isadora Cristina Santos Souza, Camila Carvalho, Hamilton Seron Pereira, Enio Tarso de Souza Costa and Luiz Roberto Guimarães Guilherme*
102-6	2:50 PM	**Towards a Sustainable P Future: Assessing Small WWTP As an Overlooked P Recovery Source.** John Hallas*
102-7	3:05 PM	**Phosphorus Speciation in Biochars.**
102-8	3:20 PM	**Considerations and Implications for Measuring Total Phosphorus and Suspended Sediment in Edge of Field Water Monitoring.** Shane D. Whitacre*, Elizabeth A. Dayton and Christopher Holloman
	3:35 PM	**Concluding Remarks**
	3:40 PM	**Adjourn**

SESSION NO. 103—1:30 PM–3:45 PM

Marriott Tampa Waterside, Room 12, Third Level

Extension and Education in Agronomy Oral

ASA Section: Education and Extension

Moderator: John Heard

	1:30 PM	**Introductory Remarks**
103-1	1:35 PM	**Creating a Field School - Difficult but Rewarding.** Edwin L. Ritchey*
103-2	1:50 PM	**A Foot in the Field and a Hand on the Keyboard: Building Awareness Among Farmers.** Jeanne S. Falk*
103-3	2:05 PM	**Linking Classroom to the Real World through Engaging Students with Farmers and Extension Faculty.** Kulbhushan K. Grover*
103-4	2:20 PM	**Video Tutorials for Lab Preparation: Student Outcomes for Lab and Course Performance and Instructor Evaluation.** Jacob Reed Prater*
	2:35 PM	**Break**
103-5	2:45 PM	**Moving Agronomic Pedagogy Beyond Disciplinary and Institutional Borders.** Vivian Wauters*, Sabrina Badger, Julie Grossman, Nathan D. Hecht, Nicholas R. Jordan, Alexander Liebman, Nathan Meyer, Jennifer Nicklay, Sharon Perrone, Bryan Runck, Amanda Sames and Charlotte Thurston
103-6	3:00 PM	**From Neglected to Reconnected: Improving Water Quality through Urban Stream Restoration, Education and Outreach.** Lauren Alexandra James*
103-7	3:15 PM	**Benefits of Community Gardens: On-Farm Trial for Collaboration between Adults with and without Mental Disabilities.** Nugrahaning Dewi* and Masakazu Komatsuzaki
103-8	3:30 PM	**Effective Pesticide Education in Today's Environment.** Aaron D. Esser*
	3:45 PM	**Adjourn**

SESSION NO. 104—1:30 PM–3:45 PM

Marriott Tampa Waterside, Grand Ballroom C, Second Level

Crop Ecology, Management and Quality General Oral I

C03 Crop Ecology, Management and Quality

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

Moderator: Jeffrey Coulter

	1:30 PM	**Introductory Remarks**
104-1	1:35 PM	**Phenology and Establishment of Winter Rye Cover Crop Under Iowa Conditions.** Guillermo Marcillo*
104-2	1:50 PM	**Examining the Effect of Seeding Rate and Digging on Peanut Yield in the Virginia-Carolina Region.** Joseph Oakes*, Maria Balota, David Jordan, Andrew Hare and Amir Sadeghpour
104-3	2:05 PM	**Influence of Foliar Cu Application Rate on Copper, Potassium and Zinc Concentrations in Soil and Citrus Tissues.** Said A. Hamido*, Kelly T. Morgan, Robert C Ebel and Kamal Mahmoud
104-4	2:20 PM	**A Spatiotemporal Assessment of County-Level Agronomic and Environmental Indicators for Maize Production in the US Midwest.** Sara Riccetto*, Adam Davis, Kaiyu Guan and Cameron M. Pittelkow
	2:35 PM	**Break**
104-5	2:45 PM	**Dissecting Planting Date, Hybrid Maturity, and Weather Effects on Maize Yield.** Mitch E. Baum*, Sotirios V Archontoulis and Mark A. Licht
104-6	3:00 PM	**Split, Late-Season N Applications Increase Nitrogen Recovery Efficiency in Maize.** Sarah M. Mueller*, James Camberato, Carlos D. Messina, John Shanahan, Hao Zhang and Tony J. Vyn
104-7	3:15 PM	**A New Insight on Corn Yield Responses to Plant Density and Nitrogen Rates: Data Distribution Analysis.** Rai Schwalbert*, Telmo J. C. Amado, Geomar M. Corassa and Ignacio A. Ciampitti
104-8	3:30 PM	**Does Preceding Crop Affect the Growth and Grain Yield of Corn in Manitoba?** Navneet Brar*, Yvonne Lawley and Mario Tenuta
	3:45 PM	**Adjourn**

SESSION NO. 105—1:30 PM–3:45 PM

Tampa Convention Center, Room 24, First Floor

Turf Management and Ecology (includes student competition)

C05 Turfgrass Science

Moderator: John Kaminski

	1:30 PM	**Introductory Remarks**
105-1	1:35 PM	**Does Variability within a Sports Field Influence Ground-Derived Injuries?** Chase M. Straw*, Gerald M. Henry, Christine O. Samson, Will Jackson Bowling and Cathleen N. Brown
105-2	1:50 PM	**Daily Light Integral Requirement of Creeping Bentgrass Putting Greens Determined By Shade Intensity and Timing.** Travis R. Russell*, Douglas E. Karcher and Michael D. Richardson
105-3	2:05 PM	**Influence of Mowing Height and Frequency on Putting Green Speed and Plant Health.** Timothy T. Lulis* and John E Kaminski
105-4	2:20 PM	**Reducing Ultradwarf Bermudagrass Putting Green Winter Injury with Covers and Wetting Agents.** Eric DeBoer*, Michael D. Richardson, John McCalla and Douglas E. Karcher
	2:35 PM	**Break**
105-5	2:45 PM	**The Effects of Potassium Fertilization and Sand Topdressing on Creeping Bentgrass.** Peter Bier*, Douglas J. Soldat, Ph.D. and Paul L Koch
105-6	3:00 PM	**Assessment of Germination of Agrostis Cultivars in Vitro at Optimal and Low Temperatures.** Devon Carroll*, John E. Kaminski and Peter J. Landschoot
105-7	3:15 PM	**Evaluation of Methods for Quantifying Thatch Accumulation in Zoysiagrass.** J. Bryan Unruh*, Travis W. Shaddox and Phillip H. Moon
105-8	3:30 PM	**Does the Temperature of Hydraulic Oil Influence Injury Area Dynamics on a Bermudagrass Green?** William L. Berndt*
	3:45 PM	**Adjourn**

SESSION NO. 106—1:30 PM–3:45 PM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Genomics, Molecular Genetics and Biotechnology General Oral

C07 Genomics, Molecular Genetics and Biotechnology

	1:30 PM	**Introductory Remarks**
106-1	1:35 PM	**Heat Stress Tolerance in Rice (Oryza sativa L.): Identification of Quantitative Trait Loci for Seedling Growth Under Heat Stress.** Newton Kilasi, Jugpreet Singh, Qingyuan Xiang, Tongjun Gu, Carlos Vallejos, Changrong Ye, Krishna Jagadish S.V., Paul Kusolwa and Bala Rathinasabapathi*
106-2	1:50 PM	**QTL Mapping Reveals the Genetic Architecture of Biomechanical Properties in Sorghum.** Francisco Gomez*, Anastasia Muliana, John Mullet and William L. Rooney
106-3	2:05 PM	**Construction of High Density Linkage Map in Alfalfa Using GBS.** Laxman Adhikari*, Ali M Missaoui and Orville M. Lindstrom Jr.
106-4	2:20 PM	**Validation of Yield Component Traits Identified By Gwa Mapping in a Rice *Tropical japonica* x *Tropical japonica* Ril Mapping Population.** Georgia C. Eizenga*, Melissa H. Jia, Aaron K. Jackson, M. Liakat Ali, Ehsan Shakiba, Debbie L. Boykin, Susan R. McCouch and Jeremy D. Edwards
	2:35 PM	**Break**
106-5	2:45 PM	**Genomic Prediction for Winter Survival in Lowland Switchgrass.** Hari Poudel*, Guillaume Ramestein, C. Robin Buell and Michael D. Casler
106-6	3:00 PM	**Statagies for Reduced Sprouting Damage in Wheat.** Linda Brown* and Eric Olson
106-7	3:15 PM	**Accelerating Wheat Breeding with High-Throughput Phenomics.** Daljit Singh* and Jesse Poland
106-8	3:30 PM	**Genomic Selection Strategies to Accelerate Breeding Progress in Wheat.** Lucia Gutierrez*
	3:45 PM	**Adjourn**

SESSION NO. 107—1:30 PM–3:45 PM

Tampa Convention Center, Room 33, Third Floor

Perennial and Diversified Cropping Systems and Soil Services

SSSA Division: Soil and Water Management and Conservation

Moderator: Alison Eagle, Andrea Basche

	1:30 PM	**Introductory Remarks**
107-1	1:35 PM	**Soil Properties Change after Eight Years Under Biofuel Cropping Systems.** Mostafa A. Ibrahim* and Michael L Thompson
107-2	1:50 PM	**Does Soil C Accural Under Perennial Grasses Managed for Bioenergy Offset Fertilizer Induced N2O Emission?** Jane M-F Johnson* and Nancy Barbour
107-3	2:05 PM	**Integration of Grazing and No-Tillage to Improve Soil Health and Farm Productivity.** Sjoerd Willem Duiker*
107-4	2:20 PM	**Effects of Cropping Sequence, Ripping, and Manure on Pipeline Reclamation in Western North Dakota.** Austin Link*, Thomas M. DeSutter, James A. Staricka, Kevin Sedivec, Christopher Augustin, Gautam Prasad Pradhan and Jerald W. Bergman
	2:35 PM	**Break**
107-5	2:45 PM	**Circular Buffer Strips of Perennial Grasses: Preliminary Assessment.** Sangu Angadi*, Sultan Begna, Prasanna H. Gowda, Omololu J. Idowu, Rajan Ghimire, Charles P West, Gary W. Marek and John Stout
107-6	3:00 PM	**Integrating Perennial Bioenergy Crops into Agricultural Landscapes for Biomass and Soil and Water Quality Benefits.** Julian Cacho*, Colleen Zumpf, Patty Campbell, Herbert Ssegane and Cristina Negri
107-7	3:15 PM	**Agronomic Outcomes and Environmental Benefits of Sod Phase in Crop Rotations: I Nitrogen and Water Use Efficiency By Cotton.** Gueorgui Anguelov*, David L Wright, James J Marois, Cheryl Mackowiak and Duli Zhao
107-8	3:30 PM	**Dedicated Bioenery Crops and Water Quality.** Bharat Sharma Acharya* and Humberto Blanco
	3:45 PM	**Adjourn**

SESSION NO. 108—1:30 PM–3:45 PM

Tampa Convention Center, Room 7, First Floor

Soil Education and Outreach General Oral

SSSA Division: Soil Education and Outreach

Moderator: Suzette Turner

	1:30 PM	**Introductory Remarks**
108-1	1:35 PM	**Do Knowledge Surveys Show Consistent Trends and Correlation to the Cognitive Domain?** Susan B. Edinger-Marshall*
108-2	1:50 PM	**Delivery and Student Perceptions of a Blog Assignment.** Sergio Manacpo Abit* Jr., James Lasquites and Blake MacNelly
108-3	2:05 PM	**Student and Faculty Attitudes on Grade Appeals in Crop and Soil Science Classes.** Emily Ott* and Donna Westfall-Rudd
108-4	2:20 PM	**Making Research Available to Build Healthy Soils - an Ohio Initiative.** Vinayak S. Shedekar*, Alan P. Sundermeier, Khandakar R. Islam, Steven W. Culman and Sarah Strausbaugh
	2:35 PM	**Break**
108-5	2:45 PM	**SoilWeb200 and Wikipedia: Leveraging Open Resources for Active Student Learning and Soil Science Knowledge Dissemination.** Maja Krzic*, Julie Wilson, Will Engle, Novak Rogic and Sepand Dyanatkar
108-6	3:00 PM	**Teaching the Value of Wetlands Including Soil Processes Using a Service-Learning Approach.** John R. White*
108-7	3:15 PM	**Using Soil Trace Gas Quantification to Teach Carbon & Nitrogen Cycling.** Joseph O. Storlien*
108-8	3:30 PM	**Soil Explorer - a New Website to Support Soil Science Education and Outreach.** Darrell G. Schulze* and The Isee Network
108-9	3:35 PM	**Underfoot: Soils Along Nature Trails.** Rajpreet S. Butalia*
108-10	3:40 PM	**Learning By Design: A Performance Task Activity for a Soil Fertility Course.** Martha Mamo*, Meghan E. Sindelar and Mark Keck
	3:45 PM	**Adjourn**

SESSION NO. 109—1:30 PM–3:50 PM

Tampa Convention Center, Room 3, First Floor

M.S. Oral Competition

SSSA Division: Soil Fertility and Plant Nutrition

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

Moderator: Carrie Laboski

	1:30 PM	**Introductory Remarks**
109-1	1:35 PM	**Tracking Soil Nitrogen Fertility across Minnesota.** Jared A. Spackman*, Fabián G. Fernández, Jeffrey A. Coulter and Daniel E. Kaiser
109-2	1:50 PM	**Targeting Input Responses and Returns on Intensively-Managed Soft Red Winter Wheat.** Daniel Quinn* and Kurt Steinke
109-3	2:05 PM	**Corn Response to Sulfur Fertilizer.** Jashandeep Kaur*, Amitava Chatterjee and David W. Franzen
109-4	2:20 PM	**Potassium Availability and Fixation in California Rice Fields.** Johnny Campbell*, Randal J. Southard and Bruce Linquist
109-5	2:35 PM	**Influence of Phosphorus Management on Potential for Soluble Phosphorus Loss through Leaching.** Leanna Leverich* and Daniel E. Kaiser
	2:50 PM	**Break**
109-6	3:05 PM	**Effects of Nitrogen Fertilizer Source on Soil Inorganic N Content, Sugarcane Yield and Quality Parameters.** Samuel Kwakye*, Joseph Garrett, Murilo Martins, Daniel Forestieri, Wooiklee Paye, Marilyn Sebial Dalen, Flavia Agostinho and Brenda Tubana
109-7	3:20 PM	**Controlled Release Nitrogen Fertilizer and Application Timing: Soil N, Leaf N, and Yield Response in Sugarcane.** Joseph Garrett*, Brenda Tubana, Samuel Kwakye, Wooiklee Paye, Flavia Bastos Agostinho, Daniel Forestieri, Marilyn Sebial Dalen and Murilo Martins

109-8	3:35 PM	**Boron Supplementation in Runner Peanuts (*Arachis hypogaea L.*).** Ashleigh Van Cleave*, Julie A. Howe and Glendon Harris
	3:50 PM	**Adjourn**

SESSION NO. 110—1:30 PM–4:05 PM

Marriott Tampa Waterside, Room 3, Second Level

Managing Water Resources for a Secure Future Oral

ASA Section: Global Agronomy

Moderator: Glenn Wilson

	1:30 PM	**Introductory Remarks**
110-1	1:35 PM	**Saline Land Management, Situation, Problems and Technology Requirements in China.** Zhengshan Ju*, Guoqiang Huang, Jinyu Ma and Fugui Song
110-2	1:50 PM	**Land Preparation Method and Irrigation Strategy Impacts on Peanut Pod Yield, Canopy Closure, Quality, Water Use Efficiency and Net Return Above Tillage and Irrigation Costs.** Stephen Leininger*, L. Jason Krutz, Jason Sarver, Jeff Gore, Alan Henn and Chad Abbott
110-3	2:20 PM	**Real Time Evapotranspiration Monitoring and Forecasting Based on Alabama Mesonet.** Xinhua Xiao*, Xianyan Kuang, Dedrick D. Davis, qunying Yuan and Monday Mbila
	2:35 PM	**Break**
110-4	2:50 PM	**Deficit Irrigation Impact on Photosynthesis and Non-Structural Carbon Compounds in the Leaves of Tea Plants.** Shoukai LIN and Huaqin He* Sr.
110-5	3:05 PM	**Project Climate Change Impact on Hydrological Processes in the Big Sunflower River Watershed, Mississippi.** Ying Ouyang*, Gary Feng and Matt R Moran
110-6	3:20 PM	**Impacts of Rainfall Intensity and Slope Gradient on Nitrogen Losses Processes Under Simulated Rainfall.** Weimin Xing*, Peiling Yang and Chang Ao
110-7	3:35 PM	**Groundwater Recharge from Floods in the a Hyper- Arid Floodplain.** Li Xinhu* and Gary Feng
	3:50 PM	**Community Planning Session**
	4:05 PM	**Adjourn**

SESSION NO. 111—1:30 PM–4:15 PM

Tampa Convention Center, Room 39, Third Floor

Microbial Transformations of Minerals, Metals and Organic Matter II.: Impacts on Contaminant Dynamics and Carbon Storage Oral (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

	1:30 PM	**Introductory Remarks**
111-1	1:35 PM	**Nitrogen Fertilization Effects on Soil Respiration and Mineralogy in an Agroecosystem.** Morgan Barnes, Christopher J. Matocha*, John H. Grove and Mark Coyne
111-2	1:50 PM	**Impact of Cover Crop and Irrigation Method on Soil Organic Matter Composition and Distribution.** Michael V. Schaefer*, Claudia Christine Avila, Macon Abernathy, Nathaniel Alexander Bogie, Eric A. Dubinsky, Alison R. Marklein, Daniel Rath, Asmeret Asefaw Berhe, Eoin Brodie, Teamrat Ghezzehei, Sanjai J. Parikh, William J Riley, Kate M. Scow, Peter Nico and Samantha C Ying
111-3	2:05 PM	**Impact of Carbon Management and Irrigation Method on Metal Cycling within Semi-Arid Agricultural Soils.** Claudia Christine Avila*, Michael V. Schaefer, Macon Abernathy, Mariejo Plaganas and Samantha C Ying
111-4	2:20 PM	**Influence of Carbon Lability and Flooding Treatment in Potential Oxidation of Histosols in the Everglades Agricultural Area.** Andres Felipe Rodriguez*, Samira H. Daroub and Stefan Gerber
111-5	2:35 PM	**Biodegradation Rates of Switchgrass Biochar in a Sandy Soil.** Vanessa M Barreto*
111-6	2:50 PM	**Biosolid Application Enhances Carbon Stocks in Soil.** Hasintha Wijesekara*, Nanthi S Bolan, Kim Colyvas, Paul Rippon, Balaji Seshadri, Ramesh Thangavel, Yong S Ok, Yasser M Awad, Aravind Surapaneni, Christopher Saint, Guanglong Tian, Silvana Torri and Meththika Vithanage
	3:05 PM	**Break**
111-7	3:20 PM	**Mycogenic Minerals – Impacts of Multi-Metal Systems on Fungal Mineral Production and Metal Sequestration.** Carla Rosenfeld*, Margaret Anne Hinkle and Cara Santelli
111-8	3:40 PM	**Coupled Dynamics of Carbon and Manganese in P. Putida-Birnessite Assemblages.** Jasquelin Pena*
111-9	4:00 PM	**Changes in Ni Binding to and Uptake By Mycogenic Manganese Oxides with Aging.** Margaret A. G. Hinkle*, Carla Rosenfeld, Cara Santelli and Jeffrey Post
	4:15 PM	**Adjourn**

SESSION NO. 112—1:30 PM–4:20 PM

Tampa Convention Center, Room 9, First Floor

Ph.D. Oral Competition II

SSSA Division: Soil Fertility and Plant Nutrition

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

Moderator: Thomas Bruulsema

	1:30 PM	**Introductory Remarks**
112-1	1:35 PM	**Does Potassium Management Buffer Crop Yield from Water Stress? a Meta-Analysis.** Elizabeth Trybula* and Sylvie M. Brouder
112-2	1:50 PM	**The Effects of Long-Term Phosphorus Restriction on Soil Health and Phosphorus Availability.** Jordon Wade*, Steven W. Culman and M. Scott Demyan
112-3	2:05 PM	**Field Calibration for Corn and Soybean of a Weak Organic Acid Soil Phosphorus Test Compared with the Mehlich-3, Bray-P1, and Olsen Methods.** John D. Jones* and Antonio P. Mallarino

112-4	2:20 PM	**Potassium Timing Application Rates on Cotton Yield, and Leaf Tissues in the Southern Texas High Plains.** Nana Yaw Kusi*, Katie L. Lewis and Gaylon D. Morgan
	2:35 PM	**Break**
112-5	2:50 PM	**Evaluating Calcium Silicate Slag in Rice Production:Trace Contaminants and Drought Stress Alleviation.** Rui Yang*, Julie A. Howe and Bobby R. Golden
112-6	3:05 PM	**Variable Rate Fertigation: Opportunities and Investigations in West Central Nebraska.** Tsz Him Lo*, Daran R. Rudnick and Tim M. Shaver
112-7	3:20 PM	**Effect of Granular Size of Silicate Slag on Silicon Availability in Soils and Uptake By Wheat (Triticum aestivum).** Wooiklee Paye*, Brenda Tubana, Flavia Bastos Agostinho, Marilyn Dalen, Murilo Martins, Lawrence Datnoff, Henry J Mascagni Jr. and Shephen Harrison
112-8	3:35 PM	**Bean Response to Conventional Versus Alternative Phosphorus Fertilizer.** Prudence Dimakatso Ramphisa*, Joan Davenport and Tanya Winkler
112-9	4:05 PM	**Micronutrients in the Soil and Wheat Grain and Straw: Impact of 84 Years of Organic or Synthetic Fertilization and Crop Residue Management.** Santosh Shiwakoti*, Valtcho D. Zheljazkov, Hero T. Gollany, Markus Kleber, Baoshan Xing and Tess Astatkie
	4:20 PM	**Adjourn**

SESSION NO. 113—1:30 PM–4:30 PM

Tampa Convention Center, Room 6

Environmental Quality General Oral

ASA Section: Environmental Quality

Moderator: John Stier

	1:30 PM	**Introductory Remarks**
113-1	1:35 PM	**Silicon-Rich Amendments in Rice Paddies: Effects on Arsenic Uptake and Biogeochemistry.** Matt Limmer*, Jessica Mann, Douglas Amaral, Rodrigo Vargas and Angelia L. Seyfferth
113-2	1:50 PM	**Release of Heavy Metals from Dolomite Phosphate Rock (DPR) after Activation with Organic Agents.** Ying Yu*, Zhenli He and Jibing xiong
113-3	2:05 PM	**Prediction of Maize Grain N Concentration across the US Corn Belt.** Fatima Amor Tenorio*, Eileen L McLellan, Alison Eagle, Kenneth G Cassman and Patricio Grassini
113-4	2:20 PM	**Multi-Layered Approaches to Mitigating Agricultural Nutrient Surpluses in a Peri-Urban Region.** Shabtai Bittman* and Derek Hunt
113-5	2:35 PM	**Removing Nitrate from Agricultural Tile Water with Anion Exchange Resin.** Kari Wolf* and Satish Gupta
113-6	2:50 PM	**Surface Water Quality Assessment in a Watershed with Multiple Land Management Practices.** Leonard Kibet* and Frank Mrema
	3:05 PM	**Break**
113-7	3:15 PM	**Soils and Public Health: A Microbially-Mediated Nexus.** Yakov A. Pachepsky*
113-8	3:30 PM	**Drainage Water Management Combined with Cover Crop Enhances Reduction of Soil Phosphorus Loss.** Tiequan Zhang*, Chin Tan, Zhiming Zheng, Tom Welacky and Yutao Wang
113-9	3:45 PM	**Solid Oxygen Fertilizer and Biochar Applications Reducing Nitrous Oxide Production from Agricultural Soil.** Tanumoy Bera*, Kanika S. Inglett and Guodong Liu
113-10	4:00 PM	**Fecal Indicator Sources in Small Creeks.** Cary Coppock*, Eunmi Hong, Yakov A. Pachepsky, M. Dana Harriger, Vanessa Lybarger and Daniel R. Shelton
113-11	4:05 PM	**Quantifying Sustainability Using the Fieldprint® Calculator.** Andrea Maeda*, Jamie L. Foster, Katie L. Lewis, Murilo Maeda, Joseph Burke, Matthew Bean and Reagan L. Noland
113-12	4:10 PM	**Differential Survival of Shiga-Toxigenic Escherichia coli in Simulated Runoff.** Lisa Durso* and John Gilley
113-13	4:15 PM	**Greenhouse Gas Fluxes from Integrated Crop-Livestock Systems in Central North Dakota.** Derek R. Faust* and Mark A. Liebig
113-14	4:20 PM	**Development and Evaluation of the Bacterial Fate and Transport Module for the Agricultural Policy/Environmental Extender (APEX) Model.** Eunmi Hong*, Yongeun Park, Richard Muirhead, Jaehak Jeong and Yakov A. Pachepsky
	4:25 PM	**Question and Answer**
	4:30 PM	**Adjourn**

SESSION NO. 114—1:45 PM–3:35 PM

Tampa Convention Center, Room 38

Approaching Peak Phosphorus and Seeking Alternatives: Linking Reuse, Speciation, and Availability Oral (includes student competition)

SSSA Division: Soil Chemistry

Moderator: James Ippolito, Deb Jaisi

	1:45 PM	**Introductory Remarks**
114-1	1:50 PM	**Synthesis and Characterization of a Novel Phosphorus Nanofertilizer Extracted from Agricultural Wastes.** Gulcin Unal Tosun*, Qiang Li and Deb P. Jaisi
114-2	2:05 PM	**Graphene Oxide (GO) Composites - New Slow Release Fertilisers?** Ivan Andelkovic*, Shervin Kabiri, Ehsan Tavakkoli, Jason K. Kirby, Michael J. McLaughlin and Dusan Losic
114-3	2:20 PM	**In Search of a Solution to Pollution: Improving Phosphorus Fertilizer Use Efficiency through Simple Formulation Alterations.** Joseph J. Weeks* Jr. and Ganga M. Hettiarachchi
114-4	2:35 PM	**Partitioning of P Retention between Al-Saturated Montmorillonite and Ferrihydrite Is pH-Dependent and Differs for Organic and Inorganic P.** Joerg Prietzel*
114-5	2:50 PM	**Phosphorus Speciation in the Pools of the Walker and Syers Model.** Chunhao Gu*, Stephen C. Hart, Yongfeng Hu and Mengqiang Zhu
114-6	3:05 PM	**Changes in Soil Phosphorus Forms and Concentration Under Long-Term (1994-2012) Alternative Cropping Systems in Saskatchewan, Canada.** Lidong Huang, Barbara J. Cade-Menun*, Reynald Lemke and Eric N. Johnson
114-7	3:20 PM	**Influence of Mineral Precipitation and Aquatic Vegetation on Phosphorus Removal in Canal Water from the Everglades Agricultural Area of Southern Florida.** Jennifer Cooper*, Timothy Lang and Samira H. Daroub
	3:35 PM	**Adjourn**

SESSION NO. 115—2:00 PM–3:00 PM

Marriott Tampa Waterside, Room 8 and 9

Special Session--Communicating Your Science: Messaging for a Greater Impact Workshop

ACS238 Graduate Student Committee

SESSION NO. 116—2:00 PM–3:50 PM

Tampa Convention Center, Room 20, First Floor

Foundations of Ecological Restoration: Recovery of Soil Functions after Drastic Disturbance Oral

SSSA Division: Forest, Range and Wildland Soils

Moderator: Brad Pinno, Jay Norton

	2:00 PM	**Introductory Remarks**
116-1	2:05 PM	**Arctic Tundra Disturbance: Recovery on a Fragile Landscape.** Lorene A. Lynn* and David C. Weindorf
116-2	2:20 PM	**Coarse Woody Debris Applications in Oil Sands Reclamation Impact Soil Processes and Plant Community Composition.** Brad Pinno* and Sanatan Das Gupta
116-3	2:35 PM	**Investigation of Bimodal Soil-Water Retention Properties of Reclaimed Oil Sands, Fire-Disturbed and Undisturbed Forested Soils in Northern Alberta, Canada.** Kris Novak* and Kenneth Cornelius J. Van Rees
116-4	2:50 PM	**Reforestation and Ecosystem Services: If You Build It, Will They Come?** Brian Strahm*, Bethany Avera, Shan Sun, Brian Badgley, Carl E. Zipper and James A. Burger
116-5	3:05 PM	**Regeneration of Critical Zone Structure: Macroporosity in Old-Field Forest Soils of the Southeastern US.** Zachary Brecheisen*, Mac A. Callaham Jr. and Daniel deB. Richter
116-6	3:20 PM	**Soil Changes before, during, and after Natural Gas Drilling in Sagebrush Steppe at Three Wyoming Production Areas.** Jay Norton*, Calvin F. Strom and Emad Aboukila
	3:35 PM	**Discussion**
	3:50 PM	**Adjourn**

SESSION NO. 117—2:30 PM–4:05 PM

Tampa Convention Center, Room 23

Molecular Techniques, Turf Genetics and Breeding (includes student competition)

C05 Turfgrass Science

Moderator: Susana Milla-Lewis

	2:30 PM	**Introductory Remarks**
117-1	2:35 PM	**Seed and Pollen Fertility in Colchicine Induced Polyploid Zoysiagrasses.** Luellen Swayzer*, Brian M. Schwartz and Gerald M. Henry
117-2	2:50 PM	**A High-Density Genetic Linkage Map and QTL Analysis of Drought-Related Traits in St. Augstinegrass Using Genotyping-By-Sequencing.** Xingwang Yu* and Susana R. Milla-Lewis
117-3	3:05 PM	**Development and Characterization of Colchicine-Induced Tetraploid Lines of St. Augustinegrass.** Esdras Manuel Carbajal Melgar*, Maria Carolina Zuleta, Luellen Swayzer, Brian M. Schwartz and Susana R. Milla-Lewis
117-4	3:20 PM	**Transcriptomic Analysis Using RNA Sequencing of Hard Fescue (*Festuca brevipila*) Treated with Triazolic Fungicide.** Yinjie Qiu*, Angela Orshinsky, Cory Hirsch and Eric Watkins
117-5	3:35 PM	**Heritability of Dollar Spot Resistance in Hard Fescue.** Trent Matthew Tate*, Stacy A. Bonos, Bruce B. Clarke and William Meyer
117-6	3:50 PM	**A Glimpse into Community Stability of Creeping Bentgrass Fungal Communitites.** Joseph Doherty*, Jo Anne Crouch and Joseph Roberts
	4:05 PM	**Adjourn**

SESSION NO. 118—2:30 PM–4:05 PM

Tampa Convention Center, Room 19, First Floor

Forage and Grazinglands -- New Developments

C06 Forage and Grazinglands

Moderator: James Rogers

	2:30 PM	**Introductory Remarks**
118-1	2:35 PM	**Mob-Type Grazing May Negatively Impact Animal Performance.** Benjamin F. Tracy*
118-2	2:50 PM	**Exploring the Relationship of Growth Habit and Response to Grazing Management within Arachis Glabrata.** Lynn E. Sollenberger*, Erin Stenklyft, Marta Moura Kohmann, Liliane Severino da Silva, Parmeshwor Aryal, Katie D. Cooley, Jose Carlos Batista Dubeux Jr. and Joao M.B. Vendramini
118-3	3:05 PM	**Nitrogen Fertilization and Legume Proportion Affect Grassland Litter Deposition and Decomposition.** Marta Moura Kohmann*, Lynn Sollenberger, Jose Carlos Batista Dubeux Jr., Maria Lucia A. Silveira, Leonardo S. B. Moreno, Parmeshwor Aryal, Erin Stenklyft and Liliane Severino da Silva
118-4	3:20 PM	**Location of Growth Influenced Birdsfoot Trefoil Tannin Accumulation, but Few Accessions Differed in Tannin Concentration.** Jennifer W. MacAdam*, Kimberly Cassida and Edzard van Santen
118-5	3:35 PM	**Improving Nitrogen Use Efficiency in Forage Bermudagrass.** Malay C. Saha*, Raquel Schneider-Canny, Esteban F. Rios and Patricio R. Munoz
118-6	3:50 PM	**Optimizing Yield and Forage Quality of Summer Annual Grass-Legume Mixtures in the Northeast.** Kristine Bybee-Finley*, Steven B Mirsky and Matthew Ryan
	4:05 PM	**Adjourn**

SESSION NO. 119—2:55 PM–4:30 PM

Tampa Convention Center, Room 14, First Floor

Measurement and Modeling of in Situ Soil Water Retention

SSSA Division: Soil Physics and Hydrology

Moderator: Dedrick Davis

	2:55 PM	**Introductory Remarks**
119-1	3:00 PM	**Soil Water Retention of a Bare Soil with Changing Bulk Densities.** Dilia Kool*, Ohene Akuoke, Bing Tong, Joshua L. Heitman, Thomas J. Sauer and Robert Horton
119-2	3:15 PM	**Field Soil Water Retention and Its Variability with Space and Time.** Zhuanfang Fred Zhang*
119-3	3:30 PM	**Temporal Scales of Water Retention Dynamics Observed in Arable Soils of Weighing Lysimeters.** Horst H. Gerke* and Marcus Herbrich
119-4	3:45 PM	**Inferring Water Retention Parameters from Instrumented Infiltration Tests.** Ryan Stewart*
119-5	4:00 PM	**Soil Water Infiltration and Retention Under Saline and Sodic Conditions.** Xuejun Dong*, Daniel Leskovar, Shane Sieckenius and Desire Djidonou
119-6	4:15 PM	**In-Situ Soil Water Retention Curves of a Highly Weathered Soil Under Different Land Uses.** Dedrick D. Davis*
	4:30 PM	**Adjourn**

SESSION NO. 120—3:00 PM–4:30 PM

Tampa Convention Center, Room 25, First Floor

Special Session--Behavioral Interviewing Workshop

Special Sessions

Section or Division Cosponsor: ACS238 Graduate Student Committee

Moderator: Marta Lima

SESSION NO. 121—3:00 PM–4:30 PM

Marriott Tampa Waterside, Grand Ballroom G, Second Level

Special Session Symposium--Emeritus and Late-Career Members: Exploring both Retirement Opportunities within our Sciences and Emeritus Membership Opportunities

Special Sessions

	3:00 PM	**Introductory Remarks**
121-1	3:05 PM	**Train a Farmer - Feed a Nation (Developing a Private Agricultural and Environmental University in Ethiopia).** Warren A Dick*
121-2	3:15 PM	**Want an Exciting Retirement Activity? Join a Project for Agricultural Development in a Country on Your Bucket List.** Calvin O. Qualset*
121-3	3:25 PM	**A Late Career Discovery That I'd like for the New Generation of Agronomists to Develop.** Charles LeRoy Deichman*
121-4	3:35 PM	**How to Retire without Leaving the Job You Love.** Harold E. Balbach*
121-5	3:45 PM	**Retirement: Finding a New Avocation As a Volunteer Agronomist-Engineer with an NGO.** Vernon B. Cardwell*
121-6	3:55 PM	**Emeritus Member Survey.** Lee E. Sommers* and Gary A. Peterson
	4:05 PM	**Discussion**
	4:30 PM	**Adjourn**

SESSION NO. 122—3:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Career Fair

Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 123—3:30 PM–4:00 PM

Tampa Convention Center, Room 32

Poster and 5 Minute Rapid--Urban and Anthropogenic Soils

SSSA Division: Urban and Anthropogenic Soils

	3:30 PM	**Introductory Remarks**
123-1	3:35 PM	**Estimation of Mineralizable Nitrogen from EQ Biosolids Products in an Urban Soil.** Odiney Alvarez-Campos*, Gregory Evanylo, W Lee Daniels and Mark Williams
123-2	3:40 PM	**Trophic Interactions and Soil Quality Characteristics in Midwestern Urban Gardens.** Carmen M. Ugarte* and John Taylor
123-3	3:45 PM	**Lessons Learned from Two Soilshop Events in Stevens Point, WI and Chicago, IL.** Bryant Scharenbroch* and James A. Montgomery
	3:55 PM	**Question and Answer**
	4:00 PM	**Adjourn**

SESSION NO. 124—3:30 PM–5:30 PM

Marriott Tampa Waterside, Room 10, Third Level

Symposium--Agronomy and Technology: Collaborations for Solving Our Workplace Pipeline Problem

ASA Section: Education and Extension

Section or Division Cosponsor: SSSA Division: Soil Education and Outreach

	3:30 PM	**Introductory Remarks**
124-1	3:35 PM	**Shifting the Paradigm: Rethinking K-12 Education and Outreach with Nonprofit Partners.** Amanda M. Liesch*
124-2	3:55 PM	**Engaging K-12 Youth and Utilizing Resources to Maximize 4-H Partnerships.** Brandi Yancy* and Charles K Poliseno
124-3	4:15 PM	**Community Collaboration and Nonprofits.** Amanda M. Liesch*
124-4	4:35 PM	**Ag Discovery Day: Exploring Agriculture through Science.** Danielle R Cooney*, Jamie Boas and Dokyoung Lee
	4:55 PM	**Discussion**
	5:10 PM	**Concluding Remarks**
	5:15 PM	**Community Planning Session**
	5:30 PM	**Adjourn**

SESSION NO. 125—3:30 PM–6:30 PM

Tampa Convention Center, Room 22

Symposium--Water in the Urban Environment: Availability, Policy, Design and Conservation Efforts

C05 Turfgrass Science

Section or Division Cosponsor: SSSA Division: Soil Physics and Hydrology

	3:30 PM	**Introductory Remarks**
	3:35 PM	**National and Regional Water Issues (R. Turco)**
	3:55 PM	**Developing Water Policies in Urban Areas (J. Karlin)**
	4:15 PM	**Water Considerations in Urban Design (Purdue HLA faculty)**
	4:35 PM	**Perspective on 25 years of Advances in Drought-Water Use Efficiency Research (S. Kostka)**
125-1	5:00 PM	**Water Savings Associated with Evapotranspiration-Based Irrigation Scheduling.** Candace Schaible*
	5:15 PM	**New Techniques in Measuring Water in Urban Soils (B. Leinauer)**
	5:30 PM	**Discussion**
	5:40 PM	**Concluding Remarks**
	5:45 PM	**Reception - TWCA**
	6:30 PM	**Adjourn**

SESSION NO. 126—3:35 PM–4:20 PM

Marriott Tampa Waterside, Grand Ballroom H, Second Level

CSSA Business Meeting--Plant Genetic Resources

C08 Plant Genetic Resources

SESSION NO. 127—3:45 PM–4:35 PM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Poster and 5 Minute Rapid--Genomics, Molecular Genetics and Biotechnology

C07 Genomics, Molecular Genetics and Biotechnology

	3:45 PM	**Introductory Remarks**
127-1	3:50 PM	**Image and QTL Analysis Reveal Pleiotropic Loci for Stem Pithiness and Moisture Content in Sorghum.** Geraldo Carvalho* Jr. and William L. Rooney
127-2	3:55 PM	**Investigating the Genetic Control of Tiller Development in Barley.** Allison M Haaning*, Kevin Smith, Gina L Brown-Guedira, Shiaoman Chao, Priyanka Tyagi and Gary J. Muehlbauer
127-3	4:00 PM	**Quantitative Trait Loci for Vegetative Stage Heat Stress Tolerance in Rice Using Differential Leaf Damage Assessed By Ion Leakage.** Qingyuan Xiang*, Newton Kilasi, Jugpreet Singh and Bala Rathinasabapathi
127-4	4:05 PM	**High-Throughput Architectural Trait Phenotyping for Association Mapping.** Matthew W. Breitzman*, Yin Bao, Lie Tang, Patrick S. Schnable and Maria G. Salas Fernandez
127-5	4:10 PM	**Estimating Genetic Diversity and Population Structure of Founder Lines in a Pennycress Breeding Program.** Katherine Frels*, Ratan Chopra, Kayla Altendorf, Kevin M Dorn, David Marks and James A. Anderson
127-6	4:15 PM	**A Multifaceted Approach to Understanding and Improving Nitrogen Utilization Efficiency in Maize.** Jessica M Bubert*, Brian H Rhodes, Jennifer J Arp, Edward H Ross and Stephen P Moose
127-7	4:20 PM	**The Genomic Open-Source Breeding Informatics Initiative (GOBII) - a Gates Foundation Initiative to Transform Breeding through the Use of Genomic Selection.** Elizabeth Jones*, Star Gao, Yaw Nti-Addae, Rajeev K. Varshney, Kate Dreher, Tobias Kretzschmar, Michael Olsen, Susan R. McCouch and Kelly R Robbins
	4:25 PM	**Question and Answer**
	4:35 PM	**Adjourn**

SESSION NO. 128—3:45 PM–4:30 PM

Tampa Convention Center, Room 31, Third Floor

5 Minute Rapid--Soil and Water Management and Conservation

SSSA Division: Soil and Water Management and Conservation

Moderator: Manbir Rakkar, Sally Flis

	3:45 PM	**Introductory Remarks**
128-1	3:50 PM	**Manure Application in Strip Tillage: Effects on Grain Sorghum Yield, Water Use Efficiency, and Nutrient Uptake Under Dryland Cropping Systems.** Murali Darapuneni*, Ashley Cunningham and Leonard M. Lauriault
128-2	3:55 PM	**Effects of Eighteen Years of No-Tillage and Cover Crops on Soil Properties and Function in Californiaâ€™s San Joaquin Valley.** Jeffrey Mitchell*, Anil Shrestha, Randal J. Southard, William R. Horwath, Daniel Munk and Aldo Garcia
128-3	4:00 PM	**Motivations for Water Conservation Among Homeowners in Semi-Arid West Texas.** Vikram Baliga* and Joseph R Young
128-4	4:05 PM	**Soil Physical Properties Under Long-Term No-till and Cover Crop Management in California's San Joaquin Valley.** Aldo Garcia*
128-5	4:10 PM	**Tillage Effects on Soil Health and Water Dynamics in the Conversion of Grassland to Row Crops.** Christopher J. Graham* and Laurent Ahiablame
128-6	4:15 PM	**Crop Residues for Advanced Biofuels Workshop: A Synopsis.** Marty R. Schmer*, Douglas L. Karlen, Stephen Kaffka, David E. Clay, Shawn P. Conley, Tom Darlington, William R. Horwath, Alissa Kendall, Alan Keller, Frank Rydl, Stefan Unnasch, Michael Wang and Fred Vocasek
	4:20 PM	**Question and Answer**
	4:30 PM	**Adjourn**

SESSION NO. 129—3:45 PM–4:40 PM

Tampa Convention Center, Room 7, First Floor

A Quick Introduction to Impactful Images, Articles and Books in Soil and Agronomic Science

SSSA Division: Soil Education and Outreach

Section or Division Cosponsor: SSSA Division: Pedology, SSSA Division: Soil Physics and Hydrology, SSSA Division: Soil Chemistry, SSSA Division: Forest, Range and Wildland Soils

	3:45 PM	**Introductory Remarks**
129-1	3:50 PM	**The "Birch Effect" - Understanding Soil Organic Matter Mineralization in Dry Regions.** Ray R. Weil*
129-2	3:55 PM	**Nitrogen Equations before Their Time.** David D. Myrold*
129-3	4:10 PM	**Foundational Works – "the Living Soil" By Lady Eve Balfour.** Eric C. Brevik*
129-4	4:25 PM	**Dietz's Dots.** Anthony R. Tricarico* and E. Christian Wells
	4:40 PM	**Adjourn**

SESSION NO. 130—3:50 PM–4:35 PM

Tampa Convention Center, Room 10, First Floor

5 Minute Rapid--Nutrient Management and Soil and Plant Analysis

SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Bobby Golden

	3:50 PM	**Introductory Remarks**
130-1	3:55 PM	**Identification of Nitrogen Management Strategies in Indiana, USA That Impact Corn Stalk Nitrate Concentrations.** Ashley Kissick*, J. J. Camberato, Robert L. Nielsen, Meg Leader and Hans Kok
130-2	4:00 PM	**New Method to Determine Potentially Mineralizable Nitrogen in Agricultural Soils.** Trenton L. Roberts*, Richard J. Norman, Nathan A. Slaton, Chester Eugene Greub and Kelsey L. Hoegenauer
130-3	4:05 PM	**Evaluation of Experimental PCU Vs Urea + NBPT for Delay-Flooded Rice Production.** Richard Turner*, Bobby R. Golden, Jeff Gore, Jason Bond and Trent Irby
130-4	4:15 PM	**Dolomite Phosphate Rock–Based Slow-Release Fertilizers and Their Agronomic Effectiveness for Corn in Acidic Sandy Soils.** Zaihua Guo*, Wanli Xu, Jibing xiong and Zhenli He
130-5	4:20 PM	**31P Solution NMR on Wisconsin Biosolids.** Angela M. Ebeling*, Bryce Schoen, Matthew Kuzniar and Amelia Lauth
130-6	4:25 PM	**Phosphorus Speciation and Release in Biochar.** Chih-Hsing Cheng*, Johannes Lehmann, Chi-Peng Chen, Da-Feng Lin and Oleg Menyailo
	4:30 PM	**Question and Answer**
	4:35 PM	**Adjourn**

SESSION NO. 131—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Special Session Symposium--Developing Research and Extension Skills of Students in Integrated Agronomic Systems Poster

Special Sessions

Section or Division Cosponsor: SSSA Division: Soil and Water Management and Conservation, C03 Crop Ecology, Management and Quality

400	**Seeding Rate and Weed Control Effects on Indiangrass Growth and Development and Forage Yield.** Hillary Booher*, Robert B. Mitchell, Daren D. Redfearn and Marty R. Schmer
401	**Weed Control and Seeding Rate Impacts on Indiangrass Establishment and Persistence.** Alexa Johnson*, Robert B. Mitchell, Daren D. Redfearn and Marty R. Schmer
402	**Can High-Carbon Char Improve Soil Properties?** Lindsey Anderson* and Humberto Blanco
403	**Non-Irrigated Corn Growth & Development Following Cover Crops.** Caroline Lancaster*, Kaylee Cowan, Rebecca Johnson, Kenny Roche, Katja Koehler-Cole and Roger W. Elmore
404	**Do Cover Crops Ameliorate Corn Residue Removal Impacts on Wind Erosion?** Amber Blue*, Sabrina Ruis, Humberto Blanco-Canqui, Paul Jasa and Richard B Ferguson
405	**Temporal Changes in Greenhouse Gas Fluxes and Related Soil Properties Under Long-Term Tillage Systems.** Ivori Schley*, Humberto Blanco-Canqui, Sabrina Ruis and Paul Jasa
406	**Do Switchgrass Barriers Improve Water Infiltration Compared to Row Crops?** Grace Kurtz*, Manbir Kaur Rakkar, Humberto Blanco-Canqui, Paul Jasa, Tom Franti and Dean Eisenhauer

SESSION NO. 132—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Undergraduate Research Contest - Poster Section I

Students of Agronomy, Soils and Environmental Sciences (SASES)

100	**What Are the Impacts of Long-Term Tillage Systems on Soil Compaction in Nebraska?** Raihanah Hassim*
101	**Soil Characteristics of a Permaculture Orchard in Western Kentucky.** Kevin Goheen*, Steven M. Still and Iin P. Handayani
102	**Analysis of Change in Soil Fungal-Bacterial Ratio and Physical Soil Parameters over Time on a Rotational Grazing System in Cornell, WI.** Derek Potratz*, Zachery Leitner, Trevor Martinsen, Nathan Nelson and Daniel Keymer
103	**Nutrient Dynamics in Soils Under a Mixed Cover Crop.** Jess Bearse*, Paula M. Gale and Lauren Taylor
104	**Organic Matter in Novel Forests Can Create Ideal Conditions for Agroforestry.** Fernando Figueroa-Bonaparte*, Oscar Abelleira, Jennifer M. Rivera Sanantonio, Génesis Z. Túa Ayala and David Sotomayor

105 **Spatial Variability of Soils and Nutrients within a West Tennessee Wetland Restoration Site.** William Bratton*, Robert Simpson and Paula M. Gale

106 **Mineralogy Associated with Acid Mine Seepage As Determined Using Fourier Transform Infrared Spectroscopy and Relations to Acid Base Accounting.** Franklin Linam*

107 **Labile Soil Carbon As Impacted By Dryland Cropping Systems in Eastern Colorado.** Rachel Seedorf*, Cassandra Schnarr, Steven T. Rosenzweig, Lucretia Sherrod and Meagan E. Schipanski

108 **Determination of Plant Available Phosphorus on Pocatello Variant Silt Loam By Adsorption Isotherms for Different Fertilizer Concentrations.** Brad Davis* and Jared D. Williams

109 **Comparison of Ammonia Volatilization from Surface Applied v. Incorporated Fertilizers on High, Neutral, and Low pH Soils.** Ashley Smith*, Rebecca Brisolara, Brad Davis and Jared D. Williams

110 **Use of Biochar to Increase Microbial Growth from Compost Tea Inoculation.** Lindsay Weiss*, Alex Thomas, Robert C. Michitsch and Bryant Scharenbroch

111 **Polymer Coated Urea Research Summary: Meeting Plant Requirements While Mitigating Environmental Impacts.** Warren H. Porter*, Jeffrey D. Svedin, Tyler J. Hopkins and Bryan G. Hopkins

112 **Enzyme Activities and Microbial Community Evaluation of Featured Geomorphologic North Carolina Soils.** Alwin Joshua Chico*, Shuang Liu and Terrence G. Gardner

113 **Seasonal Shift in the Relationship between Phosphorous and Suspended Solids Suggests Differences in Landscape Sources of Phosphorous.** Jamie Kraklow* and Jill Coleman-Wasik

114 **Effects of Cover Crop Usage and Tillage Practices on Soil Health in Corn and Soybean Rotations.** Taylor Groby*

115 **Effects of Vermicompost and Vermicompost Tea on Ginseng Production and Soil Microbial Populations in Northcentral Wisconsin.** Lindsey E Carlson*, Brooke Bembeneck, Daniel Keymer, Jacob Reed Prater and Robert C. Michitsch

116 **Soil Microbial Activity at Different Drying Temperatures.** Melanie Gault*

117 **The Effects of Biochar and Compost Applications on Respiration Rates and Carbon Cycling on a Northern Californian Row Cropped Soil in an Incubation Experiment.** Suzette Turner*

118 **Evaluating the Risk of Nitrogen Losses in Reclaimed Soils Due to Polyacrylamide Use in Frac Sand Mining.** Paul Tietz*

119 **Can Labile Soil Carbon be Used to Improve the Rapid Urban Site Index Assessment Tool for Tree Plantings in the Urban Landscape?** Joel Gebhard*, Bryant Scharenbroch and Luke Scheberl

SESSION NO. 133—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Undergraduate Research Contest - Poster Section II

Students of Agronomy, Soils and Environmental Sciences (SASES)

200 **Impact of Microenvironment on the Monitoring Effort of Black Cutworm.** Carl Snyder*

201 **Forage Management across the United States.** Kailey Gehl*

202 **The Effect of Fungi on Seed Germination.** Aissatou Bah*

203 **Corn Yield Response to Nitrogen Rate and Timing in Northern Wisconsin.** Joseph Sisko*

204 **Integrated Weed Control: Row Crop Cultivation Vs. Cover Crop.** Peter Bergkamp*

205 **Occulation Vs. Tillage: How Does Cover Crop Termination Method Influence Dynamic Soil Properties?** Daniel Calzadilla*, Mary Lee Tiedeman and Krishnaswamy N. Jayachandran

206 **Non-Destructive Handheld Sensors for Sustainable Fertilizer Management of Justicia Brandegeana.** Gabriel Barraza*, Ariel Freidenreich, Amir Khoddamzadeh and Krishnaswamy N. Jayachandran

207 **The Effect of Dairy Manure and Inorganic Nitrogen on Soil Fertility, Nutrient Uptake and Yield in Corn.** Melissa Preston* and Natasha Elizabeth Macnack

208 **Split Application of Nitrogen and the Effect on Corn Growth and Nitrogen Use Efficiency.** Allison Vasey* and Natasha Elizabeth Macnack

209 **Effect of Planting Speed on Seeding Rate for Orchardgrass.** William Lenzen* and Yoana Newman

210 **Comparison of Fusn and Urea Fertilizers on Russet Potato Yeild and Tuber Quality in Southeast Idaho.** Sheldon Hamblin*, Garrett Thurgood and Jared D. Williams

211 **Rate,Timing,Placement and Enhanced Fertilizer Sources for Improving Phosphorus Use Efficiency.** Maria C. Valencia*, Jeffrey D. Svedin, Tyler J. Hopkins and Bryan G. Hopkins

212 **The Effects of Nitrogen Stabilizers, Both Pre-Plant and Post-Plant, on Nitrogen Availability and Leaching.** Aricka Roberson*

213 **Testing P and N on Asparagine Rates in Winter Wheat.** Tara Wilson*, Nathan O. Nelson and Allan Fritz

214 **Management of Herbicide Resistant Italian Ryegrass in Oklahoma.** Grace Ogden* and Misha Rose Manuchehri

215 **Potato Yield Response to Select Phosphorus and Potassium Sources.** Garrett W. Thurgood*

216 **Evaluation Soybean Cultivar for Potential Tolerance to Dicamba.** Garrett Glanzer*

217 **Biological Products to Mitigate Abiotic Stress in Corn and Soybeans.** Nate Christenson*

218 **Increasing Cotton Stand Establishment in Soils Prone to Soil Crusting.** Jennifer Dudak* and Gaylon D. Morgan

219 **The Effects of Select Industry Fungicides Timing and Rates on Potato.** Kevin Beck*

SESSION NO. 134—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Undergraduate Research Contest - Poster Section III

Students of Agronomy, Soils and Environmental Sciences (SASES)

300 **Irrigation Management of Mustard.** Payton Newell* and Ross Spackman

301 **Nitrogen and Irrigation Interactions in Water-Stressed Turfgrass Species.** Austin P Hopkins*, Neil C. Hansen, Bryan G. Hopkins and Kerri Russell

302 **Using Researcher Built Soil Moisture Sensors for Irrigation and Dryland Research.** Zach Czarnecki*, Agustin Nunez and Meagan E. Schipanski

303 **Uncertainty Analysis of Infiltration Models for a Decision Support Tool.** Andrew Baird* and Phillip Alderman

304 **Ammonium Sulfate Rate and Timing Effects on Wheat Yields.** Tyler G. Searle*

SESSION NO. 135—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Undergraduate Research Contest - Poster Section IV

Students of Agronomy, Soils and Environmental Sciences (SASES)

305 **Variation of Caffeine Content of Individuals of a Guayusa Crop in the Ecuadorian Amazonia.** Lennin Alejandro Cobos*

306 **Managing Potential Allelopathic Effects of Winter Wheat Residue in No-till Winter Canola Production.** Sarah Kezar*, Josh Lofton, Emily Kate Landoll, Kody Leonard and Victor Bodnar

307 **Fertilizer Source Effect on Silage Nutritive Value.** Derek Lenzen* and Yoana Newman

308 **Partitioning of Nutritive Value in Crotalaria Juncea L. (Sunn Hemp).** Erin T. Forsythe*, Isaac Lepcha and Harley D. Naumann

309 **Fatty Acid Profile of Forage Bermudagrass Changes Along a Climatic Gradient.** Amanda Jo Talbot*, Harley D. Naumann, Jose Carlos Batista Dubeux Jr., Joao M.B. Vendramini, Yiyi Li and Thomas Mawhinney

310 **Measuring the Breeding Value of Upland Cotton (Gossypium hirsutum, L.) Populations Designed for Drought Tolerance.** Corey Ring* and Steve Hague

311 **On-Farm Approach to Measure Biological Nitrogen Fixation in Soybeans.** Luiz Moro Rosso*, Anelise Lencina Da Silva and Ignacio Ciampitti

312 **The Allelopathic Effects of Palmer Amaranth (Amaranthus palmeri) on the Growth and Phenology of Crop Plants.** Kayla Broster*, Joe L Mattews and Karla L Gage

313 **Morpho-Physiological and Root Architectural Differences Associated with Drought Tolerant Corn Hybrids.** Charles Walne*

SESSION NO. 136—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Undergraduate Research Contest - Poster Section V

Students of Agronomy, Soils and Environmental Sciences (SASES)

314 **Phylogenetic Analysis of Triclosan-Sensitive and Triclosan-Tolerant Onion Rhizobacteria.** Priscilla Carlo*, Ashley M Garcia, Karen Vallejo and Monica O Mendez

315 **Analysis of Blended Learning Method for Teaching Introductory Soils Course.** Samantha Teten*, Kolby Grint and Martha Mamo

316 **Application of Optical Sensor Technology for Sustainable Fertilizer Management of Euphorbia Pulcherrima.** Alana Rodriguez*, Ariel Freidenreich, Amir Khoddamzadeh and Krishnaswamy N. Jayachandran

317 **NIRS Analysis of As-Fed and Prepared Samples of Corn Silage.** Jordyn Bush* and Yoana Newman

318 **The Role of Various Barriers to the Prevention of the Implementation of Garden-Based Curriculum.** Shannon Troye*

319 **Evaluating a New Soil Color Sensor for Quantifying Soil Moisture.** Daphne Lofing* and Andres Patrignani

SESSION NO. 137—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Current Research for Advancing Precision Agriculture Poster (includes student competition)

ASA Section: Agronomic Production Systems

1404 **Drone Based Sensors to Direct Variable Rate Aerial N Fertilizer Application.** Laura Thompson* and Rachel Stevens

1405 **Fertilizer Potassium Recovery Efficiency By Irrigated Soybeans.** Maxwell Coffin*, Nathan A. Slaton, Trenton L. Roberts and Russell E. DeLong

1406 **Best Use Practices to Optimize Pesticide Applications from Pulse-Width Modulation Sprayers.** Thomas R. Butts*, Liberty E. Butts, Bradley K. Fritz, W. Clint Hoffman, Joe D. Luck and Greg R. Kruger

1407 **Reliability of Predicting Spring Wheat Yield with DSSAT Using Early Season Weather Data.** Nicholas Schimek* and Joel Ransom

1408 **The Application of Unmanned Aerial Systems for Monitoring Cotton Growth and Development.** Miles Mikeska*, Nithya Rajan, Dale Cope and Sanaz Shafian

1409 **Lodging Resistance of japonica Rice (Oryza sativa L.): Lignin Accumulation and Its Related Synthesis Due to the Application of Gibberellins Acid or Uniconazole.** Longmei Wu, Wujun Zhang, Yanfeng Ding, Elidio David Cambula, Shaohua Wang and Ganghua Li* Sr.

1410 **Management Zone Delineation for Variable Rate Seeding in Soybeans.** Emma Matcham*, Sakthi Kumaran Subburayalu and Laura Lindsey

1411 **Study on the Relationship between Farmland Environment and Apple Production in Nagano Prefecture.** Takamitsu Kai*

1412 **Reading Peanut Leaves for the Future Quality.** Anne Krystel Pierre*, Michael J. Mulvaney, Diane L. Rowland, Timothy L. Grey, Barry L. Tillman, Edzard van Santen and C Wesley Wood

1413 **Monitoring Growth Status and Predicting Grain Yield in Wheat Based on the Platform of Unmanned Aerial Vehicle and Active Canopy Sensor.** Xiaojun Liu*, zeyu zhang, Qiang cao, Yongchao Tian, Xia Yao and Yan Zhu

1414 **Identification of a Unique Spectral Signature of Black Layer Formation in Maize (*Zea mays* L.).** Valerie Craig*, Elizabeth A. Lee, Stephen R. Bowley, Hugh J. Earl and Aaron Berg

1415 **Assessing UAS Mounted Imaging Sensors for the Evaluation of Zea Mays Nitrogen Status.** Andrew L. Russ*, Craig S. T. Daughtry and E. Raymond Hunt Jr.

1416 **Utilization of Optical Sensor and Crop Modeling to Assist Nitrogen Fertilization Management in Maize.** Ricardo José Miguel Melchiori*, Susana M Albarenque, Nicolas Maltese and Octavio Pedro Caviglia

1417 **Spectral Imagery to Estimate Leaf Area Index and Above Ground Biomass.** Tyler John Nigon*, Aicam Laacouri, Ce Yang and David Mulla

1418 **Development of a Technique for Assessing Late Leaf Spot (*Cercosporidium personatum*) Using an Unmanned Aerial System in Large Mapping Populations of Peanut (*Arachis hypogaea* L.).** Sara Pelham*, Albert K. Culbreath, Vasileios Liakos, C. Corley Holbrook, Baozhu Guo, Ye Chu, Peggy Ozias-Akins and W. Scott Monfort

1419 **A Comparison of Machine Learning Techniques Applied to Uav Data for Nitrogen Content Estimation.** Olga Walsh, Sanaz Shafian*, Jordan McClintick-Chess and Steven Blanscet

SESSION NO. 138—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Semiarid Dryland Cropping Systems Poster (includes student competition)

ASA Section: Agronomic Production Systems

1350 **Defining a Dryland Grain Sorghum Production Function for the Central Great Plains.** David C. Nielsen* and Merle F. Vigil

1351 **Biosolids and Conservation Tillage: Long-Term Effects on Grain and Straw Yield of Dryland Wheat.** William F. Schillinger*, Andy Bary and Craig G. Cogger

1352 **Intercropping Wheat with Maize Under Conservation Practices Decreases CO2 Emissions in Dry Areas.** Falong Hu, F. Feng, Cai Zhao, Qiang Chai*, Aizhong Yu, Wen Yin, Chang Liu and Yantai Gan

1353 **Improving Systems Resilience and Productivity through Soil Mulching and Intercropping in Arid Areas.** Wen Yin, F. Feng, Falong Hu, Cai Zhao, Aizhong Yu, Chang Liu, Qiang Chai* and Yantai Gan

1354 **Nitrate Leaching Potential in a Semi-Arid Region Affected More By Crop Rotation Than Nitrogen Fertilizer Rate.** Clain A. Jones*, Perry R Miller, Terry L Rick, W. Adam Sigler and Stephanie A. Ewing

1355 **Morpho-Physiological Characteristics and Grain Yield Attributes of Selected Cowpea Genotypes Under Phosphorus and Moisture Stress Conditions on a South Africa Typic Ustipsamment.** Setshele Standford Thosago, Funso Raphael Kutu*, Irvine Kwaramba Mariga and Amudalat Bolanle Olaniyan

1400 **Effect of Plant Growth Regulator Application on Yield and Quality of Malting Barley.** Breanne Tidemann*, John T. O'Donovan, Marta S. Izydorczyk, Thomas Kelly Turkington, Lori Oatway, Brian L. Beres, Ramona Mohr, William May, Kenneth Neil Harker, Eric N. Johnson and Henry de Gooijer

1401 **Enhancing Wheat Establishment and Yield Using Gibberellic Acid.** Tyler Taylor* and Cody Creech

1402 **Biological N2-Fixation, Nodulation and N Accumulation in Pulse Crops on the Canadian Prairie.** Zakir Hossain, Xiaoyu Wang, Chantal Hamel and Yantai Gan*

1403 **30% of the Rotational Effect Can be Explained By Soil Residual Water and Nutrients in Diversified Crop Rotations.** Yining Niu, Luke Bainard, Manjula Sarath Bandara, Chantal Hamel and Yantai Gan*

SESSION NO. 139—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Agricultural Remote Sensing General Poster

ASA Section: Climatology and Modeling

Moderator: Sanaz Shafian

1434 **UAS-Based Inspection of Seed Maize Production Fields in Northern Ghana.** Andrew Manu*, Thomas Lawler, Vincent Avornyo and Tara Wood

1435 **Comparison of Orthomosaic Images and Flight-Line Transects for Crop Monitoring By Fixed-Wing Unmanned Aircraft.** E. Raymond Hunt* Jr. and Daniel Fuller

1436 **Using Satellite Data to Estimate Corn Emergence in Kansas.** Sebastian Varela, Luciana Nieto* and Ignacio Ciampitti

1437 **Evaluating Different Methods for Winter Wheat Water Content Estimation from Hyperspectral Remote Sensing Data.** Sanaz Shafian*, Nithya Rajan, feng bo, Clark B. Neely and Matthew W. Brown

SESSION NO. 140—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Examples of Model Applications in Field Research Poster (includes student competition)

ASA Section: Climatology and Modeling

Moderator: Saseendran Anapalli, Ole Wendroth

1420 **Modelling Maize Nutriment Fertilization N-P-K, for Mexico.** Arturo Chong* and Samuel Sánchez Domínguez

1421 **Apex Model Simulation of Hybrid Corn Seed Production.** Manyowa N Meki*, Jaehak Jeong, Thomas Gerik, June Wolfe III, Louis Hassell, Giovanni Piccinni and John B. Gates

1422 **Simulating Performance of Tomato Hybrids Grown Under Canning Production System in Brazil.** Daianna Pereira Costa*, Juliana Nascimento Silva, Abadia Nascimento dos Reis and Kenneth J. Boote

1423 **N Loss to Drainage and N2O Emissions from a Corn-Soybean Rotation with Winter Rye in Central Iowa As Simulated By RZWQM.** Robert W. Malone*, Katrina Lynn Gillette, Thomas C. Kaspar, Liwang Ma, Timothy Parkin, Dan B. Jaynes, Jerry L. Hatfield and Kurt C. Kersebaum

1424 **Adopting DSSAT Canola Model to Predict Field Pennycress (Thlaspi arvense L.) Yield.** Michelle Dobbratz*, Axel Garcia y Garcia, M. Scott Wells and Rubi Raymundo

1425 **Rice Nitrogen Management Using Three Crop Models--a Case Study in Southeast China.** Liang Tang*, Leilei Liu, Yan Zhu and Weixing Cao

1426 **Site-Specific Simulation of Maize Growth and Yield Using the CERES-Maize Model.** Vijaya Raj Joshi*, Jeffrey A. Coulter and Axel Garcia y Garcia

1427 **Modeling Watershed-Level Responses of Traditional and Bioenergy Producing Landscapes.** Curtis D Jones*, Ashwan D Reddy, Stephen Hamilton, Jaehak Jeong, Jimmy R. Williams, Luca Doro, G. Philip Robertson and Roberto C Izaurralde

1428 **Assessment of Sugarcane Simulation Models and Their Ensemble for Yield Estimation in Different Regions, Cropping Systems, Seasons and Harvest Months in Brazil.** Henrique Boriolo Dias* and Paulo Cesar Sentelhas

1429 **Attributing Soybean Yield Increases from 1940s to 1990s in Canada to the Genotype Improvement and Climate Change.** Qi Jing*, Malcolm Morrison and Budong Qian

1430 **Crop Evapotranspiration and Crop Coefficients - Sources of Uncertainty.** Saadi Sattar Shahadha* and Ole Wendroth

1431 **A Simple Functional-Structural Plant Model for Sugarcane.** Murilo Vianna*, Jochem B Evers, Klaas Metselaar and Fabio Ricardo Marin

1432 **Identifying Morpho-Physiological Traits to Increase Wheat Yield in Semi-Arid and Sub-Humid Environments.** Cintia Sciarresi* and Romulo Pisa Lollato

1433 **Improving Simulations of the Sugarcane Crop Based on a Combined Agro-Hydrological Model.** Murilo Vianna*, Fábio Ricardo Marin and Klaas Metselaar

SESSION NO. 141—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

The Internship Experience: My Summer as an Intern

ASA Section: Education and Extension

Section or Division Cosponsor: Students of Agronomy, Soils and Environmental Sciences (SASES)

SESSION NO. 142—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Environmental Quality General Poster

ASA Section: Environmental Quality

1438 **Greenhouse Gas Fluxes from Integrated Crop-Livestock Systems in Central North Dakota.** Derek R. Faust* and Mark A. Liebig

1439 **Quantifying Sustainability Using the Fieldprint® Calculator.** Andrea Maeda*, Jamie L. Foster, Katie L. Lewis, Murilo Maeda, Joseph Burke, Matthew Bean and Reagan L. Noland

1440 **Fecal Indicator Sources in Small Creeks.** Cary Coppock*, Eunmi Hong, Yakov A. Pachepsky, M. Dana Harriger, Vanessa Lybarger and Daniel R. Shelton

1441 **Field Tests on Biochar to Reduce Emissions from Soil Fumigation.** Suduan Gao*, David Doll, Brad Hanson and Dong Wang

1442 **FGD Gypsum Application to a Tunica Clay Soil in the Mississippi Delta.** Martin A. Locke* and Wade Steinriede Jr.

1443 **Diurnal Variation in Greenhouse Fluxes from a Feedyard Pen Surface.** Kenneth D. Casey*, David B. Parker, Heidi M. Waldrip and Richard W. Todd

1444 **Heavy Metals Concentrations in Tea and Herbal Tea and Potential Human Health Risk.** Letuzia Maria de Oliveira*, Suchismita Das, Evandro Barbosa da Silva, Peng Gao, Julia Gress and Lena Q. Ma

1445 **Effect of Phytoplankton on Escherichia coli Survival in Laboratory Microcosms.** Rachel Kierzewski*, Yakov Pachepsky, Matthew Stocker, Robert L. Hill, Kevin Sellner and Stephanie A. Yarwood

1446 **Recovery of Ammonia and Production of High-Grade Phosphates from Digester Effluents (Municipal and Livestock).** Matias B. Vanotti*, Patrick Dube, Ariel A. Szogi and Maria Cruz Garcia-Gonzalez

1447 **Analysis of Phytochemicals in Colored-Grain Wheat (Triticum aestivum. L) and Effects on Gene Expression and Biochemical Responses Under Water Deficit Condition.** Kim Dae Yeon* and Yong Weon Seo

1448 **Ferric Hexacyanoferrate Effects on Soil Health and Soybean and Wheat Growth.** Aaron L.M. Daigh* and Thomas M. DeSutter

SESSION NO. 143—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Carbon and Greenhouse Gas Emissions General Poster II (Students' Poster Competition)

ASA Section: Environmental Quality

1449 **Use of Rapid Assessment of U.S. Soil Carbon Dataset to Calibrate a Surrogate Century Model.** Yushu Xia*, Ho-Young Kwon and Michelle Wander

1450 **Nitrous Oxide Losses from Managed Agricultural Soil in a Semi-Arid Region of Texas.** Mark McDonald*, Katie L. Lewis and Paul B. DeLaune

1451 **Impact of Conservation Management Practices on Carbon Dioxide Emissions in a Semi-Arid Region.** Mark McDonald*, Katie L. Lewis and Paul B. DeLaune

1452 **A Novel Laboratory Method to Realistically Simulate Freeze-Thaw Conditions and Nitrous Oxide Emissions.** Mark Libby*, Andrew VanderZaag, Edward G Gregorich and Claudia Wagner-Riddle

1453 **Effect of Legume-Rich and N-Fertilized Grass Diets on Nitrous Oxide and Methane Emissions from Bovine Excreta.** Marta Moura Kohmann*, Lynn Sollenberger, Jose Carlos Batista Dubeux Jr., Nicolas DiLorenzo, Maristela de Oliveira Bauer, Sabrina Saraiva Santana, Leonardo S. B. Moreno, Liliane Severino da Silva and Erin Stenklyft

1454 **Impact of Residue Grazing and Baling on Greenhouse Gas Fluxes Under Irrigated System.** Manbir Kaur Rakkar*, Humberto Blanco-canqui and Rhae A. Drijber

1455 **Soil Management Practices and N Fertilization Effects on N2O Emissions in Irrigated Corn in a Mediterranean Agroecosystem.** Evangelina Pareja-Sanchez*, Daniel Plaza-Bonilla, Jorge Alvaro-Fuentes and Carlos Cantero-Martinez

1500 **Accuracy and Sensitivity Analysis of Open-Path FTIR Quantification of N2O and CO2 Emitted from Agricultural Fields.** Cheng-Hsien Lin*, Cliff T Johnston and Richard H. Grant

1501 **Effect of Inoculant on VFA Degradation and Greenhouse Gas Emissions from Liquid Dairy Manure.** Vera Sokolov*, Andrew VanderZaag, Jemaneh Habtewold, Kari Dunfield, Claudia Wagner-Riddle and Rob Gordon

1502 **Novel Pedometrics-Econometrics Modeling Using VNIR Spectroscopy: Developing Soil Carbon Sequestration Capability Index (Student Poster Content).** Katsutoshi Mizuta*, Sabine Grunwald, Christopher M Clingensmith, Gustavo M. Vasques, Won Suk Lee, Michelle A. Phillips, Wendell P. Cropper, Xiong Xiong and Brenton D. Myers

1503 **Estimation of Potential Nitrogen Losses from the Different Rates of High Carbon Char Amended Soils.** Dinesh Panday* and Bijesh Maharjan

SESSION NO. 144—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Where the Rubber Meets the Road: Production, Novel and Real World Uses of Biochars - Poster Part 2 (includes student competition)

ASA Section: Environmental Quality

1504 **Biochar Additions to Brazilian Soils: Impacts on the Sorption-Desorption of Indaziflam.** Maria Alice Porto*, Kathleen E. Hall, Kurt A. Spokas and Daniel Valadão Silva

1505 **Use of Biochar Amendments for Removing Bacteria from Simulated Tile-Drainage Waters.** Carl H. Bolster*

1506 **Who Benefits from Biochar: Microbes, Weeds, or Conifer Seedlings?** Daniel Warnock*, Han Ren, Jessica Miesel and Lisa Tiemann

1507 **Phytostabilizing Effect of Biochars on Remediating Heavy Metals in Mine Spoil Soils.** Gilbert C Sigua*, Jeff Novak, Donald W. Watts, Mark G. Johnson, James A. Ippolito, Kurt A. Spokas, Thomas F. Ducey and Kristin Trippe

1508 **Effects of Biochar on Leaching of Dimethyl Tetrachloroterephthalate (DCPA).** Elizabeth Baker*, Olajumoke Harrison, Subhrajit Saha and Arpita Saha

1509 **Phosphorus Release Behavior of Biosolids and Corresponding Biochars.** Andressa Freitas*, Vimala D. Nair, Willie Harris, Maria Rosa Mosquera Losada and Ramachandran P.K. Nair

1510 **Soil Microbial Interactions in Depleted Urban Soils Amended with Various Organic Fertilizer Treatments.** Andrew Adamski*, Donna Becker and Matthew VanGrinsven

1511 **Biochar As a Remediation Material for Agricultural Soils Elevated in Cadmium.** Barbara Samartini Queiroz Alves*, William R. Horwath and Sanjai J. Parikh

1512 **The Impacts of High Carbon Biochar on the Soil Quality and Grain Yield of a Three-Year Dryland Rotation.** Travis Orrell* and Cody Creech

1513 **Nitrogen Dynamic in a Nitosol in Ethiopia Applied By Corncob Biochars.** Takuya Nakajima* and Shinjiro Sato

1514 **Suppression of Ammonia Volatilization from an Ethiopian Soil Applied with Corn Cob Biochar.** Yuki Moriyama* and Shinjiro Sato

1515 **Reduction of Hexavalent Chromium By Agave Biochar and Modified Biochar.** Shota Nakao* and Shinjiro Sato

1516 **Biochar-Amended Filter Socks Reduce Herbicide Losses Via Tile Line Surface Inlets.** Martin J. Shipitalo*, Matthew T. Moore and Javier M. Gonzalez

SESSION NO. 145—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Gaining Access to Food Security in Developing Countries: A Systematic Approach to Modernizing Productivity Poster (includes student competition)

ASA Section: Global Agronomy

1517 **Priorities for Wheat Intensification in the Eastern Indo-Gangetic Plains.** Alexander G Park*

1518 **The Effect of Mung Bean on Improving Dietary Diversity of Women and Children in Senegal.** A. Ozzie Abaye*, Taylor Vashro, Matthew Hulver, Vivica I Kraak, and Alisha Farris

1519 **Environmental Impacts of Agricultural Expansion in Colombia.** John J. Ramirez-Avila*, Edgar F Almansa-Manrique, Laura E. Wilson and Sandra L. Ortega-Achury

1520 **Resuscitating Rapid Rural Appraisal: A New Survey Methodology for Improving Food Security Outcomes in International Agricultural Development.** Emma Flemmig*, Steven C. Hodges, A. Ozzie Abaye, Kurt Richter and Wade E. Thomason

SESSION NO. 146—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Managing Water Resources for a Secure Future Poster (includes student competition)

ASA Section: Global Agronomy

1521 **Agroforestry Enables High Efficiencies of Light Capture, Photosynthesis and Water Use in a Semi-Arid Climate.** Dongsheng Zhang*

1522 **A CFD-Based Simulation Study of a New Type of Sediment Basin for the Yellow River.** Keyuan Wang* and Peiling Yang

1523 **Simulating Surface and Groundwater Hydrological Process in Big Sunflower River Watershed By Using SWAT and Modflow Model.** Fei Gao*, Gary Feng, Ming Han and Ying Ouyang

1524 **Mathematical Model of Solute Transport from Soil to Runoff in Different Rainfall Patterns and Polyacrylamide Applications.** Chang Ao* and Peiling Yang

1525 **Estimation of Canal Seepage Losses in Irrigation District with Shallow Groundwater Table.** Zhongyi Liu* and Zailin Huo

1526 **Influences of Direct Root-Zone Deficit Irrigation on Root Distribution and Wine Grape Production in Pacific Northwest.** Xiaochi Ma*, Pete Jacoby, Jeremy Thompson and Gillian Hawkins

SESSION NO. 147—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Cover Crop Management Poster

ASA Section: Land Management and Conservation

1527 **Interseeding Cover Crops into Early Season Corn.** Melissa Geiszler*, Joel Ransom and Marisol T. Berti

1528 **Intersowing Cover Crops into Standing Soybean to Reduce Soil Loss in Late Fall.** Alan Peterson*, Marisol T. Berti, Herman J. Kandel and Burton L. Johnson

1529 **Crimson Clover Accessions Trial.** Megan Poskaitis*, Steven B Mirsky, Lisa Kucek, Jude E Maul and Matthew Ryan

1530 **Evaluating the Cash Cover Crop Pennycress for Resistance to Soybean Cyst Nematode.** Cody Hoerning*, Katherine Frels, Senyu Chen, Donald L. Wyse and M. Scott Wells

1531 **Topographical Effects on Performance of Cover Crop Mixtures in Corn and Wheat.** Jessica E Fry*, Muhammad Shahid Siddique, Karen A. Renner, Andrey K. Guber, Marilyn Thelen and Alexandra Kravchenko

1532 **Emergence, Growth, and Productivity of Field Pennycress (Thlaspi arvense L.) and Winter Camelina (Camelina sativa L.) across a Range of Corn Residue Levels.** Maninder K. Walia*, M. Scott Wells, Frank Forcella, Russell W. Gesch, Donald L. Wyse and Gregg A. Johnson

1533 **Assessing Cover Crop Impacts on Corn and Soybean Yields at the Field-Scale Using UAVs.** Mingwei Yuan*, Juan C. Burjel, Nicholas Goeser, Jim Isermann and Cameron M. Pittelkow

1534 **Profitability of Cover Crops for Single and Twin Row Cotton.** Leah M. Duzy*, Kipling S. Balkcom, Andrew J. Price and Ted S. Kornecki

1535 **Legume Cover Crops Response to Shade, Herbicide Application, and Phosphate Fertilization.** Robin Gomez* and María Isabel González

1536 **Broadcast Seeding Rates for Rye, Hairy Vetch and Forage Collard Cover Crops.** Katja Koehler-Cole* and Roger W. Elmore

1537 **Integrating Cover Crops into Corn-Soybean Rotations in the Upper Midwest.** Reagan L. Noland*, Jeffrey A. Coulter, Craig C. Sheaffer, John Baker, Krishona L. Martinson and M. Scott Wells

1538 **Can Cover Crops Improve Tomato Yield and Nitrogen Cycling in a Medium-Term Experiment?** Inderjot Chahal*

1539 **Cereal Cover Crop Performance.** Kipling S. Balkcom*, Leah M. Duzy, Andrew J. Price and Ted S. Kornecki

1540 **Evaluation of Multiple Species for Use As Cover Crops in Dryland Production in Montana.** Kent A. McVay*, Darrin Boss, Peggy F. Lamb, Q. A. Khan, Chengci Chen, Patrick M. Carr, Jessica A Torrion, Zach Miller, Simon Fordyce, Julia M. Dafoe and Roger Hybner

1541 **The Impact of Chicory (*Cichorium intybus*) and Buckwheat (*Cichorium intybus*) Cover Crops on Weed Diversity and Abundance in a Vineyard in Cayuga County, NY.** Niamh O'Leary* and Ashley E. Gingeleski

SESSION NO. 148—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Breeding & Genetics Poster I (includes graduate student competition)

C01 Crop Breeding and Genetics

407 **The Sorghum Epicuticular Wax Deposition Genes *Bm2* and *Blmc* Are Allelic.** Somashekhar Punnuri*, Karen Harris-Shultz, Joseph Knoll, Xinzhi Ni and Hongliang Wang

408 **Discovering Pest Resistances in Primary Synthetics Using Genotyping-By-Sequencing and Their Application in Winter Wheat Breeding.** Shuyu Liu*, Jackie C. Rudd, Amir M.H. Ibrahim, Qingwu Xue, Xiangyang Xu, Ming-Shun Chen, Shichen Wang, Richard Metz, Charles Johnson, Yan Yang, Smit Dhakal, Jason Baker, Ravindra N. Devkota, Hangjin Yu, Xiaolong Yang and Lisa Garza

409 **Phenotypic Characterization of a Day-Neutral Exotic Cotton Population.** Kari Hugie*, B. Todd Campbell, Philip J. Bauer, Kenneth C. Stone and Donald C. Jones

410 **Exploring the Genetic Variation in Maize Height Utilizing Unmanned Aerial Systems (UAS).** Steven L. Anderson* II, Lonesome Malambo, Sorin Popescu and Seth C. Murray

411 **Seed Size and Ginning Efficiency in Upland Cotton (Gossypium hirsutum L.).** Efrem Bechere* and Robert G. Hardin IV

412 **Spectral and Three-Dimensional High-Throughput Phenotypes As Indicators of Plant Variability in a Maize Breeding Program.** Nathalia Penna Cruzato*, Seth C Murray, Dale Cope, Anjin Chang, Jinha Jung, Steven L. Anderson II and Colby Ratcliff

413 **Yield Prediction Using Temporal High-Throughput Phenotyping in Wheat Breeding Nurseries in Bangladesh.** Mohammad Mokhlesur Rahman*, Jared Crain, Ravi Prakash Singh and Jesse Poland

414 **Genetic Variability and Association Analysis in US Soft Wheat Panel for Fruiting Efficiency Under Post Anthesis Drought and Supplemental Irrigated Conditions.** Jahangir Khan*, Sumit Pradhan Shrestha, Muhsin Avci, Dipendra Shahi, Mohammad Maksud Hossain, Muhammad Atikur Rahman and Md A. Babar

415 **Identifying the Genetic Loci Associated with Fruiting Efficiency and Yield Components in AGS2000/NC06-19896 DH Population Under Post Anthesis High Temperature Stress Conditions.** Muhsin Avci*, Jahangir Khan, Sumit Pradhan Shrestha, Mohammad Maksud Hossain, Dipendra Shahi, Atik Rahman, Md A. Babar and J. Paul Murphy

416 **Wheat Blast: Can QTL Mapping Help Stop This Cereal Killer?** Giovana Cruppe*, Cristiano Lemes, Allan Fritz, Paulo Kuhnem, Lidia Calderon, Christian Cruz and Barbara Valent

417 **Screening for Known Cereal Cyst Resistance Genes in Locally Adapted Spring Wheat Lines of the Pacific Northwest.** Yvonne A. Thompson*, Nuan Wen, Kimberly A. Garland Campbell and Timothy C. Paulitz

418 **Screening of *Triticum Turgidum Ssp. Dicoccoides (Wild emmer wheat)* for Heat Tolerance.** Anju Giri* and Allan Fritz

419 **Molecular Mapping of Adult Plant Resistance Gene to Leaf Rust and Its Relationship with Plant Height in Wheat Cultivar AGS 2038.** Suraj Sapkota, Jerry Johnson, Benjamin Lopez, Daniel E Bland, Zhenbang Chen, Steve Sutton and Mohamed Mergoum*

500 **GWAS of Morphological and Scab Resistance Traits in the Elite Eastern Wheat Mapping Panel.** Elisane Weber Tessmann* and David A. Van Sanford

501 **Identification of Closely Linked Flanking Markers to Rht8 in a Wheat Recombinant Inbred Line (RIL) Population.** Yaoguang Li*, Lingling Chai, Brett F. Carver and Guihua Bai

502 **Improving Winter Wheat Yields in U.S. Great Plains By Development of Hybrids.** Anil Adhikari*, Geraldine Opena, Bryan Simoneaux, Amanda Easterly, Peter Stephen Baenziger, Jackie C. Rudd and Amir M.H. Ibrahim

503 **High-Density Linkage Map Construction and Mapping of Mutant Low Phytate QTLs in Winter Wheat (Triticum aestivum L.) Using Genotyping-By-Sequencing (GBS).** Jorge Patricio Venegas*, Robert A. Graybosch, Waseem Hussain, Guihua Bai, Paul St. Amand and P. Stephen Baenziger

504 **Performance of Hybrid Wheat in the Great Plains.** Amanda Easterly*, Nicholas Garst, Vikas Belamkar, Anil Adhikari, Jackie C. Rudd, Amir M.H. Ibrahim and P. Stephen Baenziger

505 **Traits Identification to Improve Yield Potential and Nitrogen Use Efficiency in Wheat.** Blake Russell*

506 **Training Population Selection and Use of Fixed Covariates to Optimize Genomic Predictions in a Historical Southeastern USA Winter Wheat Panel.** Jose Martin Sarinelli*, J. Paul Murphy, James Holland, Priyanka Tyagi, Jerry Johnson, Richard Esten Mason, Stephen A. Harrison, Carl A. Griffey, Russell L. Sutton, Mohamed Mergoum, Md Babar and Gina Brown-Guedira

507 **Genetic Mapping of Grass-Legume Mixture Compatibility QTLs in Intermediate Wheatgrass.** Johnny S Mortenson*, Blair L. Waldron, Steve R. Larson, Kevin B. Jensen, Paul G. Johnson and Earl Creech

508 **Determination of Genetic Sources and Threshold Environment of Arkansas and Gsor Male Sterile Lines.** Dustin North*, Shui-Zhang Fei, Paul A. Counce, Karen Ann Kuenzel Moldenhauer and Ehsan Shakiba

509 **Physiological and Yield Variability Among the Elite Rice Germplasm.** Salah Jumaa*, Edilberto Redoña and K Raja Reddy

510 **Genome-Wide Association Study for Grain Mold Resistance in Sorghum.** Sandeep S Tomar*, Christopher R Little, Tesfaye Tesso, Geoffrey Morris, William L. Rooney, Leo Hoffmann Jr., Scott Bean and Ramasamy Perumal

511 **Characterization of Cob Structural Integrity, Imagery Analysis, and Biochemical Composition of Corn Hybrids.** Cody Vavra*, Amol Nankar, Brendan Kelly, Chris Rock, Thomas Marek and Wenwei Xu

512 **Advancing Germplasm with Improved Agronomics and Pyramided Tolerance to Aflatoxin in Multi-Parent Populations.** Jacob Pekar*

513 **Effect of Genetic Modifiers on the Phenotypic Expression of the Maize Brown Midrib-3 (bm3) Mutant.** Calli Anibas*

514 **A Genome-Wide Association Analysis of Resistance to Goss's Wilt of Maize.** Amritpal Singh* and Aaron J Lorenz

515 **QTLs Affecting Sweet Corn Carbohydrate Content and Eating Quality in *sugary1*.** Kathleen Miller* and William F. Tracy

516 **Mapping of QTLs Associated with Carbon Isotope Discrimination in Soybean Using a Recombinant Inbred Population.** Sumandeep Bazzer*, Larry C. Purcell, Avjinder Singh Kaler, Andrew King, Jeffery D. Ray and Sadal Hwang

517 **Utilizing True Breeding Values to Explore Soybean Germplasm for Drought and Agronomic-Related Traits.** Avjinder Singh Kaler* and Larry C. Purcell

518 **Improved Screening Method for High DI-Nitrogen Fixation in Soybean.** Raphael Lemes Hamawaki*, Curtis Wolf and Stella Kantartzi

519 **Improvement of Screening Techniques for Salinity Tolerance in the Cowpea Genotypes (Vigna unguiculata) on the Seedling Growth Stage.** Homa Zarghami* and Dirk B. Hays

600 **Mapping QTLs for Leafspot Resistance in Peanut Using SNP-Based Next-Generation Sequencing Markers.** Yuya Liang*, Michael Baring, Shichen Wang and Endang M. Septiningsih

601 **Genetic Analysis of Crop Lodging in CIMMYT Wheat Using Uav Based High-Throughput Phenotyping.** Daljit Singh*, Xu Wang, Uttam Kumar and Jesse Poland

602 **Creation and Mapping of a New Mapping Population to Identify NOVEL Qtls for Aflatoxin Accumulation Resistance in Maize.** Oluwaseun Ogunola* and Marilyn Louise Warburton

SESSION NO. 149—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Graduate Student Poster Competition

C02 Crop Physiology and Metabolism

603 **Reproductive Growth, Development, and Yield Responses of Two Contrasting Soybean Cultivars to Temperature.** Firas Ahmed Alsajri*, Chathurika Wijewardana and K. Raja Reddy

604 **Quantifying Seed Membrane Leakage and Water Potential to Predict Peanut Seed Quality and Maturity.** Yangyang Song*, Diane L. Rowland and Barry L. Tillman

605 **An Evaluation of Rotylenchulus Reniformis Resistant Cotton Lines in the Nematode-Infested Fields Using Classical Growth Analysis.** Bhupinder Singh*, Daryl Chastain, John Snider, K. Raja Reddy, Sally Stetina and L. Jason Krutz

606 **'High Throughput' Yield Components in Cotton.** Nothabo Dube* and Glen Lorin Ritchie

607 **Influence of Biomas and Soil Fertility on Caffeine Content of Guayusa (Ilex guayusa).** Pamela Crespo*

608 **Influence of Harvest Date on Pennycress Phenology, Seed Yield, and Quality.** Julija Cubins*, M. Scott Wells, Maninder K. Walia, Donald L. Wyse, Frank Forcella and Russell W. Gesch

609 **Influence of Harvest Date on Winter Camelina Phenology, Seed Yield, and Quality.** Maninder K. Walia*, M. Scott Wells, Julija Cubins, Donald L. Wyse, Russell W. Gesch and Frank Forcella

610 **An Evaluation of the Rapid a-Ci Response Method to Elucidate Drought Effects in Field-Grown Pima and Upland Cotton Under Contrasting Irrigation Regimes.** Daryl Chastain*, John Snider and Bhupinder Singh

SESSION NO. 150—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Ecology, Management and Quality General Poster I

C03 Crop Ecology, Management and Quality

611 **Diversifying Crop Rotation Boosts Systems Productivity By 35%.** Yantai Gan*, Chantal Hamel, Herb Cutforth and Lee Poppy

612 **Lentil-Wheat Rotation Enhances Fertilizer N Use Efficiency By 46%.** Yantai Gan*, Reynald Lemke, Constantine A. Campbell and Robert Zentner

613 **Converting Bahiagrass Pasture Land to Elephantgrass Biomass Cropping Systems Alters Nutrients Dynamics.** Joel Reyes-Cabrera*, John Erickson, Maria Lucia A. Silveira and Ramon G Leon

614 **Forages in Corn Rotations: A Meta-Analytical Perspective.** Ben M. Goff*, Deborah Aller, Chad Lee, Joshua M. McGrath, Kenneth J. Moore and John H. Grove

615 **How Corn Is Cultivated in France? a Cropping Systems Typology to Support Public Decision Making on Genetically Modified Cultivars.** Rémy Ballot*, Bruno Chauvel and Laurence Guichard

616 **Effects of Cropping System Diversification on Weed Community Diversity and Relative Abundance: A Case Study in Iowa.** Huong Nguyen* and Matt Liebman

617 **Trends in Maize Planting Date and Its Interaction with Management in High Yielding Environment.** Long Nguyen*, Yared Assefa and Ignacio Ciampitti

618 **Optimizing N Management Enhances Interspecific Complementation in Maize-Pea Intercropping.** Cai Zhao, Qiang Chai*, Y. Zhao, Yanping Mou, Yan Zhang, Aizhong Yu, F. Feng, Chang Liu, Wen Yin, Falong Hu and Yantai Gan

619 **Agronomic Decisions for Narrow Row Corn Production in the Eastern US Corn Belt.** Alexander J. Lindsey*, Peter R. Thomison, Allen B. Geyer, Gregory W. Roth and Kirk D. Reese

700 **Effects of Intensity and Frequency of Early Season Defoliation on Corn Grain Yield.** Wade E. Thomason*, Martin Battaglia, Luke Boyd, Andre Diatta, Jose Franco Da Cunha Leme Filho and Mike Swoish

701 **Early Season Defoliation Affects Tassel Development in Corn.** Peter R. Thomison*, Alexander Lindsey and Allen B. Geyer

702 **Achieving Nodulation in Guar: Investigating the Impact of Management Factors.** Santanu Bikram Thapa*, Curtis Adams and Calvin L. Trostle

703 **Rate and Application Time of Plant Available Silicon on Winter Wheat Yield and Quality.** Olga Walsh*, Jordan McClintick-Chess and Steven Blanscet

SESSION NO. 151—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Robert F Barnes M.S. Poster Contest

C06 Forage and Grazinglands

Moderator: Esteban Rios

704 **Does Industrial Hemp Have Potential As a Forage?** Carol E Stringer*, Ben M. Goff, Robert C. Pearce, Brian S. Baldwin and David Hildebrand

705 **Establishment of a Perennial Legume with Sorghum-Sudangrass As a Companion Crop.** Martina La Vallie*, John A. Guretzky, Walter Schacht, Daren D. Redfearn and Bruce E. Anderson

706 **Overseeding Eastern Gamagrass with Cool-Season Grasses or Grass-Legume Mixtures.** Katie Mason*, Mary Kimberly Mullenix, Jennifer Tucker, J. Scott Angle, Russell Muntifering and Jamie Yeager

707 **Safety for Grazing Animals: Metal Concentrations of Soil and Plants at a Sealed, Arid Landfill.** Hanna Hard*, Mark L. Brusseau and Monica D Ramirez-Andreotta

708 **Determining the Effect of Planting Date and Land Preparation Method on Forage Yield and Forage Quality of a Forage Type Brassica When Grown in Georgia.** Tayler Denman* and Dennis W. Hancock

709 **Plant Community Response to Disturbances in Nebraska Sandhills Prairie.** Josiah Dallmann* and John A. Guretzky

710 **Preference of Cattle Grazing Birdsfoot Trefoil in Binary Mixtures with Meadow Bromegrass, Orchard Grass, Perennial Ryegrass and Tall Fescue.** Jacob Briscoe*, Michael D. Peel, Earl Creech and Blair L. Waldron

711 **Rhizoma Peanut Entries Representing a Range of Growth Habits Differ in Herbage Accumulation, Canopy Characteristics, and Root-Rhizome Mass.** Katie D. Cooley*, Lynn Sollenberger, Ann Blount, Marta Moura Kohmann, Liliane Severino da Silva, Parmeshwor Aryal, Jose Carlos Batista Dubeux Jr., Maria Lucia A. Silveira and Cheryl Mackowiak

712 **Evaluating Teff Grass As a Summer Forage Crop.** Jeremy M. Davidson*, Doohong Min, Robert M. Aiken and Gerard J. Kluitenberg

713 **Effects of Irrigation and Boron Fertilization on Yield and Forage Quality of Alfalfa.** Anish Sapkota*, Jessica A Torrion, Robert N Stougaard, Breno Bicego Vieitez de Almeida and Emily C Glunk

714 **Defoliation Management Effects on Productivity, Nutritive Value, and Persistence of 'performer' Switchgrass.** Perejitei Bekewe* and Miguel S. Castillo

715 **Stockpiling Native Warm-Season Forage Grasses in the Mid-South.** Neal Wepking*

716 **Ensiling Characteristics of Sunn Hemp and Tall Fescue Affect Nutritive Value and Animal Performance.** Joshua A. Tooley*, Isaac Lepcha and Harley D. Naumann

717 **Introducing Grazeable Summer Cover Crops to Wheat Systems in Oklahoma.** Kyle Martin Horn* and Alexandre C. Rocateli

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SESSION NO. 152—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Genomics, Molecular Genetics and Biotechnology General Poster

C07 Genomics, Molecular Genetics and Biotechnology

718 **Estimating Genetic Diversity and Population Structure of Founder Lines in a Pennycress Breeding Program.** Katherine Frels*, Ratan Chopra, Kayla Altendorf, Kevin M Dorn, David Marks and James A. Anderson

719 **Investigating the Genetic Control of Tiller Development in Barley.** Allison M Haaning*, Kevin Smith, Gina L Brown-Guedira, Shiaoman Chao, Priyanka Tyagi and Gary J. Muehlbauer

800 **Image and QTL Analysis Reveal Pleiotropic Loci for Stem Pithiness and Moisture Content in Sorghum.** Geraldo Carvalho* Jr. and William L. Rooney

801 **High-Throughput Architectural Trait Phenotyping for Association Mapping.** Matthew W. Breitzman*, Yin Bao, Lie Tang, Patrick S. Schnable and Maria G. Salas Fernandez

802 **A Multifaceted Approach to Understanding and Improving Nitrogen Utilization Efficiency in Maize.** Jessica M Bubert*, Brian H Rhodes, Jennifer J Arp, Edward H Ross and Stephen P Moose

803 **Quantitative Trait Loci for Vegetative Stage Heat Stress Tolerance in Rice Using Differential Leaf Damage Assessed By Ion Leakage.** Qingyuan Xiang*, Newton Kilasi, Jugpreet Singh and Bala Rathinasabapathi

804 **Transcriptome Response to Elevated CO2, Water Deficit, and Thermal Stress in Peanut.** Paxton Payton*, Haydee Laza, James R. Mahan, Jeffrey T. Baker, Dennis C. Gitz III, Diane L. Rowland, Barry L. Tillman, C. Corley Holbrook, David Tissue and Kameswara Rao Kottapalli

805 **Enhanced Nutritional Quality By Glutamate Synthesized By Transgenes Improves Crop Growth, Herbicide Tolerance and Reduced Fungal Toxin Contaminations.** David A. Lightfoot* and Yi Chen Lee

806 **Complete Sequence Analysis on Broad Bean Wilt Virus 2 Infecting Atractylodes Macrocephala Koidz.**

807 **Development and Validation of Two Novel Soybean Endogenous Reference Assays for Qualitative and Quantitative PCR Detection Methods.** Satish Kumar Guttikonda, Shane Ring, Kelsey Rapier*, Zhifang Gao, Siva Prasad Kumpatla and Jafar Mammadov

808 **SNP-Based Genetic Diversity Assessment in a Tropical japonica Rice Breeding Program.** Edilberto Redona*, Whitney Smith, Zachary Dickey and Justin Glenn

809 **Precision Nucleotide Substitutions in Sugarcane Following CRISPR/Cas9 and Template Mediated Genome Editing.** Tufan Mehmet Oz*, Ratna Karan, Aldo Merotto and Fredy Altpeter

810 **Decoding Host-Pathogen Interactions with Transgenic and Genome Edited Barley.** Tufan Mehmet Oz*, Morgan Carter, Weihui Xu, Antony Chapman, Matthew Helm, Adam J. Bogdanove, Roger Innes, Roger Wise and Fredy Altpeter

811 **Genetic Mechanism of Switchgrass Heading Time.** Megan Taylor*

812 **Cotton Aquaporin Genes and Their Expression.** Wonkeun John Park*, Philip J. Bauer, S. Bruce Martin and B. Todd Campbell

813 **Comparison of Models for Genome-Wide Association Mapping in Plants.** Avjinder Singh Kaler* and Larry C. Purcell

814 **Field Performance of Genome Edited Sugarcane.** Baskaran Kannan*, Je Hyeong Jung and Fredy Altpeter

815 **Plant Transformation Services.** Hyeyoung Lee, Yanjiao Zou, Hien Bui, Neng Wan and Zhanyuan Zhang*

816 **Genome-Wide Association Study of Resistance to Five Races of Phytophthora Sojae in Soybean.** Jun Qin, Qijian Song, Ainong Shi, Song Li, Mengchen Zhang and Bo Zhang*

817 **Microbiome Analysis of Wheat and Its Wild Relatives.** Heather Robinson*, Gloria Broders, Zaid Abdo, Kirk Broders and Patrick Byrne

818 **Molecular Analysis of the Na^+/H^+ Exchanger Gene Family and Its Role in Salt Stress in Medicago Truncatula.** Devinder Sandhu*, Manju Pudussery, Rakesh Kaundal and Donald L. Suarez

819 **Confirmation of Additional Quantitative Trait Loci That Underlie Resistance to Soybean Sudden Death Syndrome Using NILs and SNPs.** Yi-Chen Lee*, David A. Lightfoot, James Arthur Anderson and Stella Kantartzi

900 **Response of Trembling Aspen (Populus tremuloides) to Nickel Toxicity: Analysis of Gene Expression.** Karolina Kabwe Czajka, Paul Michael and Kabwe K. Nkongolo*

901 **Transcriptome Analysis Revealed Dose Dependent Variation of Nickel Induced Gene Expression in Red Maple (Acer rubrum).** Gabriel Theriault, Kersey Kalubi, Paul Michael and Kabwe K. Nkongolo*

902 **Introgression of Drought Tolerance QTLs in Rust Resistant Recipient By Using Marker Assisted Backcrossing Breeding (MAB) Approach.** Sumandeep Bazzer*, Gurvinder Singh Mavi, Parveen Chhuneja, Satinder Kaur and Avjinder Singh Kaler

SESSION NO. 153—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Forest, Range and Wildland Soils General Poster

SSSA Division: Forest, Range and Wildland Soils

903 **The Effect of Forest Harvest on Soil Carbon: A Global Meta-Analysis.** Jason Nathaniel James* and Rob Harrison

904 **The Response Time of Neon's Soil CO_2 Sensors and an Assessment of Its Impact on Soil CO_2 Flux Calculations Using the Gradient Method.** Edward Ayres*, Natchaya Durden, David Durden and Josh Roberti

905 **Habitat Associations of a Threatened Cactus: Vegetation and Soil Characteristics.** Janis L. Boettinger*, Eugene W Schupp, Jeanette M. Norton, Kourtney T Harding and Jeremiah D Armentrout

906 **Assessment of Forage Utilization in Jicarilla Apache Range Lands.** Andrea Carrillo, Bir Thapa*, Lambert Chee and Edward Lucero

907 **Loss and Recovery Patterns in Soil N, P, and K Pools Following Different Levels of Biomass Removal in Boreal, Upland Soils.** David M. Morris* and Martin Kwiaton

908 **Soil Quality Under Poplar and Agricultural Management.** Atanu Mukherjee* and Mark D. Coleman

909 **Analysis of White-Tailed Deer (Odocoileus virginianus) Forage Nutrient Content across Northern Appalachian USDA Ecological Sites.** Nico Navarro*, Patrick J. Drohan, Marc McDill and Duane Diefenbach

910 **Polyacrylamide for Increasing Soil Moisture and Seeding Success.** Shannon Nelson*, Wyatt Petersen, Jeffrey D. Svedin, Neil C. Hansen, Matthew D. Madsen, Val Anderson and Bryan G. Hopkins

911 **Soil Nitrogen Responses to an Ice Storm Manipulation Experiment in a Temperate Forested Ecosystem.** Julie N. Weitzman* and Peter M Groffman

912 **Nitrogen Versus Phosphorus Limitation: A Factorial Fertilization Experiment in Temperate Hardwood Forests.** Ruth Yanai*, Kara E Gonzales, Shinjini Goswami, Melany Fisk and Timothy Fahey

SESSION NO. 154—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Foundations of Ecological Restoration: Recovery of Soil Functions after Drastic Disturbance Poster

SSSA Division: Forest, Range and Wildland Soils

913 **Reforestation Success and Soilscapes in Montane Tropical Forests of Guanacaste, Costa Rica.** Ronald J Reuter* and Kevin Hesson

914 **Understanding Soil Quality Changes after Soil Replacement in Forest Reclamation in Patagonia.** Eduardo C. Arellano*, Melany Poppe and Juan Ovalle

915 **Soil Morphological, Physical, and Chemical Parameteers Affecting Longleaf Pine (Pinus palustris) Site Quality and Ecosystem Restoration Potential in East Texas.** Ryan Svehla*, Kenneth W. Farrish, Brian Oswald and Yuhui Weng

SESSION NO. 155—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Nutrient Management and Soil and Plant Analysis General Poster

SSSA Division: Nutrient Management and Soil and Plant Analysis

916 **Dolomite Phosphate Rock–Based Slow-Release Fertilizers and Their Agronomic Effectiveness for Corn in Acidic Sandy Soils.** Zaihua Guo*, Wanli Xu, Jibing xiong and Zhenli He

917 **Phosphorus Speciation and Release in Biochar.** Chih-Hsing Cheng*, Johannes Lehmann, Chi-Peng Chen, Da-Feng Lin and Oleg Menyailo

918 **Identification of Nitrogen Management Strategies in Indiana, USA That Impact Corn Stalk Nitrate Concentrations.** Ashley Kissick*, J. J. Camberato, Robert L. Nielsen, Meg Leader and Hans Kok

919 **A Simple, Simultaneous Gravimetric Determination of Calcite and Dolomite in Calcareous Soils.** Juan Rodriguez*

920 **Assessing the Mineral Fertiliser Nitrogen Replacement Value of Poultry Manure in Spring Barley Cropping.** Patrick J Forrestal*, John Murphy, Mark Thomas Plunkett and Martin Bourke

921 **Wheat and Faba Bean Intercropping Stimulates Non-Phenolic Organic Acids Exuded By Roots but Mitigates Phenolic Acids Exudation.** Jingxiu Xiao*, Xinhua Yin, Li Tang and Yi Zheng

922 **Subsurface Band Placement of Pelletized Poultry Litter to Cotton on Soil Quality Indicators.** Ardeshir Adeli*, John P Brooks, Gary Feng, John Read, Jack McCarty and Johnie N. Jenkins

923 **Biofuel Grass Species Effect on Nutrient Management for Swine Lagoon Effluent Sprayfields.** Carl R. Crozier*, T. J. Smyth, Mari Chinn, Adam Heitman, Zan Wang and Miguel S. Castillo

924 **Boron Uptake in Tomatoes on Sandy Soils.** Gurcan Baysal* and Rao S. Mylavarapu

925 **Uptake Efficiency and Requirement Using ^{15} N in Tomatoes Grown on Sandy Soils.** Laura Jalpa* and Rao S. Mylavarapu

926 **Plant-Available Phosphorus from Distillers By-Products.** Larry J. Cihacek*, Jasper M Teboh, Joel Ransom, Paulo J Flores and Szilvia Zilhai-Sebess

927 **Corn Stalk Nitrate Test Spatial Variability.** Angel Maresma Galindo*, Pilar Berenguer, Rachel Breslauer, Aristotelis C. Tagarakis and Quirine M. Ketterings

928 **Validation of Soil Test Potassium Recommendations and Plant Tissue Analysis to Optimize Soybean Yield in North Carolina Cropping Systems.** Lauren Lintz*, Carl R. Crozier, David H. Hardy and T. J. Smyth

929 **Nitrogen Management Tools in an Irrigated Agricultural Land.** Hayriye Ibrikci*, Mahmut Cetin, Hande Sagir, Ebru Karnez, Manfred Fink, Matjaz Glavan, Marina Pintar and John Ryan

930 **Impact of Soil-pH on Soil Test Phosphorus Extraction Results.** Edmond Bryan Rutter*, D. Brian Arnall, Chad J. Penn, Jason G. Warren and Hailin Zhang

931 **Evaluating the Impacts of Humic Acid Applied with Nitrogen Fertilizer on Corn Growth and Soil Quality in South Dakota.** Liming Lai*, Sandeep Kumar and Gregory L. Willoughby

932 **High Tunnel: Does Soil Variability Caused By Management Affect Soil Sampling?** James D McClain*, Eugenia M. Pena-Yewtukhiw, Lewis Jett and John H. Grove

933 **Mineral Nitrogen Availability from Ethanol Distillers By-Products.** Larry J. Cihacek*, Elizabeth Lovering, Collin Race and Joel Ransom

934 **Mrs.**

935 **Soil Augmentation with a Bacillus-Assemblage Drives Ecological Succession in the Rhizosphere and Improves Crop Growth Metrics.** Melanie H Jeffries*

1000 **Monitoring N Availability from Incorporated Cover Crop Residues Using a Soil Electrical Conductivity (EC) Sensor.** Zachary D. Hayden*

1001 **Proximus®, a New Tool for Reducing Nitrogen Leaching in Agricultural Soils.** John L. Breen*, Ryan M. Dierking, Ashley C. McCloughan and Ehsan R. Toosi

1002 **Evaluation of DSSAT CERES-Maize Model in Simulating Soil Mineral Nitrogen (NH4+ and NO3-) and Yield of Corn in North Central Oklahoma.** James Jade Sebial Lasquites*, D. Brian Arnall, Sergio Manacpo Abit Jr. and Phillip Alderman

1003 **Effect of Proximus® on Soil Nitrate Concentrations, Plant Dry Matter, and Yields.** Ryan Dierking*, Ashley C. McCloughan and John L. Breen

1004 **Reducing Nitrate Leaching with Proximus®, a New Tool for Nitrogen Management.** Ashley C. McCloughan*, Ryan M. Dierking and John L. Breen

1005 **Soybean Response to Potassium and Phosphorus Fertilization in Mississippi.** Justin McCoy*, Lindsey T. Bell, Bobby R. Golden, John L. Oldham and M. W. Ebelhar

1006 **In Search for Biological Approaches to Mitigate Nitrate Leaching, Proximus Case.** Ehsan Toosi*, Ashley McCloughan, Ryan Dierking and John L. Breen

1007 **Soil Test and Tissue Analysis Evaluations for Micronutrients in Wheat.** Fernando Dubou Hansel* and Dorivar A. Ruiz Diaz

1008 **Potassium Status Evaluation Using Real Time X-Ray Fluorescence on Sugarcane.** Wilfrand Bejarano Herrera*, Kiran Pavuluri, Robert Meakin, Mathaus Antonio Elias Mandro, Hudson Wallace Pereira de Carvalho and Paulo Sergio Pavinato

1009 **Phosphorus Determination in Forage and Manure Using Portable X-Ray Fluorescence Spectroscopy.** Yadav Sapkota*, Louis M. McDonald, Thomas Griggs and Thomas J. Basden

1010 **Integration of Sensor Based Fertigation Management.** Brian Krienke*

1011 **Soil Testing Laboratory Analytical Performance - Results of the ISTA-LAP Program.** Robert O. Miller*, Robert Charter and Mike Lindaman

1012 **The Impact of Added Nitrogen to First and Second Year Corn after Alfalfa.** Bailey Shaffer*, Grant Cardon, Earl Creech and Paul Grossl

1013 **Regolith Evolution over Granitic Rock at Mid-Elevations of the Southern Sierra Nevada, California.** Zhiyuan Tian*, Anthony Toby O'Geen and Peter Hartsough

1014 **Utilizing Soils to Understand Maya Water Management at El Peru-Waka', Guatemala.** Matthew C. Ricker*, Damien B. Marken and Alexander Rivas

1015 **Modeling Soil Organic Carbon Levels in Select Eastern South Dakota Soils.** Shaina Westhoff*, Muhammed Koparan, Sandeep Kumar, Cheryl L. Reese, Peter J. Sexton and Douglas D Malo

1016 **State of Gender Parity in Soil Science.** Asmeret Asefaw Berhe, Eric C. Brevik, Tracy Christopherson, Chelsea Duball, Deborah S. Page-Dumroese, Suzann Kienast-Brown, David L. Lindbo, Lorene A. Lynn, Urszula Norton, Carolyn G. Olson, Yamina Pressler, Pam Thomas, Karen L. Vaughan*, Stacey Weems, Samantha C Ying, Caitlin Price Youngquist, Amanda Pennino, Zoe Ashkropf, Maria Tsiafouli, Leigh Winowiecki and Jessica Chiartas

1017 **Amendments to Soil Taxonomy - Approved, Pending, and Proposed Since Publication of 12th Keys in 2014.** Kenneth Scheffe* and Curtis Monger

1018 **Determination of SiO_2, Al_2O_3 and Fe_2O_3 in Brazilian Soils By Portable X-Ray Fluorescence (pXRF).** Bruno Teixeira Ribeiro*, Luiz Roberto Guimarães Guilherme, Nilton Curi, Bárbara Tenório and Sérgio Silva

1019 **Estimating Soil Organic Carbon Levels in Cultivated and Native Grasslands Using Remote Sensing.** Muhammed Koparan*

1020 **Differentiating Erosional Versus Depositional Parent Material Using Terrain Attributes in the Arkansas Valley and Ridges (MLRA 118A).** Jenny Richter*, Phillip R. Owens, Zamir Libohova and Kabindra Adhikari

1021 **Mwiscsoil: Modern Online Global Environmental Data Exchange and Visualization System.** Ekrem Ozlu*, Qunying Huang and Francisco Arriaga

SESSION NO. 156—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Pedology General Poster

SSSA Division: Pedology

SESSION NO. 157—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil and Water Management and Conservation General Poster

SSSA Division: Soil and Water Management and Conservation

1022 **Crop Residues for Advanced Biofuels Workshop: A Synopsis.** Marty R. Schmer*, Douglas L. Karlen, Stephen Kaffka, David E. Clay, Shawn P. Conley, Tom Darlington, William R. Horwath, Alissa Kendall, Alan Keller, Frank Rydl, Stefan Unnasch, Michael Wang and Fred Vocasek

1023 **USDA Soil Characterization Data: Trends in Soil Organic Carbon and Total Nitrogen Impacted By Methods Changes.** Mark D. Tomer*, David James, Louis Schipper and Skye A. Wills

1024 **Adaptive Management of Cannery Waste Water Applications in Northern California.** Garrett C. Liles*, Betsy Boyd, Baohui Song and Mitchell Mitrey Johns

1025 **Effects of the DOC of Treated Municipal Wastewater on Soil Infiltration As Related to SAR and pH.** Alberto Gonzalez* and Donald L. Suarez

1026 **Water Quality Assessment of the Flint Creek Watershed By the Enumeration of E.coli, Enterococci and Pseudomonas Aeruginosa.** Elica M. Moss*

1027 **NRCS Soil Conservation and Management Information Exchange with Cuba.** Linda O. Scheffe*

1028 **Pore Water Nitrate and Phosphate in Coastal Plains Soils with Corn Production: Impact of Irrigation Scheduling.** Gilbert C Sigua*, Kenneth C. Stone, Philip J. Bauer, Ariel A. Szogi, William Myers and Paul D. Shumaker

1029 **Modelling Performance of a Tile Drainage System Incorporating Mole Drainage.** Patrick Tuohy, James OLoughlin and Owen Fenton*

1030 **In-Field Soil Health Assessments for Conservation Planning.** Brandon Smith*, David Lamm, Dennis Chessman, Barry Fisher, Jennifer Moore-Kucera, Michael Kucera, Diane E. Stott, Michael P. Robotham, Skye A. Wills, Dana L. Ashford-Kornburger, David Lindbo and Bianca Moebius-Clune

1031 **Impacts of Crop Sequence and Minimum- and No-till Cropping Systems on Soil Water in South-Central North Dakota, USA.** Jonathan J. Halvorson*, David W. Archer, Mark A. Liebig and Donald L. Tanaka

1032 **Runoff Delay Exerts a Strong Control on the FIELD-Scale Removal of Manure-Borne Fecal Bacteria with Runoff.** Matthew Stocker*, Robert L. Hill, Yakov A. Pachepsky, Craig S. T. Daughtry and Daniel Shelton

1033 **Agricultural Water Management in Dry Land.**

1034 **Physic-Chemical and Structural Properties of an Oxisol Under Straw and Limestone Addition.** Márcio Renato Nunes*, Harold van Es, Carlos Manoel Pedro Vaz and Aaron Ristow

1035 **Combining Landsat-8 and Worldview-3 Data to Assess Crop Residue Cover.** Craig S. T. Daughtry*, Alan Stern, W. Dean Hively and Andrew L. Russ

1100 **Soil Aggregate Stability in Four Different Climates.** Javier I. Rivera*, Paulina Beatriz Ramírez and Carlos A. Bonilla

1101 **Alfalfa Interseeded into Silage Corn Reduces Soil Erosion and Nutrient Losses and Enhances Productivity.** William R. Osterholz*, Mark J. Renz and John H. Grabber

1102 **Floating Aquatic Vegetation Suppression Effects on Discharged and Canal Sediment Properties in South Florida.** Anne Sexton*, Samira H. Daroub and Timothy Lang

1103 **Laboratory Assays for Sodic Soil Reclamation.** David Sotomayor*, Jesus E Lopez Vargas and Raydaliz Sasset Cancel

1104 **Changes in Groundwater Quality and Agriculture in Forty Years on the Twin Falls Irrigation Tract in Southern Idaho.** Rodrick D. Lentz*, David L. Carter and Stanley Haye

SESSION NO. 158—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Biology and Biochemistry General Poster

SSSA Division: Soil Biology and Biochemistry

1110 **Nematode Community Succession in Vertebrate Carcass Decomposition Soil Hot Spots.** Lois Taylor*, Gary Phillips, Sarah W. Keenan, Ernest C. Bernard and Jennifer M. DeBruyn

1111 **Does Inorganic N Fertilizer Affect Soil Organic Matter Mineralization?** Navreet Kaur Mahal*, Fernando Miguez, William R. Osterholz, Hanna Poffenbarger, John E. Sawyer and Michael J. Castellano

1112 **The Effect of Prescribed Fires in Biotic and Abiotic Factors on South Region of Puerto Rico.** Rebecca Tirado-Corbala*, Mario Flores Mangual, Jose Vigo-Agosto and Wilfredo Robles-Vazquez

1113 **Winter Cover Crops Influence Bacterial Community Structure.** Shuang Liu*, Shalamar D. Armstrong and Terrence G. Gardner

1114 **Effects of Land Management Changes on Soil Microbial Communities in Eastern Montana.** Billi Jean Petermann, Joshua J. Steffan* and Eric C. Brevik

1115 **Plant-Derived Biostimulant Supports Biocontrol Microbial Inoculant and Reduces Phythophthora Blight.** Xiaojun Zhao*, Mariateresa Cardarelli, Giuseppe Colla and Lori A. Hoagland

1116 **Effects of Burrowing Prairie Crayfish on Soil Nutrients and Microbial Communities.** Harold P. Collins*, Tara M. Nawrocki, Philip Fay and Wayne Polley

1117 **Assessment of Soil Microbial Communities after Long-Term Implementation of Land Conservation Practices.** Heather L. Tyler*, Martin A. Locke and Matthew T. Moore

1118 **Relationship between Microbial Community Composition, Soil Physicochemical Properties and Cotton Yields at a Field Scale.** Wenxuan Guo*, Veronica Acosta-Martinez, Amanda Cano, Jasmine Neupane, Abir Raihan and Zhe Lin

1119 **Spatial Heterogeneity Among Soil Processes at Sub-Centimeter Scale.** Gerald Sims*

1120 **Effect of Cropping Systems on Activities of Phosphorus- and Sulfur-Transforming Enzymes in Soils.** Fangling Fan*, Mengya Du, Zhenya Tang, Shiping Deng and Hailin Zhang

1121 **Comparison of Soil Physical and Chemical Properties and Soil Invertebrate Communities between Organic and Conventional Tea Plantations in Taiwan.** Kaitlin Ramspeck*, Chiou-Pin Chen, Chieh-ting Wang and Ching-Yu Huang

1122 **Rhizospheric Effect on the Diversity of Archaea in Amazonian Dark Earth.** Amanda Barbosa Lima, Aleksander Westphal Muniz*, Acácio Aparecido Navarrete, Fabiana de Souza Cannavan and Siu Mui Tsai

1123 **Grazinglands: A Meta-Analysis of Biogeochemical and Soil Physical Responses to Livestock Grazing Regimes.** Ryan C. Byrnes*, Danny J. Eastburn, Kenneth W. Tate and Leslie M. Roche

1124 **Earthworm Distribution and Demographics Along a Naturally Occurring Salinity Gradient.** Rodney Utter, Caley Gasch* and Abbey Foster Wick

1125 **Virus and Bacterial Community Responses to Anaerobic Fe(III) Bioreduction Vary with Down-Gradient Distance from the Point of Electron-Donor Addition.** Xiaolong Liang*, Yusong Wang, Jie Zhuang and Mark Radosevich

1126 **Contrasting Soils in Organic Carbon Reflect Distinction in Soil Bacterial Community Composition.** Paulina Beatriz Ramírez*, Sebastián Fuentes, Beatriz Díez and Carlos A. Bonilla

1127 **Interaction between Crop and Mycorrhizal Fungi Specie Affects Root Colonization.** Bruna Arruda*, Diana Yulieth Peña Sierra, Lucero Viviana Rodriguez Ramos, Denise de Lourdes Colombo Mescolotti and Fernando Dini Andreote

1128 **Assessment and Characterization of Microbial Communities in Salt Affected Soils on Galveston Island.** Stephen Wagner*, Elaine Fowler, Kenneth W. Farrish and David Creech

SESSION NO. 159—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Synergy and Soil Health: Integrated Practices for Agroecosystem Management Poster

SSSA Division: Soil Biology and Biochemistry

1129 **Survey of Soil Health Assessment across the USA.** Jennifer Moore-Kucera*, Bianca Moebius-Clune, Diane E. Stott, Brandon Smith, Candy Thomas, Paul R. Salon, Skye A. Wills, Zahangir Kabir, James Hoorman and Dennis Chessman

1130 **A Comparison between Fatty Acid Methyl Ester Profiling Methods As a Soil Health Indicator for Microbial Community Composition.** Amanda Cano*, Jennifer Moore-Kucera and Veronica Acosta-Martinez

1131 **Biochemical Assays to Detect Management Impacts on Soil Quality.** Nicola Lorenz*, Linda Dick, Nathan Lee, Cliff L. Ramsier and Richard P. Dick

1132 **Soil Quality Indicators across Major Agricultural Land Resources Area in New Mexico.** Mohammed Nasir Omer*, Omololu J. Idowu, April L. Ulery, Dawn Van-Leeuwen and Steven J. Guldan

1133 **Biological Capacity and Resilience As a Measure of Soil Biological Health.** Vadakattu V. S. R. Gupta*

1134 **Nodule Bacteriome As a Driver of Soybean Yield.** Mark A Williams*, Bo Zhang and Richard R Rodrigues

1135 **The Role of Locally Derived Effective Microorganisms in Reducing Ammonia Volatilization and Enhancing Nitrogen Mineralization in Soils Fertilized with Animal Manures.** Kishan Mahmud*, Dorcas Franklin, Laura Ney, Miguel L. Cabrera, Mussie Y. Habteselassie, Dennis W. Hancock and Quint Newcomer

SESSION NO. 160—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Understanding the Biology of High Carbon and Low Disturbance Soils: A Key to Soil Health and Sustainable Intensification Poster

SSSA Division: Soil Biology and Biochemistry

1105 **Effects of Fly-Ash on Agriculture Production As Soil Amendments.** Sukhwinder Bali*, Lakesh Sharma and James Dwyer

1106 **Assessing in-Situ Sources of Soil N_2O Emissions in Response to Manure and Residue Management in Organic Systems.** Debasish Saha, Arnab Bhowmik*, Armen R. Kemanian, Jason P. Kaye and Mary Ann V. Bruns

1107 **Use of Soil Health Indicators to Assess Long-Term Organic Management Effects on Cycling & Loss of Nutrients.** Ann-Marie Fortuna*, Arnab Bhowmik, Andy Bary and Craig G. Cogger

1108 **Impact of Cover Crops and Tillage Management on the Cotton Rhizosphere.** Thomas F. Ducey* and Philip J. Bauer

1109 **A Nutrient-Centric View of Rhizosphere Priming: Corn Mediation of Cover Crop Litter Decomposition and Nitrogen Cycling.** Meagan E. Schipanski*, Cassandra Schnarr, Steven T. Rosenzweig and Jason P. Kaye

SESSION NO. 161—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Approaching Peak Phosphorus and Seeking Alternatives: Linking Reuse, Speciation, and Availability Poster (includes student competition)

SSSA Division: Soil Chemistry

1201 **The Influence of Long-Term Fertilization with and without N and P on P Forms and Cycling in Continuous Wheat Cropping Systems in a Semiarid Agroecosystem.** Barbara J. Cade-Menun*, Luke Bainard, Chantal Hamel and Julien Tremblay

1202 **Pedogenesis Modulates the Effects of Vegetation on Organic Phosphorus Speciation Under Semi-Arid Climate.** Chunhao Gu*, Stephen C. Hart, Barbara J. Cade-Menun and Mengqiang Zhu

1203 **Fixing Phosphorus: Considering Cation Complexing Co-Applicants to Maintain Phosphorus Lability in an Acid Soil.** Joseph J. Weeks* Jr. and Ganga M. Hettiarachchi

1204 **Phosphorus Release from Sewage Sludge Incinerator Ash.** Persephone Ma*

SESSION NO. 162—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Societal Challenges and Soil Chemistry Poster (includes student competition)

SSSA Division: Soil Chemistry

1200 **Kinetics of Cesium Adsorption on Vermiculite.** James Andrew Thornhill* and Daniel R Ferreira

SESSION NO. 163—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Chemistry, Food Security and Human Health Poster (includes student competition)

SSSA Division: Soil Chemistry

1136 **Portable Analysis of Elemental Nutrients and Contaminants for Food Safety and Quality.** Kimberley Russell*

1137 **Stakeholders' Mental Models of Soil Management for Food Security in South Florida.** Claire Friedrichsen*, Samira H. Daroub, Martha C Monroe, John R Stepp and Stefan Gerber

1138 **Innovative Approaches to Scaling up Indigenous Vegetable Production and Utilization in West Africa.** Derek Peak*

1139 **Nitrogen Impacts Si Uptake and Partitioning By Wheat and Canola, Soil Si Forms and Soil Crusting.** Taylor L. Beard, Tai McClellan Maaz, James B. Harsh and William L Pan*

SESSION NO. 164—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Enzymes: Methods of Analyses and Mechanisms Poster (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

1205 **Assessing Mechanical Improvement of Coal Ash Using Enzyme Induced Carbonate Precipitation.** Chelsea S. Obeidy*, Shahin Shahin Safavizadeh and Brina M Montoya

SESSION NO. 165—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Speciation and Bioavailability of Nutrients and Pollutants in the Rhizosphere Poster (includes student competition)

SSSA Division: Soil Chemistry

1206 **Root-Driven Weathering Impacts on Deep Soil Carbon.** Mariela Garcia Arredondo*, Marjorie S. Schulz, Corey R. Lawrence, Ravi Kukkadapu, Malak Tfaily and Marco Keiluweit

SESSION NO. 166—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Education and Outreach General Poster

SSSA Division: Soil Education and Outreach

1207 **Soil Explorer - a New Website to Support Soil Science Education and Outreach.** Darrell G. Schulze* and The Isee Network

1208 **Underfoot: Soils Along Nature Trails.** Rajpreet S. Butalia*

1209 **Interactive Computer Tools to Clarify the Role of Nitrogen in Agriculture and the Environment.** April L. Ulery*, Laura White, Barbara Chamberlin and Jeanne Gleason

1210 **Celebrating the Newdale Clay Loam - Manitoba's Provincial Soil.** John Heard*, Marla Riekman, Curtis Cavers and Mitchell Timmerman

1211 **Translating Cutting Edge Soil Research into Curriculum for the K-12 Classroom- Focus on the Impacts of Forest Fire on Soil Processes.** Chelsea L Arnold*, Rebecca Abney and Asmeret Asefaw Berhe

1212 **Assessing Undergraduate Student Learning with Pre- and Post-Reading of Class Material for a Soil Fertility Laboratory Class.** Diego Barcellos* and Miguel L. Cabrera

1213 **Shroomroot: An Action-Based Digital Game Designed to Enhance Postsecondary Learning about Mycorrhizae.** Julia Amerongen Maddison, Maja Krzic*, Suzanne Simard, Christopher Adderly and Samia Khan

1214 **Which Academic Majors Are Enrolling Students in American Soil Science Classes?** Eric C. Brevik, Karen L. Vaughan, Sanjai J. Parikh, Holly A.S. Dolliver, David Lindbo, Joshua J. Steffan, David C. Weindorf, Paul A. McDaniel, Monday Mbila* and Susan B. Edinger-Marshall

1215 **The International Union of Soil Sciences Cultural Patterns Working Group: A New Means to Explore Links between Soils and Society.** Eric C. Brevik* and Nikola Patzel

1216 **Enrollment Trends in American Soil Science Classes: 2004-2005 to 2013-2014 Academic Years.** Eric C. Brevik, Karen L. Vaughan, Sanjai J. Parikh, Holly A.S. Dolliver, David Lindbo, Joshua J. Steffan*, David C. Weindorf, Paul A. McDaniel, Monday Mbila and Susan Edinger Marshall

1217 **Visualizing Soil Properties: A Multimedia Approach to Training Students and Practitioners.** Robert P. Flynn*, James Walworth, Joan Davenport, April L. Ulery, Jeanne Gleason and Troy A. Bauder

1218 **Toward Improved #Metalmiles Literacy.** Anthony Hartshorn* and Sam Atkins

1219 **Creating a Critical Zone Science Course to Address Environmental and Global Resource Challenges.** Adam Hoffman*, Timothy White, Ashlee Dere, Adam Wymore, James Washburne and Martha Conklin

SESSION NO. 167—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

General Soil Fertility and Plant Nutrition Poster

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

1220 **Phosphate Uptake of Corn As Influenced By Applications of Phosphate-Enhancing Polymers.** Tonny Hoang*, Diana Godlevskaya, Sarah Doydora, Dean Hesterberg, Aziz Amoozegar and Carl Crozier

1221 **Performance of Polyhalite As a Multi Nutrient Fertilizer for Potato in Brazil.** Simone Da Costa Mello*, Kiran Pavuluri, Rachel Tonhati, Francis J. Pierce and Durval Dourado Dourado Neto

1222 **Estimating in-Situ N Mineralization Rate with a Buried Bag Method.** Dan M. Sullivan* and Amber D. Moore

1223 **Nutrient Availability in Surface- and Sub-Soils Along the Precipitation Gradient of Eastern WA.** Tai McClellan Maaz*, Isaac J Madsen, Ryan W. Higginbotham and William L Pan

1224 **Soil-Based, Field-Specific Nitrogen Fertilizer Recommendations in Corn.** Chester Eugene Greub*, Trenton L. Roberts, Nathan A. Slaton, Richard J. Norman, Jason Kelley and Kelsey L. Hoegenauer

1225 **Replacement Nutrient Quantities Strongly Influenced By Fertiliser Management.** Malcolm McCaskill*, Amanda Pearce, Aaron Vague, Brendan Christy, Robert M. Norton, Debra Partington and Penny Riffkin

1226 **Developing a Tool for Growers to Predict Sulfur Availability in Their Soils.** Sakthi Kumaran Subburayalu*, Steven W. Culman and Warren A Dick

1227 **In-Season Soil Nutrient Levels and Plant Nutrient Uptake in Soybeans Fertilized with Different Potassium Fertilizers.** Syam K. Dodla*, Hari Bohara and Kiran Pavuluri

1228 **Polyhalite As K and S Source to Soybean in Northern São Paulo State, Brazil.** Hugo Faria, Vinicius Marchioro and Jose E. Cora*

1229 **Cotton Response to Polyhalite Compared to Other K and S Source Fertilizers in the Coastal Plain Soils of Virginia.** William Hunter Frame*

1230 **Residual Effect of Polyhalite Fertilizer for Corn Grown on Sandy Soil.** Fabio Vale* and Ingbert Dowich

1231 **Tomato Response to Polyhalite Fertilizer on Sandy Loam Soils in the Mid-Atlantic Region, USA.** Mark S. Reiter and Kiran Pavuluri*

1232 **Response of Wheat to Different Application Rate of Polyhalite in Jiangsu, China.** Huoyan Wang, Xiaohui Fan*, Robert Meakin, Kiran Pavuluri, Timothy D Lewis and De Ling

1233 **Evaluation of Co-Granulated Potassium and Boron on Potato Yield and Quality.** James E. Crants*, Carl J. Rosen and Matthew McNearney

1234 **Fast- and Slow-Release Boron Co-Granulated with Potash: An Improved Method for B Application.** Ross R. Bender*, Kirandeep Mann, Curt Woolfolk and Kyle Freeman

1235 **Efficiency of Soil Applied Boron When Co-Granulated with Potash on Alfalfa and Soybean.** Curt Woolfolk*, Kirandeep Mann, Ross R Bender and Kyle Freeman

1236 **Alfalfa and Soil Response to Alternative Fertilizers and Molasses-Based Soil Amendments.** Christopher Baxter*, Andrew Cartmill and Ryan Meives

1237 **Sulfur Fertilization in Louisiana Sugarcane Production Systems.** Marilyn Sebial Dalen, Bruno Nicchio*, Murilo Martins, Daniel Forestieri and Brenda Tubana

1238 **Silicon Rates for Marandu Palisadegrass Under Conditions of Aluminum Toxicity.** Elisângela Dupas*, Jaqueline Maronez Rosa, Pedro Jose de Souza Comparin, Marlene Estevao Marchetti, Marcelo Carvalho Minhoto Teixeira Filho, Nathalia Cristina Marchiori Pereira and Alzira Gabriela da Silva Pause

1239 **Fertilization of Tanzania Guineagrass with Silicon Rates.** Elisângela Dupas*, Pedro Jose de Souza Comparin, Jaqueline Maronez Rosa, Marlene Estevao Marchetti, Marcelo Carvalho Minhoto Teixeira Filho, Nathalia Cristina Marchiori Pereira and Alzira Gabriela da Silva Pause

1240 **Effects of Yara Fertilizer Formulations on Sugarcane Yield in Outgrowers Fields of Kilombero Sugar Mill Area, Tanzania.** Hildelitha Msita*, Kefa M. Maranga, Herman Kalimba, Robert Mlimi and Stanley Kajiru

1241 **Sulfur Fertilizer Effects on Dry Matter Production and Nutrient Uptake of Juvenile Corn.** John L. Kovar*

SESSION NO. 168—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

M.S. Poster Competition

SSSA Division: Soil Fertility and Plant Nutrition

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

1300 **Does Landscape Position or Long-Term Management Have a Greater Effect on Soil Health?** Elaine V. Jordan*, Bradley A. Miller and Michael J. Castellano

1301 **Impact of Hydraulically Restrictive Horizons on Nitrogen Uptake Efficiency in Winter Wheat Grown in the Inland Northwest.** Rachel Breslauer* and Haiying Tao

1302 **Increasing Plant-Available Phosphorus through Effective Microorganism Treatment.** Aspen Hattabaugh*

1303 **Estimation of Nitrogen (N) and Sulfur (S) Mineralization in Soils Amended with Crop Residues.** Jashandeep Kaur*, Larry J. Cihacek and Amitava Chatterjee

1304 **Rye Cover Crop Impact on Nitrate Leaching on Minnesota Coarse-Textured Soils.** Natalie R. Ricks*, Fabián G. Fernández and John Baker

1305 **Top-Dress N Application Timing in Wheat.** Joao Luis Bigatao Souza*, Vaughn Reed, Joy Abit and D. Brian Arnall

1306 **Effect of Liquid Phosphorus (P) Fertilizer on Arbuscular Mycorrhizal Fungi (AMF) Association with Corn (Zea Mays L.) Roots in the Field.** Binita Thapa*, Jake E. Mowrer, Dennis L. Coker, Tony L. Provin and Ronnie W. Schnell

1307 **Evaluation of a Rapid Method for Assessing Soybean Potassium Nutritional Status.** David Alan Sites* Jr., Nathan A. Slaton, Larry C. Purcell, Trenton L. Roberts, Russell E. DeLong, Dillon D. Cox and Tyler L. Richmond

1308 **Soil Potassium Effects on Cotton Growth, Yield, and Quality in the Texas High Plains.** Amee Bumguardner*, Katie L. Lewis, Seth A Byrd and Gaylon D. Morgan

1309 **Excess Phosphorus and Potassium in Manure-Amended Soils: How Much Is Too Much?** Joseph Bargoyet Kibiwott* and Macdonald Burgess

1310 **Predicting the Contribution of Soil EMN to Total Corn N Uptake.** Houston Miller* and Shalamar D. Armstrong

1311 **Cover Crop Effects on the Effectiveness of Urease Inhibitors.** Noah Hull* and Elizabeth A. Guertal

1312 **Impact of Soil pH and Aluminum on Winter Canola Cultivars in the Southern Great Plains.** Emily Kate Landoll*, Josh Lofton, Kody Leonard, Victor Bodnar and Anna Zander

1313 **Impacts of Cover Crop and Grazing Management Under Integrated Crop Livestock System on Soil Quality.** Vishal Seth* and Sandeep Kumar

1314 **Management and Cultivar Effects on Malt-Type Barley Performance and End Use Quality in Virginia.** Luke Boyd*, Kyle Brasier, Wynse Brooks, Carl A. Griffey, William Hunter Frame, Mark S. Reiter and Wade E. Thomason

1315 **Poultry Litter Ash As a Phosphorus Source for Corn.** Clara Ervin*, Sam Park, Mark S. Reiter, Wade E. Thomason and Charles W. Cahoon

1316 **Late-Split Nitrogen Application on Corn.** Derek Rapp* and Emerson D. Nafziger

SESSION NO. 169—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Ph.D. Poster Competition

SSSA Division: Soil Fertility and Plant Nutrition

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

1242 **Relating Soil Properties to Spatial Variation of Phosphorus Critical Level.** James Bowen* and Joshua M. McGrath

1243 **Total Nutrient Uptake and Partition in Mid-South Irrigated Soybean.** Brian Pieralisi*, Bobby R. Golden, Michael S. Cox, Jason Bond, Trent Irby and Don Cook

1244 **Identifying Which Management Factors Have the Greatest Impact on Soybean Yields.** Tryston August Beyrer* and Frederick E. Below

1245 **Effect of Plant Growth-Promoting Rhizobacteria at Various Nitrogen Rates on Maize Growth.** Yaru Lin*, Dexter B. Watts and Joseph Kloepper

1246 **Evaluation of Peanut Residue Nitrogen Contributions to Wheat in a Conservation Tillage Cropping System.** Arun D Jani*, Michael J. Mulvaney, John Erickson, Ramon G Leon, C Wesley Wood and Diane L. Rowland

1247 **Can a Legume Cover Crop Increase Nitrate Leaching after Termination?** Gurbir Singh*, Karl Williard, Jon Schoonover, Rachel L. Cook and Randy McElroy

1248 **Derivation of a Regional Active-Optical Reflectance Sensor Corn Algorithm.** Gregory Mac Bean* and Newell R Kitchen

1249 **Fusing Corn Nitrogen Recommendation Tools for an Improved Canopy Reflectance Sensor Performance.** Curtis Ransom*, Newell R Kitchen, Gregory Mac Bean, James Camberato, Paul R. Carter, Richard B. Ferguson, Fabian G. Fernandez, David W. Franzen, Carrie A.M. Laboski, Emerson D. Nafziger, John E. Sawyer and John Shanahan

1250 **Early Vs. Late Nitrogen Strategies for Michigan Corn Production.** Jeff Rutan* and Kurt Steinke

1251 **How Much Nitrogen Is Left in the Soil Profile after Summer Annual Crops? a Deep N Survey on Mid-Atlantic Farms.** Sarah Marie Hirsh* and Ray R Weil

1252 **The Impact of Cover Crops, Tillage, and Crop Rotation on Yield in Midwest Grain Systems.** Corey Lacey*, Clayton J. Nevins, Houston Miller and Shalamar D. Armstrong

1253 **Visual Estimation of Root Density and Depth in Maize Using Perforated Cylinders and a Video Recording Device Equipped with a Long Borescope.** Jason Lee*, James Camberato and Robert L. Nielsen

1254 **Nitrification Inhibitor Value in Irrigated Corn: Insights from a Long-Term Study.** Leonardo M. Bastos* and Richard B Ferguson

1255 **Arsenic Adsorption in Soil with Increasing Levels of Monosilicic Acid in Solution: A Laboratory Incubation Study.** Flavia Bastos Agostinho*, Brenda Tubana, Murilo Martins, Wooiklee Paye and Lawrance Datnoff

SESSION NO. 170—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Mineralogy General Poster

SSSA Division: Soil Mineralogy

1317 **Identifying the Possible Control of Clay Mineralogy of Soils in Some Southern US States over the Fluctuations in Potassium Fixation.** Nana Yaw Kusi*, Katie L. Lewis, Gaylon D. Morgan and Branimir Segvic

1318 **Mineral Weathering Trends in the Western Oregon Cascade Mountains.** Kristopher Osterloh* and Jay Stratton Noller

1319 **Evidence of Kaolinite Alteration in Soils of Hypersaline Tidal Flats on the Northeastern Brazilian Coastline.** Lucas R. Sartor*, Robert C. Graham, Gabriel R.P. Andrade and Tiago O. Ferreira

1320 **A Simple Method to Determine the Reactivity of Calcium Carbonate in Soils.** Shuela Mohammed Sheikh-Abdulla, Daniel Hirmas* and Aaron Koop

SESSION NO. 171—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Environmental Fate of Chemicals of Emerging Concern Poster (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Chemistry

Moderator: Brett Sallach

1329 **Effects of the Accumulation of Triclosan and Its By-Products on Soil Levels and Plant Uptake.** Oscar Daniel Gonzalez*, Ashley Garcia, Alfred Addo-Mensah and Monica O Mendez

1330 **Clothianidin Decomposition in Missouri Wetland Soils.** Chelsey Kroese*, Elisabeth B. Webb, Robert Lerch and Keith W. Goyne

1331 **Landscape and Buffer Effects on Phosphorus Transport in Groundwater Under Rotational Grazing.** Niranga Wickramarathne*, Ranjith P. Udawatta, Robert Lerch and Fengjing Liu

1332 **Effect of Swine Manure Application Timing on the Persistence and Transport of Antibiotic-Resistant Enterococcus and Resistance Genes.** Elliot Rossow*, Thomas B. Moorman and Michelle L Soupir

1333 **Desorption Kinetics of Ciprofloxacin in Municipal Biosolids Determined By Diffusion Gradient in Thin Films.** Elisa D'Angelo* and Daniel L. Starnes

1334 **Fate and Transport of Free and Conjugate Natural Estrogens in Soil Monoliths.** Francis X.M. Casey*, Diana Selbie, Heldur Hakk and Karl G Richards

1335 **Detection of Pharmaceuticals in Surface Water of a Middle Tennessee Urbanizing Watershed.** Samuel Dennis*, Ravneet Kaur and Anonya Akuley Amenyenu

SESSION NO. 172—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Global Impacts of Environmental Contamination Poster (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Chemistry

Moderator: Michael Thompson, Wei Zhang, Jennifer DeBruyn, Yujun Wang

1321 **Adsorption and Precipitation of Cadmium Affected By Chemical Form and Addition Rate of Phosphate in Soils Having Different Levels of Cadmium.** Lee Hyunho* and Chang Oh Oh Hong

1322 **Distribution of Cadmium in Rice Paddy Soil Affected By Long-Term Application of Phosphate Fertilizer and Compost for 50 Years.** Park Hyejin*, Lee Hyunho, SungUn Kim and Chang Oh Oh Hong

1323 **Effect of Different Way of Bottom Ash and Compost Application on Phytoextractability of Cadmium in Contaminated Arable Soil.** SungUn Kim*, Lee Hyunho, Park Hyejin and Chang Oh Oh Hong

1324 **Evaluating the Effects of Biochar and Biosolid Amendments on the Mobility and Toxicity of Metals in Fly Ash Contaminated Soils.** Loryssa Lake*, Samantha C Ying and Michael V Schaefer

1325 **Availability of Cu, Zn and Pb from a Contaminated Soil Cropped with Switchgrass and Reed Canary Grass.** Isabelle Royer*, Athyna N. Cambouris, Annie Claessens, Denis Angers and Noura Ziadi

1326 **Does Different Types of Manure Application Influence the Soil Trace Metal Contents?** Isabelle Royer*, Martin Chantigny and Denis Angers

1327 **Metal Concentration in Agricultural Fields Downstream from the Gold King Mine Spill (2015).** Gaurav Jha*, April L. Ulery, Kevin A Lombard, David C. Weindorf, Samuel Fullen and Brandon Francis

1328 **Phytotoxicity of Radish (*Raphanus sativus*) Seedling By Acids Introduced into Agricultural Soil By Chemical Incidents.** Minseok Park*, Wonjae Hwang, Min-Suk Kim and Seunghun Hyun

SESSION NO. 173—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Sustainable Soils in Urban Environments-Water, Carbon, Mapping, Assessment and Reclamation Poster (includes student competition)

SSSA Division: Urban and Anthropogenic Soils

Moderator: Michael Mashtare, Anya Paltseva

1336 **Estimation of Mineralizable Nitrogen from EQ Biosolids Products in an Urban Soil.** Odiney Alvarez-Campos*, Gregory Evanylo, W Lee Daniels and Mark Williams

1337 **Trophic Interactions and Soil Quality Characteristics in Midwestern Urban Gardens.** Carmen M. Ugarte* and John Taylor

1338 **Soil Microbial Interactions with Agricultural Plants in Depleted Urban Soils Amended with Various Organic Fertilizer Treatments.** Andrew Adamski*, Donna Becker and Matthew VanGrinsven

1339 **Beta-Glucosidase and Soil Organic Carbon in Urban Conservation Agriculture.** Don Immanuel Edralin*, Gilbert C Sigua, Godfrey Gayle and Manuel Reyes
1340 **Repurposed Waste Products Ineffective for Reducing Pb Bioaccessibility in a Mine Contaminated Soil.** Shannon Plunkett* and Douglas J. Soldat, Ph.D.
1341 **Soil Microbial Structure and Activity As Affected By Lead (Pb) Contamination.** Kristin McAdow*, Shannon Plunkett, Douglas J. Soldat, Ph.D. and Thea Whitman
1342 **Compost Amendments to Soil to Improve Physical Properties for Plant Growth.** Clare C. Magalaner*, Richard A. McLaughlin and Joshua L. Heitman
1343 **The Spatial Re-Distribution of Soil Properties during Urbanization in North Central Florida.** Kayci Kowalski* and Allan Roy Bacon
1344 **Chemical Properties of Amazon Dark Earths from Southern Amazon.** Rafael Cavassani, Lúcia Helena Cunha dos Anjos, Marcos Gervasio Pereira and Helena Saraiva Koenow Pinheiro*
1345 **Nitrogen Output from Residential Stormwater Pond during Wet Season.** Siti Jariani Mohd Jani* and Gurpal S Toor
1346 **Comparing Field Measurement Methods of Soil pH and Moisture for Use in an Urban Site Assessment.** Luke Scheberl*, Bryant Scharenbroch and Kelby Fite
1347 **Non-Invasive Assessment of Tree Roots in a Suburban Environment.** Daniel Markewitz*, Lawrence A. Morris, John-Ashley Reese and Kelby Fite
1348 **Soil Structure and Plant Available Water Influenced By Biochar Application to Urban Soil Ecosystem.** Sin Yee Yoo*, YouJin Kim and Gayoung Yoo
1349 **Comparing Soil Characteristics in Urban and Rural Landscapes.** Iin P. Handayani*, Sara Schacht, Johnathan Chumbler, Kevin Goheen and Steve Still

SESSION NO. 174—5:00 PM–6:40 PM

Tampa Convention Center, Room 23

Special Session Symposium--Global Ag Company Consolidation: Driving Forces, Legal Challenges and Real Life Merger Examples

Special Sessions

Section or Division Cosponsor: C05 Turfgrass Science

Moderator: James Breuninger

5:00 PM **Introductory Remarks**
174-1 5:05 PM **Driving Forces of Consolidation for Global Agriculture Companies.** Bob Fairclough*
174-2 5:25 PM **Legal Challenges of Consolidation: Who Approves, How Approvals Are Made and On What Basis Are Decisions Made?** Michael J Grisham*
174-3 5:40 PM **Example of Current Mergers: Dow and Dupont, Merger of Equals.** Scott Hutchins*
174-4 5:55 PM **Examples of Current Mergers: Syngenta and Chem China.** Marian Stypa*
174-5 6:10 PM **Panel Discussion on Mergers and Implications for Future Research and Impact on Professional Societies Members and Questions and Answers with Attendees.** James M Breuninger*
6:40 PM **Adjourn**

SESSION NO. 175—7:00 PM–11:30 PM

SASES Awards and Social

Students of Agronomy, Soils and Environmental Sciences (SASES)

Tuesday, Oct. 24

SESSION NO. 176—6:30 AM–8:00 AM

5K Fun Run (registration required)

Sponsored by Apogee Instruments and GreenTechnologies, LLC

Special Sessions

SESSION NO. 177—6:50 AM–7:50 AM

Marriott Tampa Waterside, Room 6, Second Level

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

C08 Plant Genetic Resources

6:50 AM **Breakfast**
177-1 7:05 AM **Stewards of Our Agricultural Future.** Peter K. Bretting*
7:40 AM **Award Presentation**
7:50 AM **Adjourn**

Soil Science Society of America

SESSION NO. 178—7:00 AM–9:00 AM

Marriott Tampa Waterside, Grand Ballroom E and F, Second Level

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

Keynote/Plenary Sessions

Moderator: Andrew Sharpley, Richard Dick, Harold van Es

7:00 AM **SSSA Breakfast** (ticket required)
7:30 AM **Introductory Remarks**
7:40 AM **SSSA Awards**
8:20 AM **Presidential Address and CEO Remarks**
178-1 8:40 AM **Life Underground: Who, Where, Why?** Kate M. Scow*
9:00 AM **Adjourn**

SESSION NO. 179—7:30 AM–4:00 PM

Tampa Convention Center, Room 1, First Floor

Special Session--Gateway Scholars Orientation and Motivational Program

Special Sessions

SESSION NO. 180—7:55 AM–11:45 AM

Tampa Convention Center, Room 13, First Floor

Climatology and Modeling General Oral I

ASA Section: Climatology and Modeling

	7:55 AM	**Introductory Remarks**
180-1	8:00 AM	**A Comparison of the Site Sensitivity of Crop Models Using Spatially Variable Field Data from Precision Agriculture.** Kurt C. Kersebaum*, Evelyn Wallor, Domenico Ventrella, Marcos Lana, Davide Cammarano, Elsa Coucheney, Frank Ewert, Roberto Ferrise, Thomas Gaiser, Pasquale Garofalo, Luisa Giglio, Pietro Giola, Munir Hoffmann, Ileana Iocola, Elisabet Lewan, Ganga Ram Maharjan, Marco Moriondo, Laura Mula, Claas Nendel, Eva Pohankova, Pier Paolo Roggero, Miroslav Trnka and Giacomo Trombi
180-2	8:15 AM	**Tempocampo: A System for Operational Forecasting of Brazilian Sugarcane and Soybean YIELD.** Fabio R Marin*
180-3	8:30 AM	**Measurements That Matter: Ensuring Quality and Traceability of Data for Digital Ag Insights.** Michael Malone*
180-4	8:45 AM	**Temporal Change of Climatological Precipitation Deficit Index in Buyuk Menderes Basin.** Gulay Pamuk Mengu, Tugba Yildirim*, Emrah Ozcakal and Erhan Akkuzu
180-5	9:00 AM	**Ensemble Climate and Crop Model Predictions of Maize Yield in the Northeast U.S. to the End of the 21st Century for Two Contrasting Greenhouse Gas Emission Pathways.** Rishi Prasad*, Stephankpoti Gunn, C. Alan Rotz, Gregory W. Roth, Heather D. Karsten and Anne Stoner
180-6	9:15 AM	**Relationships between Microclimate and Yield in Strawberry Low-Tunnel Production Systems.** David H. Fleisher*, Bruno Condori and Kim S. Lewers
180-7	9:30 AM	**Projected Climate Extremes and Their Impacts on Summer and Winter Crop Yields in the Southeast United States.** Di Tian* and Davide Cammarano
180-8	9:45 AM	**Integration of Genomics and Crop Modeling for Prediction of Complex Traits.** Yubin Yang*, Lloyd T Wilson and Jing Wang
180-9	10:00 AM	**Modeling Water Management Options for Lake Buhi in Bicol River Basin of the Philippines Under Climate Change Scenarios.** Eeswaran Rasu*, Amor V.M. Ines, Eunjin Han, Bradfield Lyon, Kye Baroang and Agnes Rola
	10:15 AM	**Break**
180-10	10:30 AM	**Temperature By Photoperiod Interactions in Modeling of Soybean Phenology.** Haishun Yang*
180-11	10:45 AM	**Uncertainty in Rainfall Measurements and Its Implications to Hydrologic Modeling.** Vinayak S. Shedekar*, Kevin King, Norm Fausey, Khandakar R. Islam, Alfred C Soboyejo and Larry C Brown
180-12	11:00 AM	**Developing a Screening Protocol for Drought Tolerance Classification of 100 Elite Rice Lines.** Salah Jumaa*, Ajaz Lone, Shastri Thaduri, Edilberto Redoña and K Raja Reddy
180-13	11:15 AM	**Modeling the Water Temperature of Paddy Fields to Estimate Climate Change Impacts on Areas and Timings Suitable for Rice Cultivation in Japan.** Atsushi Maruyama*, Hiroyuki Ohno, Kaori Sasaki, Hiroshi Nakagawa and Tsuneo Kuwagata
180-14	11:30 AM	**Point Stresses during Reproductive Stage Rather Than Warming Seasonal Temperature Determines Yield in Temperate Rice.** Matthew Espe*, Chris van Kessel, Robert Hijmans, James E. Hill and Bruce Linquist
	11:45 AM	**Adjourn**

SESSION NO. 181—7:55 AM–12:00 PM

Tampa Convention Center, Room 24, First Floor

Agricultural Practices to Enhance Nitrogen-Use Efficiency and Mitigate Greenhouse Gas Emissions Oral

ASA Section: Environmental Quality

Moderator: Rajan Ghimire, Curtis Dell

	7:55 AM	**Introductory Remarks**
181-1	8:00 AM	**Nitrogen Rate Strategies for Reducing Yield-Scaled Nitrous Oxide Emissions in Maize.** Cameron M. Pittelkow*, Emerson D. Nafziger and Xu Zhao
181-2	8:15 AM	**The Influence of Winter Cover Crops on Nitrous Oxide (N2O) Emissions from Midwest Row-Crops.** Neville Millar*, Dean G. Baas and G. Philip Robertson
181-3	8:30 AM	**The Influence of Different Type of Composted Manure on Nitrous Oxide Emissions from Upland Soil.** Chang Oh Oh Hong*, SungUn Kim and Lee Hyunho
181-4	8:45 AM	**Nitrous Oxide Emissions from Diverse Crop Production Systems across Eastern Australia.** Peter J Thorburn* and Henrike Mielenz
181-5	9:00 AM	**Fertiliser N Formulation Impacts Yield, Nitrous Oxide and Ammonia Emissions in Temperate Grassland.** Patrick J Forrestal*, Mary Harty, Rachael Carolan, Dominika J Krol, Gary J Lanigan, Catherine Watson and Karl G Richards
181-6	9:15 AM	**N Fertilizer Strategies for Reducing Greenhouse Gas Emissions and Sustaining Grain Yield in Irrigated Flooded Rice Systems.** Arlene Arlene Adviento-Borbe*, Merle Anders and Bruce Linquist
181-7	9:30 AM	**Effects of Tillage and Residue Removal on Soil Nitrous Oxide Emissions and Corn Yield.** Mingwei Yuan*, Emerson D. Nafziger, Maria B. Villamil and Cameron M. Pittelkow
	9:45 AM	**Break**
181-8	10:00 AM	**Biochar Type and Factors Affecting N Transformation, Ammonia Volatilization, and Nitrous Oxide Emissions.** Ruijun Qin*, Suduan Gao and Brad Hanson

181-9	10:15 AM	**Integrated Use of the Inverse Dispersion Technique and the Chamber Method to Determine N2O and NH3 Emissions from Agricultural Soils.** Cheng-Hsien Lin*, Richard H. Grant, Cliff T Johnston, Tony J. Vyn and Rex A. Omonode
181-10	10:30 AM	**Comparison of Flux Gradient and Chamber Techniques to Measure Soil N2O Emissions.** Mei Bai*, Helen Suter, Shu Kee Lam, Thomas Flesch and Deli Chen
181-11	10:45 AM	**Changing Greenhouse Gas Emissions from Flooded Rice Paddies Under Projected Future Climates.** E. Marie Muehe*, Alandra M. Lopez, Christopher Francis and Scott Fendorf
181-12	11:00 AM	**Conservation Tillage and Soil Physical Environment.** Sabrina Ruis*, Humberto Blanco-Canqui and Paul Jasa
181-13	11:15 AM	**The Potential of Best Management Practices to Reduce N2O Emissions.** Carol Adair*, Lindsay Barbieri, Tyler Goeschel and Heather Marie Darby
181-14	11:30 AM	**Biochar's Impact on Greenhouse Gas Emissions and Soil N Dynamics in Maize Cropping Systems Under Different Irrigation Regimes: An Experimental and Modelling Study.** Matt Ramlow*, Stephen J. Del Grosso and M. Francesca Cotrufo
	11:45 AM	**Community Planning Session**
	12:00 PM	**Adjourn**

SESSION NO. 182—8:00 AM–9:35 AM

Marriott Tampa Waterside, Room 2, Second Level

Resources in Education and Outreach for Soils and Agronomy

ASA Section: Education and Extension

Section or Division Cosponsor: SSSA Division: Soil Education and Outreach

	8:00 AM	**Introductory Remarks**
182-1	8:05 AM	**Enhancing the Environmental Science Curriculum at Alabama A&M University through the Development of a Scenario Based Reusable Learning Object (RLO): Using Adaptation Measures to Mitigate the Effect of Climate Change on Food Security in Belize.** Elica M. Moss*
182-2	8:20 AM	**Scaffolding Student Learning: Forest Floor Example.** Maja Krzic*, Julie Wilson, Darrell Hoffman, Margaret Schmidt and Samson Nashon
182-3	8:35 AM	**Soils Laboratory Manual: An Open-Source Educational Resource for Introductory Soil Science Laboratory Instruction.** Colby J. Moorberg* and David A. Crouse
182-4	8:50 AM	**STEM on the Road: A Mobile Energy Classroom.** Paula M. Gale*, John Cole and Rachna Tewari
182-5	9:05 AM	**2021 Eclipse: Once in a Generation Opportunity to Educate about Plant Responses to Light.** Timothy M. Reinbott, Andrew Biggs* and Stephanie Sidoti
	9:20 AM	**Community Planning Session**
	9:35 AM	**Adjourn**

SESSION NO. 183—8:00 AM–10:00 AM

Tampa Convention Center, Room 4

Symposium--Impacts of Different Bioenergy Systems on Soil Health

ASA Section: Agronomic Production Systems

	8:00 AM	**Introductory Remarks**
183-1	8:05 AM	**Impact of Corn Stover Harvest on Crop Productivity, Soil Properties and Erosion.** Francisco Arriaga*, Nicholas Bero and Matthew D. Ruark
183-2	8:30 AM	**Soil Organic Carbon and Nitrogen Dynamics in Switchgrass Seeded to a Marginally Yielding Cropland in South Dakota.** Sandeep Kumar*, Liming Lai, Shannon L. Osborne, R. Michael Lehman and Vance N. Owens
183-3	8:55 AM	**Soil Quality Impacts of Perennial Bioenergy Crops on Marginally-Productive Lands.** Virginia L. Jin*
183-4	9:20 AM	**Corn Residue Removal for Lignocellulose Ethanol Production and Its Potential Impact on Soil Health.** Mahdi M. Al-Kaisi* and Jose G. Guzman
	9:45 AM	**Community Planning Session**
	10:00 AM	**Adjourn**

SESSION NO. 184—8:00 AM–10:00 AM

Marriott Tampa Waterside, Grand Ballroom D

Symposium--Improving Relevancy and Impact of Extension Programming

ASA Section: Education and Extension

Moderator: Jodi DeJong-Hughes

	8:00 AM	**Introductory Remarks**
184-1	8:05 AM	**A Case Study of Relevant Extension Programming: Grain Management in Low-Margin Years Meeting Series.** Damon L Smith*, Shawn P. Conley, Joseph G. Lauer, Carrie A.M. Laboski, Bryan Jensen, Daniel H Smith, Franciso Arriaga, Brian Luck, Paul Mitchell, Mimi Broeske and Roger Schmidt
184-2	8:30 AM	**Documenting State Extension's Impact to Agriculture.** Gregg Hadley*
184-3	8:55 AM	**The Impact of 23 Years of Crop Diagnostic School Training in Manitoba.** John Heard*, Alvin Iverson and Anastasia Kubinec
184-4	9:20 AM	**Extending Research Relevance.** Sara Berg*, John Thomas, Lizabeth Stahl and Joshua Coltrain
	9:45 AM	**Community Planning Session**
	10:00 AM	**Adjourn**

SESSION NO. 185—8:00 AM–10:00 AM

Marriott Tampa Waterside, Grand Ballroom C, Second Level

Symposium--Understanding the Yield Gap in World-Wide Wheat Production and the Opportunities for International Collaboration

ASA Section: Global Agronomy

Moderator: Brian Beres

185-1	8:00 AM	**The Wheat Initiative: An Overview.** Jerry L. Hatfield*
185-2	8:05 AM	**Overview of the Wheat Initiative and an Expert Working Group for Agronomy.** Brian L. Beres*, Jerry L. Hatfield, John Kirkegaard, Sanford Eigenbrode and William L Pan
185-3	8:25 AM	**Understanding the Yield Gap in Wheat Production.** Jerry L. Hatfield*
185-4	8:45 AM	**AgMIP-Wheat - Advances in Wheat Modeling.** Senthold Asseng*
185-5	9:05 AM	**Beyond Conservation Agriculture - Principles, Pragmatism and Productivity in Wheat Farming Systems.** John Kirkegaard*, James Hunt, Clive Kirkby, Tony Swan and Mark Conyers
185-6	9:25 AM	**Early Sowing Systems Can Adapt Australian Wheat Production to Rainfall Decline.** James Hunt*, Julianne M Lilley, Ben Trevaskis, Allan Peake, Andrew Fletcher, Bonnie M Flohr, Alexander B Zwart, David Gobbett and John Kirkegaard
	9:45 AM	**Discussion**
	10:00 AM	**Adjourn**

SESSION NO. 186—8:00 AM–10:00 AM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Symposium--Training Plant Breeders to Design and Manage 21st Century Cultivar Development Pipelines

C01 Crop Breeding and Genetics

Section or Division Cosponsor: C08 Plant Genetic Resources

Moderator: Gary Atlin

	8:00 AM	**Introductory Remarks**
186-1	8:05 AM	**Training Needs of Breeders Working in the Public Sector and Small Companies, with a Focus on the Developing World.** Gary N. Atlin*
186-2	8:15 AM	**An Industry Perspective on Training Needed for Today's Plant Breeders.** Klaus L. Koehler*
186-3	8:30 AM	**Re-Imagining Postgraduate Training in the Plant Sciences.** David Stern*, Natalie Henkhaus, Vanessa R Greenlee and Crispin Taylor
186-4	8:45 AM	**Plant Breeding E-Learning in Africa – a Collaborative Effort to Train the Next Generation of Plant Breeders in Africa.** Walter P Suza*, Michael Retallick, Rita H Mumm, Judith Levings, Courtney Clawson, Gregory S Miller, Siddique Aboobucker, Assibi Mahama, Gretchen Anderson, Thomas Lubberstedt and Kendall R. Lamkey
186-5	8:55 AM	**Texas A&M University Plant Breeding Distance Education.** C. Wayne Smith*
186-6	9:05 AM	**The African Plant Breeding Academy, an Initiative of the African Orphan Crops Consortium.** Allen Van Deynze*, Howard-Yana Shapiro, Kent Bradford, Rale Gjuric and Rita H Mumm
186-7	9:15 AM	***Breedinggames* Software and *Professional Skills for Plant Scientists* Graduate Course.** Rex Bernardo*
186-8	9:25 AM	**Distance Student Perspective on Plant Breeding Distance Education.** Corrie Hopkins*
	9:35 AM	**Panel Discussion including T. Abadie and W. F. Tracy**
	10:00 AM	**Adjourn**

SESSION NO. 187—8:00 AM–10:00 AM

Marriott Tampa Waterside, Florida Salon IV, Second Level

Symposium--Improving Foods Using Seed Bioproducts

C04 Seed Physiology, Production and Technology

Section or Division Cosponsor: C08 Plant Genetic Resources

	8:00 AM	**Introductory Remarks**
187-1	8:10 AM	**Lesquerella, a Potential New Oilseed Crop for Producing Industrial Bio-Products.** Grace Chen*
187-2	8:35 AM	**Characterization of Fatty Acid Metabolism and Allergen Genes during Pecan Nut Development.** Christopher Mattison*
187-3	9:00 AM	**Peanuts As a Functional Food Ingredient.** Lisa Dean*
187-4	9:25 AM	**Seeds As Important Sources of Dietary Nutrients: The Case for Magnesium.** Michael A. Grusak*
	9:50 AM	**Concluding Remarks**
	10:00 AM	**Adjourn**

SESSION NO. 188—8:00 AM–10:00 AM

Tampa Convention Center, Room 23

Turf Pests: Diseases and Insects (includes student competition)

C05 Turfgrass Science

Moderator: Paul Koch

	8:00 AM	**Introductory Remarks**
188-1	8:05 AM	**Biology of Sclerotinia Homoeocarpa Populations and Their Resistance to Fungicides.** Cameron Stephens* and John E. Kaminski
188-2	8:20 AM	**Methods of Identification and Distribution of Gaeumannomyces Spp. within Ultradwarf Bermudagrass Greens.** Matthew Tucker*, Aline Badial, Jonas King and Maria Tomaso-Peterson
188-3	8:35 AM	**Dollar Spot Severity and Oxalic Acid Production Affected By Nitrogen Fertilization in Creeping Bentgrass.** Ron V Townsend*, Paul L Koch and Edward J Nangle
188-4	8:50 AM	**Evaluation of Pathogenicity for a Newly Discovered Summer Patch Causal Pathogen.** Austin Lee Grimshaw*, Jing Lou, Phillip L. Vines, Lindsey Hoffman, Ning Zhang, Bruce B. Clarke, Stacy A. Bonos and William Meyer
	9:05 AM	**Break**
188-5	9:15 AM	**Bentgrass Susceptibility Affects Fungicide Programming for Dollar Spot.** James W. Hempfling*, James A Murphy and Bruce B. Clarke
188-6	9:30 AM	**Sdhi Resistance Screening in Sclerotinia Homoeocarpa.** Allison Anthony* and James P. Kerns
188-7	9:45 AM	**Distribution and Molecular Phylogeny of Fusarium Species Associated with American Ginseng Root Rot in China.** Ximei Zhang*, Xiaohong Lu and Weiwei Gao
	10:00 AM	**Adjourn**

SESSION NO. 189—7:50 AM–9:45 AM

Tampa Convention Center, Room 19, First Floor

Symposium--Cover Crops and Forage Utilization in Integrated Crop-Livestock Systems I

C06 Forage and Grazinglands

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

	7:50 AM	**Introductory Remarks**
189-1	7:55 AM	**Integrated Livestock/Row Crop Farming System Impacts on Nitrates in Ground Water and Cattle As a BMP for Following Row Crops.** David L. Wright*, Sheeja George, Ramdeo Seepaul and Ian Small
189-2	8:20 AM	**Integrating Annual and Perennial Forages in Organic Vegetable Cropping Rotations.** David M. Butler*
189-3	8:45 AM	**Forage and Crop Residue Utilization in Corn and Beef Systems in the Midwest.** Daren D. Redfearn*, Robert B. Mitchell, Mary Drewnoski, Jay Parsons, James C. MacDonald, Marty R. Schmer, Humberto Blanco and Virginia L. Jin
189-4	9:10 AM	**Low Cost, Sustainable Cow Wintering in Alberta, Canada.** Vern S. Baron* and John Basarab
	9:35 AM	**Discussion**
	9:45 AM	**Break**
	9:45 AM	**Adjourn**

SESSION NO. 190—8:00 AM–10:15 AM

Tampa Convention Center, Room 39, Third Floor

Crop Ecology, Management and Quality General Oral II

C03 Crop Ecology, Management and Quality

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

Moderator: Ignacio Ciampitti

	8:00 AM	**Introductory Remarks**
190-1	8:05 AM	**Variability of Soybean Cultivars in Leaf Growth Response to Flooding.** Tatsuhiko Shiraiwa*, Akinori Yoshifuji and Tatsuya Harada
190-2	8:20 AM	**Shifts in Soybean Yield, Nutrient Uptake, and Stoichiometry: A Historical Synthesis-Analysis.** Guillermo R. Balboa*, Victor Sadras and Ignacio A. Ciampitti
190-3	8:35 AM	**Genetic Gain By Fertilizer Nitrogen Interaction in Soybean: US and Argentina Results.** Osler Ortez*, Santiago Tamagno, Ignacio A. Ciampitti, Fernando Salvagiotti, Eric A. Adee and Juan M. Enrico
190-4	8:50 AM	**Regional Characterization of Soybean Seed Yield and Biological N Fixation Responses to N Fertilizer in the US Midwest Region.** Santiago Tamagno*, Randall E. Brown, Jason Haegele and Ignacio A. Ciampitti
	9:05 AM	**Break**
190-5	9:15 AM	**Planting Date, Maturity, and Temperature Effects on Soybean Seed Yield and Composition.** Spyridon Mourtzinis*, Adam P. Gaspar, Seth L. Naeve and Shawn P. Conley
190-6	9:30 AM	**Genotypic Variation in, and Effects of N on, Sensitivity to a Wave of High Temperatures during Wheat Grain Filling.** Gustavo A. Slafer*, Mónica Elía and Roxana Savin
190-7	9:45 AM	**Differences in Canopy Development and Components between Annual Canarygrass and Spring Wheat As Related to Seeding Dates.** Konstantinos Xyntaris*, Rosalind Bueckert and Pierre Hucl
190-8	10:00 AM	**Can Predicting Soft Red Winter Wheat Development Assist Agronomic Management in Kentucky?** Ethan Snyder*, Carrie A. Knott, David A. Van Sanford and Montserrat Salmeron Cortasa
	10:15 AM	**Adjourn**

SESSION NO. 191—8:00 AM–11:35 AM

Tampa Convention Center, Room 3, First Floor

Agronomic Production Systems General Oral

ASA Section: Agronomic Production Systems

Moderator: William Anderson

	8:00 AM	**Introductory Remarks**
191-1	8:05 AM	**Alignment of the Stars and Fungicide Resistance Leads to Disease Epidemic in Sugar Beet.** Mohamed F. Khan*
191-2	8:20 AM	**Assessing Nitrogen Use Efficiency in Sugar Beets Grown Under Variable Fertilizer and Drip Irrigation Rates.** Anthony Mele* and Florence Cassel Sharma
191-3	8:35 AM	**Row Spacing, Cultivar and Crop Effects on Sugarcane Leaf Area Index and Yields.** Hardev Singh Sandhu*
191-4	8:50 AM	**Soil Chemical and Biological Fertility, Microbial Community Structure and Dynamics Under Different Sugarcane Planting Systems on Florida Histosols.** Murali Vuyyuru*, Hardev Singh Sandhu, Richard N. Raid, James Mabry McCray, John Erickson and Andrew V. Ogram
191-5	9:05 AM	**Genotype X Environment Interaction for Starch Composition and Production Stability of Canadian Red Lentils.** Manjula Sarath Bandara*, Albert Vandenberg, Marivic Hansen, Art Kruger and Darcy Driedger
191-6	9:35 AM	**Evaluating Harvest Management and Environmental Effects on Soybean Carbohydrate Content.** Maciej J. Kazula*, Matthew Pfarr, Jill Miller-Garvin and Seth L. Naeve
	9:50 AM	**Break**
191-7	10:05 AM	**Hydroponic - Which Crops Grow Better in Nutrient Film Technique and Tower Garden?** Nabin P Sedhain*, Ankush Sangra, LaChristi P Hunter, Jamaura P Williams, Lubana P Shahin and Bipul Biswas
191-8	10:20 AM	**Improving Cropping System for Sustainable Agriculture in South Florida.** Qingren Wang*
191-9	10:35 AM	**Crop Rotation and Tillage Management Effects on Grain Yield in Southeastern South Dakota, 1991-2016.** Sara Berg*, Peter J. Sexton, Bradley Rops, Ruth Stevens, Duane Auch and Sandeep Kumar
191-10	10:50 AM	**Assessing Causes of Yield Gaps in Agricultural Areas with Diversity in Climate and Soils.** Juan Ignacio Rattalino Edreira*, Spyridon Mourtzinis, Shawn P. Conley, Adam Roth, Ignacio A. Ciampitti, Mark A. Licht, Herman J. Kandel, Peter

M. Kyveryga, Laura Lindsey, Daren S Mueller, Seth L. Naeve, Emerson D. Nafziger, James Specht, Jordan Standley and Patricio Grassini

191-11 11:20 AM **Crop Rotation Diversity and Yield Resilience: Evidence from 11 Long-Term Experiments in North America across a Precipitation Gradient.** Timothy M. Bowles*, A. Stuart Grandy, Francisco J. Calderón, Michel A. Cavigelli, Steven W. Culman, Bill Deen, Craig F. Drury, Axel Garcia y Garcia, Amélie CM Gaudin, W Scott Harkcom, R. Michael Lehman, Shannon L. Osborne, G. Philip Robertson, Marty R. Schmer and Jeffrey S. Strock

11:35 AM **Adjourn**

SESSION NO. 192—8:00 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom B

Crop Physiology and Metabolism General Oral II

C02 Crop Physiology and Metabolism

Moderator: Yiwei Jiang

8:00 AM **Introductory Remarks**

192-1 8:05 AM **Effects of Temperature and Evaporative Demand on Maize Leaf Area Development.** Jyostna Devi Mura*, Vangimalla R Reddy, Richard C Sicher and Dennis J Timlin

192-2 8:20 AM **Physiological and Genetic Characterization of Sorghum Association Panel for Chilling Tolerance during Germination and Seedling Vigor.** Naghmeh Moghimi*, Raju Bheemanahalli, Ramasamy Perumal and S. V. Krishna Jagadish

192-3 8:35 AM **Quantifying Spring Freeze Damage to Field Acclimated Winter Wheat and Potential Yield Impacts.** Douglas Alt*, Laura Lindsey, Alexander J. Lindsey, Mark Sulc and Pierce Paul

192-4 8:50 AM **Characterization of Drought Tolerance Traits in Corn and Sorghum: A Phenotypical Approach.** Rahul Raman*, Xuejun Dong, Seth C. Murray, William L. Rooney and Subas Malla

192-5 9:05 AM **Winter Wheat Canopy Temperature at Grain Filling Correlates to Yield in the Texas High Plains.** Sushil Thapa*, Gautam Prasad Pradhan, Kirk E Jessup, Jackie C. Rudd, Shuyu Liu, James R. Mahan, Ravindra N. Devkota, Jason Baker, Jin Zhao and Qingwu Xue

9:20 AM **Break**

192-6 9:35 AM **Leaf Development and Growth in Maize Hybrids Differing in Drought Tolerance.** Jin Zhao*, Qingwu Xue, Kirk E Jessup, Thomas Marek, Wenwei Xu, Jourdan M. Bell and Sushil Thapa

192-7 9:50 AM **Brassica Carinata and B. napus Growth, Seed Yield and Oil Quality Sensitivity to Water Stress at Various Growth Stages.** Ramdeo Seepaul*, Sheeja George, Ian Small and David L. Wright

192-8 10:05 AM **Water-Deficit Stress Induced Root Morphological and Anatomical Plasticity in Triticum Dicoccoides.** Nithin Jayaram Shetty*, Impa Muthappa Somayanda, Raju Bheemanahalli Rangappa, Allan Fritz, P. V. Vara Prasad and S.V. Krishna Jagadish

192-9 10:20 AM **Harnessing Nitrogen and Water Management to Improve Resource Use Efficiency in Tomatoes.** Leonardo Hernandez-Espinoza* and Felipe Barrios-Masias

192-10 10:35 AM **Nitrogen Stress Induced Modification of the Foliar Phytochemical Composition in Strawberries.** Ashwini Narvekar*, Vidya Suseela, Matthew Stewart and Nishanth Tharayil

10:50 AM **Break**

192-11 11:00 AM **Interaction Effects of Sulfur and Nitrogen Fertilization on Physiology and Yield of Spring Wheat Under Semi-Arid No-till Condition.** Gautam Prasad Pradhan*, Jasper M Teboh, Chengci Chen, Jerald W. Bergman, James A. Staricka, Austin Link, Emma Link, Reza K. Afshar, Kyle Dragseth and David Weltikol

192-12 11:15 AM **Potassium Starvation Affects Growth More Than Photosynthesis in Soybean across Ambient and Elevated CO_2.** Shardendu K Singh* and Vangimalla R Reddy

192-13 11:30 AM **Spinach (Spinacea oleracea, L.) Tolerance to Saline Irrigation: Nutritional Value, Antioxidant Capacity, and Gene Expression.** Jorge F.S. Ferreira*, Xuan Liu, Devinder Sandhu and Donald L. Suarez

192-14 11:45 AM **Grafting As a Method to Increase Tolerance Response of Bell Pepper to Extreme Temperatures.** Moses Kwame Aidoo*, Tal Sherman, Jhonathan E. Ephrath, Aaron Fait, Shimon Rachmilevitch and Naftali Lazarovitch

12:00 PM **Adjourn**

SESSION NO. 193—8:00 AM–1:00 PM

Marriott Tampa Waterside, Room 8 and 9

Special Session--Lab to Field: CCA 4R Nutrient Management and Soil Health Working Together

Sponsored by Agricultural Retailers Association, Environmental Defense Fund, and The Fertilizer Institute

Special Sessions

Moderator: Nick Goeser, Sally Flis

8:00 AM **Introduction of session – Sally Flis, Ph.D. CCA – Director of Agronomy, The Fertilizer Institute and Nick Goeser, Ph.D. – Soil Health Partnership Director**

193-1 8:05 AM **Grad Student presentations.** Sally Flis*

193-2 9:00 AM **Soil Health and the 4Rs.** Nick Goeser*

9:55 AM **Break**

193-3 10:10 AM **Soil Health and 4R Nutrient Management.** Steven R Shafer*

193-4 10:40 AM **Research on the implementation of 4R in the field.** Kevin King*

193-5 11:10 AM **Sustainability Economics Ag Solver.** Nick Goeser*

193-6 11:40 AM **Moderated round table discussions followed by lunch.** Sally Flis*

193-7 12:20 PM **Debbie Reed - What initiatives can a CCA use today?** Debbie Reed*

1:00 PM **Adjourn**

SESSION NO. 194—8:30 AM–9:35 AM

Marriott Tampa Waterside, Florida Salon V, Second Level

Ron Phillips Plant Genetics Lectureship

C07 Genomics, Molecular Genetics and Biotechnology

Moderator: Henry Nguyen

	8:30 AM	**Introductory Remarks**
194-1	8:35 AM	**Plant Breeding in the 21st Century: Molecular Breeding and High Throughput Phenotyping.** Mark E. Sorrells*
	9:35 AM	**Adjourn**

SESSION NO. 195—8:30 AM–10:30 AM

Tampa Convention Center, Ballroom A, First Floor

Special Session Symposium--The U.S. Global Food Security Strategy: Enhancing Resilience, Increasing Productivity, and Improving Nutrition through Agricultural Research

Special Sessions

Section or Division Cosponsor: ASA Section: Global Agronomy, SSSA Division: Soil Biology and Biochemistry

Moderator: Jerry Glover

	8:30 AM	**Introductory Remarks**
195-1	8:35 AM	**The Global Food Security Strategy: Delivering Impact through Agricultural Research.** Jerry Glover*
195-2	8:50 AM	**The Global Food Security Strategy.** Robert Bertram*
195-3	9:05 AM	**Implementation and Impact of the Gfsa Research Strategy.** Nora Lapitan*
195-4	9:20 AM	**Addressing Multiple Objectives through an Agricultural Research and Development Strategy.** Alice Mweetwa*
195-5	9:35 AM	**Accelerating Increases in Sustainable Agriculture Productivity.** Vara Prasad*
195-6	9:50 AM	**Building Resilience into Agricultural Research.** Regis Chikowo*
195-7	10:05 AM	**Enhancing Food Safety and Nutrition through Agricultural Research.** Shibani Ghosh*
	10:20 AM	**Discussion**
	10:30 AM	**Adjourn**

SESSION NO. 196—9:00 AM–10:10 AM

Marriott Tampa Waterside, Room 10, Third Level

Symposium--Building Institutional Capacity in Tropical Legumes

ASA Section: Global Agronomy

	9:00 AM	**Introductory Remarks**
196-1	9:05 AM	**Capacity Building in Agriculture: A Model Program in Uganda.** Mark E. Westgate*, Walter P Suza and Denise Bjelland
196-2	9:20 AM	**Clase: Capacity for Legume Adaptive Science and Education.** Sieglinde S. Snapp*
196-3	9:35 AM	**International Institute of Tropical Agriculture (IITA) Builds Local Institutional Capacity in Legumes.** Stephen K. Boahen*, Canon Engoke, Carlos Malita, Nimo Wiredu and David Chikoye
196-4	9:50 AM	**Soybean Innovation Lab Institutional Capacity Building.** Peter Goldsmith*, Kerry M. Clark and Kristin Bilyeu
	10:05 AM	**Concluding Remarks**
	10:10 AM	**Adjourn**

SESSION NO. 197—9:00 AM–11:05 AM

Tampa Convention Center, Room 5, First Floor

Symposium--the Future of Remote Sensing for Agriculture: How This Information Can Be Effectively Used for Decision Making

ASA Section: Climatology and Modeling

Moderator: Ana Wagner

	9:00 AM	**Introductory Remarks**
197-1	9:05 AM	**Utilization of Remote Sensing to Monitor and Assess Agricultural Systems.** John H. Prueger and Jerry L. Hatfield*
197-2	9:25 AM	**Integrating on-Farm Data with Aerial Imagery for Better-Informed Decisions.** Harold F. Reetz* Jr.
197-3	9:45 AM	**Remote Sensing for Inclusive Agro-Ecosystems and Development Alternatives for Sustainable Living.** Chandrashekhar Biradar*
197-4	10:05 AM	**The Metric Model for Surface Energy Balance-Derived ET from Landsat Imagery and the Importance of Calibration and Accuracy for Water Management in Operational Agricultural Decision-Making.** Richard G. Allen*
197-5	10:25 AM	**Google Earth Engine Eeflux Application Plus Surface Reflectance Calibration of Naip Imagery to Produce 1-m Vegetation Indices for Precision Agriculture.** Ayse Kilic*
197-6	10:45 AM	**Usefulness of Remote Sensing Information in Developing Climate Change Adaption Strategies Using Cista- a (Agroecosystem) Model for Effective Decision Making.** Aavudai Anandhi Anandhi*
	11:05 AM	**Adjourn**

SESSION NO. 198—9:00 AM–11:50 AM

Tampa Convention Center, Room 33, Third Floor

Soil Carbon and Greenhouse Gas Emissions General Oral I (Student's Oral Competition)

ASA Section: Environmental Quality

Moderator: Katie Lewis, Nilovna Chatterjee

	9:00 AM	**Introductory Remarks**
198-1	9:05 AM	**Addressing Pre-Sidedress Nitrogen Testing in Fields Injected with Dairy Slurry.** Andrew Bierer*, Rory O. Maguire, Wade E. Thomason, Michael Strickland and Ryan Stewart
198-2	9:20 AM	**Effect of Soil Freeze-Thaw Cycles on Nitrous Oxide Emissions.** Mark Libby*, Andrew VanderZaag, Edward G Gregorich and Claudia Wagner-Riddle

198-3	9:35 AM	**Evaluation of Nitrogen Recommendation Strategies to Mitigate Nitrous Oxide Emissions in a Corn Cropping System.** Brett Lynn*, Ana Julia Azevedo, Peter J. Tomlinson and Ignacio A. Ciampitti
198-4	9:50 AM	**A Matter of Source and Timing: Nitrous Oxide Emissions from Nitrogen Fertilizer Additions to Spring Wheat in Manitoba.** Matthew Wood*, Mario Tenuta, Kevin Baron and Don Flaten
198-5	10:05 AM	**Underestimation of N2O Flux in a Model Comparison of Daycent, DNDC, and Epic.** Richard K. Gaillard*, Curtis D. Jones, Pete Ingraham, Sarah M Collier, Roberto C Izaurralde, William Jokela, William R. Osterholz, William A Salas, Peter A. Vadas and Matthew D. Ruark
	10:20 AM	**Break**
198-6	10:35 AM	**Diurnal Greenhouse Gas Emissions Under Different Carbon and Nitrogen Input from Cover Crops.** Diana Zapata*, Nithya Rajan, Kenneth D. Casey and Ronnie W. Schnell
198-7	10:50 AM	**Effects of Gradual Filling on Greenhouse Gas Emissions from Liquid Dairy Manure.** Vera Sokolov*, Andrew VanderZaag, Jemaneh Habtewold, Kari Dunfield, Claudia Wagner-Riddle and Rob Gordon
198-8	11:05 AM	**Digital Mapping of Soil Organic Carbon Stocks at Regional Scale: An Application in the Peruvian Central Andes.** Carla Gavilan*, Sabine Grunwald and Roberto Quiroz
198-9	11:20 AM	**Greenhouse Gas Emissions and Nitrogen Dynamics of Solid Beef Manure Applied in Fargo-Clay Soil.** Suresh Niraula*, Shafiqur Rahman and Amitava Chatterjee
198-10	11:35 AM	**Impacts of Integrated Crop-Livestock System on Soil Surface Greenhouse Gases in South Dakota.** Navdeep Singh*, Liming Lai, Juan D. Perez-Gutierrez and Sandeep Kumar
	11:50 AM	**Adjourn**

SESSION NO. 199—9:25 AM–11:30 AM

Tampa Convention Center, Room 21, First Floor

Estimating Soil Physical Properties

SSSA Division: Soil Physics and Hydrology

Moderator: Thorsten Knappenberger

	9:25 AM	**Introductory Remarks**
199-1	9:30 AM	**Comparison of Methods for Determination of Particle Density.** Aziz Amoozegar* and Joshua Heitman
199-2	9:45 AM	**Evaluation of Two Different Approaches for Predicting Soil Water Contents at Field Capacity and Wilting Point.** Cristina P. Contreras* and Carlos A. Bonilla
199-3	10:00 AM	**A Comparison of Machine Learning Methods for Predicting Field Capacity and Wilting Point in Soils from Chile.** Sara E Acevedo* and Carlos A. Bonilla
199-4	10:15 AM	**Validation and Evaluation of Vapor Pressure and Evaporation Methods for Estimating of Soil Water Characteristic Curves.** Sara E Acevedo*, Cristina P. Contreras and Carlos A. Bonilla
199-5	10:30 AM	**Predicting Saturated Hydraulic Conductivity Values in a Soil Profile from Various Estimates of Critical Pore Diameter.** Mingming Qin*, Daniel Gimenez and Daniel Hirmas
199-6	10:45 AM	**Revealing in-Situ Unsaturated Soil Hydraulic Conductivity at Fine Depth Scale.** Zhengchao Tian*, Joshua L Heitman and Robert Horton
199-7	11:00 AM	**Effect of Subsurface and Surface Tillage on Structure and Permeability of Solonetzic and Chernozemic Soils.** Raul Avila Vinueza*
199-8	11:15 AM	**Is the Textural Classification Built on Sand?** Miguel Angel Martin*, Carlos García-Gutiérrez Báez, Miguel Reyes Castro and Yakov A. Pachepsky
	11:30 AM	**Adjourn**

SESSION NO. 200—9:25 AM–11:45 AM

Tampa Convention Center, Room 31, Third Floor

General Organic Management Systems Oral I (includes student competition)

ASA Section: Agronomic Production Systems

	9:25 AM	**Introductory Remarks**
200-1	9:30 AM	**Legume Cover Crop Management in High Tunnels for Soil Health and Fertility.** Elizabeth Perkus*, Julie Grossman, Mary Rogers and Steve Poppe
200-2	9:45 AM	**The Impact of Organic Crop Rotations and Ecological Weed Management Strategies on Soil Quality.** Salvador Ramirez* II, Rhae A. Drijber, John L. Lindquist, Virginia L. Jin, Humberto Blanco-Canqui and Elizabeth Sue Jeske
200-3	10:00 AM	**Organic Weed Control Grits Affect Uptake of Nitrogen in Corn and Weeds.** Michael Carlson*, Frank Forcella, Sam Wortman and Sharon A. Clay
200-4	10:15 AM	**Mechanical and Thermal Weed Control in Organic Tilled and No-till Production.** Ricardo Costa Silva*, Kerry M. Clark and Reid J. Smeda
200-5	10:30 AM	**Successes and Challenges of Reducing Tillage in Organic Annual Row Crop Production.** Rebecca J Champagne*, William S Curran and John M. Wallace
	10:45 AM	**Break**
200-6	11:00 AM	**Strawberry Cultivar Assessment for Organic Production Systems in Florida.** Preeti Ahuja*, Xin Zhao, Carlene A. Chase, Oscar E. Liburd, Elena Rhodes, Marilyn E. Swisher, Alia N. Delong and Laila Khandaker
200-7	11:15 AM	**Impact of Biodegradable Plastic Mulches on Soil Health.** Jennifer M. DeBruyn*, Sreejata Bandopadhyay, Henry Sintim, Marie English, Sean M. Schaeffer, Markus Flury, Annette Wszelaki, Jennifer Moore, Carol Miles, Shuresh Ghimire and Douglas G Hayes
200-8	11:30 AM	**Evaluation of Fodder Production Systems for Organic Dairy Farms.** Kathy Soder*, Bradley Heins, Jim C. Paulson, Hugh Chester-Jones and Aimee Hafla
	11:45 AM	**Adjourn**

SESSION NO. 201—9:25 AM–3:15 PM

Tampa Convention Center, Room 12, First Floor

Examples of Model Applications in Field Research Oral

ASA Section: Climatology and Modeling

Moderator: Ole Wendroth, Saseendran Anapalli, Gary Feng

	9:25 AM	**Introductory Remarks**
201-1	9:30 AM	**Conversion of a Wheat Field in Colorado to Mixed Perennials for Soil and Ecosystem Conservation: Watershed Simulation of Changes.** Timothy R. Green*, Robert H. Erskine, Holm Kipka, Nathan Lighthart, Debbie Edmunds and Gregory S. McMaster
201-2	9:45 AM	**Crop Model Application to Analyze the Effects of Long-Term Changes in Climate and Soil Fertility on Rice Yield – a Case Study with a 47-Year Experiment with NPK and Compost Applications to Paddy Fields.** Toshihiro Hasegawa*, Mizuhiko Nishida, Mari Namikawa and Tomoki Takahashi
201-3	10:00 AM	**Consequences of Soil Parameterization on Spatial Crop Simulations: Implications for Global Impact Studies.** Davide Cammarano*
201-4	10:15 AM	**Using Apsim to Optimize Biochar Application Rates for Midwest Corn-Bioenergy Cropping Systems.** Deborah Aller*, Sotirios V. Archontoulis, Wendong Zhang, David A. Laird and Kenneth Moore
201-5	10:30 AM	**Efect of Temperature on a Nutriment Formulation MODEL for Sorghum CROP.** Arturo Chong* and Samuel Sanchez
	10:45 AM	**Break**
201-6	11:00 AM	**Analysis of the Potato Production Under Climate Change through Crop Modeling.** Rubi Raymundo*, Senthold Asseng, Richard Robertson and Gerrit Hoogenboom
201-7	11:15 AM	**A Systems Modeling Approach to Forecast Corn Economic Optimum Nitrogen Rate.** Laila Puntel*, Sotirios V Archontoulis, John E. Sawyer, Michael J. Castellano, Kenneth J. Moore, Emily A. Heaton, Peter J Thorburn and Andy VanLoocke
201-8	11:30 AM	**I. Development and Validation of Leaf Wetness Duration Model. II. Leaf Wetness Duration Based Sheath Blight Prediction in Burdhaman District, West Bengal.** Sandika Biswas*, Jayantrao Mohite, Navin Kumar Twarakavi and Srinivasu Pappula
201-9	11:45 AM	**Linking Crop Models with Highly Resolved Soil Sensor Observations to Improve Spatial Simulation of Soil-Crop Interactions.** Evelyn Wallor, Kurt C. Kersebaum* and Robin Gebbers
	12:00 PM	**Lunch Break**
201-10	1:30 PM	**Evaluation of Apex to Simulate Management Effects on Soil Properties.** Candiss Williams*, Evelyn M Steglich and Skye A. Wills
201-11	1:45 PM	**Modeling Ecosystem Responses of Traditional and Bioenergy Producing Landscapes.** Curtis D Jones*, Ashwan D Reddy, Stephen Hamilton, Lawrence Gary Oates, G. Philip Robertson and Roberto C Izaurralde
201-12	2:15 PM	**Parameter Estimation of Improved Rice Varieties in the Philippines Using Gencalc, Glue and Nmcga.** Prakash Kumar Jha*, Amor V.M. Ines, Eunjin Han and Rolando Cruz
201-13	2:30 PM	**Simulating Subsurface Tile Drainage Water Outflow Using Drainmod in Atlantic Canada.** Lordwin Jeyakumar*, David Mckenzie, Wayne Molloy, Shabtai Bittman, Derek Hunt, Lakshman Galagedara and Evan Derdall
201-14	2:45 PM	**Agroclimate: Simulating the Risk of Extreme Weather Events from a Crop Development Perspective.** Clyde W. Fraisse*, Daniel Perondi, Jose H Andreis, Diego N. L. Pequeno and Caroline G. Staub
	3:00 PM	**Community Planning Session**
	3:15 PM	**Adjourn**

SESSION NO. 202—9:30 AM–10:35 AM

Marriott Tampa Waterside, Room 3, Second Level

Soil Mineralogy General Oral

SSSA Division: Soil Mineralogy

Moderator: Judith Turk

	9:30 AM	**Introductory Remarks**
202-1	9:35 AM	**Rapid Infiltration Characteristics in Cracked Clay Soils in Texas Playas.** Clay A. Robinson* and David B. Parker
202-2	9:50 AM	**Ferrimagnetic Minerals a Class in the Brazilian System of Soil Classification.** Antonio C. S. Costa* and Ivan Granemann Souza Junior
202-3	10:05 AM	**Gallium Sorption and Inclusion in Al and Fe Oxides.** Justin B. Richardson* and Louis A. Derry
202-4	10:20 AM	**Screening Organic Molecules for Activation of Medium- and Low-Grade Dolomite Phosphate Rocks.** Jibing xiong*, Zhenli He and Peter J. Stoffella
	10:35 AM	**Adjourn**

SESSION NO. 203—9:30 AM–11:10 AM

Marriott Tampa Waterside, Grand Ballroom G, Second Level

Community Engagement and Public Participation in Environmental Research

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Education and Outreach

Moderator: Monica Ramirez-Andreotta

	9:30 AM	**Introductory Remarks**
203-1	9:35 AM	**Integrating Soil and Human Health through Citizen Science: Domestic and International Examples.** Franziska Landes*, Gabriel Filippelli, Alexander van Geen, Brian Mailloux and Jennifer Inauen
203-2	9:50 AM	**Citizen Science and Partnering for Action: Environmental Health Research in Underserved Communities.** Monica D Ramirez-Andreotta*, Shana Sandhaus and Dorsey Kaufmann
203-3	10:20 AM	**The Integral Soil Model in Support of Global Soil Health and Security.** Sabine Grunwald*, C M Clingensmith, R K Kastner-Wilcox, K Mizuta and C Gavilan

203-4	10:35 AM	**Participatory Methods in Crop Research: Giving More Decision-Making Power to Farmers.** Alia DeLong*, Marilyn E. Swisher, Carlene A. Chase, Xin Zhao, Kaylene Sattanno, Erin N Rosskopf, Francesco Di Gioia and Jason C Hong
203-5	10:50 AM	**Transport of Neonicotinoid Pesticide Thiamethoxam Under Field Conditions.** Jesse Radolinski*, Junxue Wu, Kang Xia, Cully Hession and Ryan Stewart
	11:05 AM	**Concluding Remarks**
	11:10 AM	**Adjourn**

SESSION NO. 204—9:30 AM–11:30 AM

Tampa Convention Center, Room 25, First Floor

Special Session--Negotiation Strategies for Early Career Scientists Workshop

ACS530 Early Career Members

Section or Division Cosponsor: ACS238 Graduate Student Committee

Moderator: Adam Gaspar, Ignacio Ciampitti

SESSION NO. 205—9:30 AM–11:30 AM

Tampa Convention Center, Room 6

Symposium--A Cross-Section of Sensors for Improving Crop Water Management

ASA Section: Climatology and Modeling

Moderator: Susan O'Shaughnessy

	9:30 AM	**Introductory Remarks**
205-1	9:35 AM	**Optimization of Triggered Fertigation for Sustainable Crop Production.** Naftali Lazarovitch* and Jirka Šimůnek
205-2	10:00 AM	**Citrus Greening (HLB) Detection Using Ground, Airborne and Satellite Imaging.** Won Suk Lee*
205-3	10:25 AM	**Recent Advances in Thermal Remote Sensing for Assessing Crop Water Needs.** Victor Alchanatis*
205-4	10:50 AM	**Estimating Maize Water Stress Using High-Resolution Thermal Imagery.** Huihui Zhang* and Ming Han
	11:15 AM	**Community Planning Session**
	11:30 AM	**Adjourn**

SESSION NO. 206—9:30 AM–11:30 AM

Marriott Tampa Waterside, Room 6, Second Level

Symposium--Tools and Technologies for Consulting Soil Scientists

SSSA Division: Consulting Soil Scientists

	9:30 AM	**Introductory Remarks**
206-1	9:35 AM	**The Soil Information System (SIS) – Applications in Applied Agronomy.** Dan Rooney*
206-2	10:15 AM	**Proximal Sensors: A New Tool in the Toolbelt of the Modern Consultant.** David C. Weindorf*, Somsubhra Chakraborty, Bogdan Duda and Delaina Pearson
206-3	10:55 AM	**Comparing the Automated Dual-Head Analysis from a Single-Ring Infiltrometer with a Double-Ring Infiltrometer.** Leonardo Daniel Rivera* and Emily Campbell
206-4	11:25 AM	**Five Keys to Success.** Lorene A. Lynn*
	11:30 AM	**Adjourn**

SESSION NO. 207—9:30 AM–11:30 AM

Marriott Tampa Waterside, Florida Salon I-III, Second Level

Symposium--New Insights on Biogeochemical Processes in Terrestrial Ecosystems As Revealed By Isotopic and Biomarker Approaches I

SSSA Division: Forest, Range and Wildland Soils

	9:30 AM	**Introductory Remarks**
207-1	9:35 AM	**Isotope-Based Insights into Old Questions about Transport and Transformation of Plant Inputs to Soil Based on Isotope Studies.** Margaret S Torn* and Caitlin Hicks Pries
207-2	9:55 AM	**Using Stable Isotopes to Explore Root-Microbe-Mineral Interactions in Soil.** Jennifer Pett-Ridge*
207-3	10:15 AM	**Decadal Fate of a 15N Tracer in a Mixed Deciduous Forest.** Christine Goodale* and Carmen Enid Martinez
207-4	10:35 AM	**Microbial Biosynthesis and Energy Metabolism in Soils: New Insights from Position-Specific Metabolic Modeling and Next Generation Sequencing.** Paul Dijkstra*
207-5	10:55 AM	**Position-Specific Labeling and Tracing: New Isotopic Tool to Trace the Fate of C in Soil.** Yakov Kuzyakov*
	11:15 AM	**Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 208—9:30 AM–11:30 AM

Tampa Convention Center, Room 18, First Floor

Symposium--Coevolution of Soils and Landforms (includes student competition)

SSSA Division: Pedology

Moderator: Craig Rasmussen, Vance Almquist

	9:30 AM	**Introductory Remarks**
208-1	9:35 AM	**The Influence of Climate on the Development of Soil Structure.** Aoesta Mohammed*, Daniel Hirmas, Daniel Giménez and Attila Nemes
208-2	9:50 AM	**A Humped Clay Production Model.** Christopher Shepard*, Jon D Pelletier and Craig Rasmussen
208-3	10:05 AM	**The Origins of Deep Podzolized Carbon in Coastal Plain Soils As Revealed By Soil Morphology and Biogeochemistry.** Yaslin Nicole Gonzalez*
208-4	10:20 AM	**Legacy Sediments As Novel Soil Profiles.** Anna Wade* and Daniel deB. Richter

208-5	10:35 AM	**Pedostratigraphic Influence of Late-Quaternary Loesses and Paleosols on Canyon Morphology in the Arikaree Breaks, Northwestern Kansas.** Aaron Koop*, Daniel Hirmas and William Johnson
208-6	10:50 AM	**Soil Development in Response to Geomorphic Reclamation in the Semi-Arid West.** Amanda Pennino*, Karen L. Vaughan and Jay Norton
208-7	11:05 AM	**Andisol Formation in the Western Oregon Cascades Mountains.** Kristopher Osterloh* and Jay Stratton Noller
	11:20 AM	**Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 209—9:30 AM–11:30 AM

Tampa Convention Center, Room 11, First Floor

Soil Processes and Performance in Constructed Wetlands

SSSA Division: Wetland Soils

Moderator: John White

	9:30 AM	**Introductory Remarks**
209-1	9:35 AM	**The History of the Everglades Stormwater Treatment Areas.** Patrick W. Inglett* and K. Ramesh Reddy
209-2	9:50 AM	**Aquatic Productivity in a Subtropical Marsh Along a Soil Nutrient Gradient – an Assessment of the Everglades Stormwater Treatment Areas.** Paul Julian*, Alan L. Wright, Rupesh Bhomia, Todd Z. Osborne and Rodolfo Villapando
209-3	10:05 AM	**Effects of Hydrologic Flow on Enzyme Activity in Constructed Wetland Soils.** Sara Baker*, Patrick W. Inglett, Xiaolin Liao, Kanika S. Inglett and Jill King
209-4	10:20 AM	**Spatial Distributions of Soil Biogeochemical Properties in Stormwater Treatment Area 3/4 CELLS 3A and 3B.** Todd Z. Osborne*, Rupesh Bhomia, Paul Julian and K. Ramesh Reddy
209-5	10:35 AM	**Decomposition and Nutrient Stability in Constructed Wetland Soils of Submergent and Emergent Vegetation.** Kaylee Rice* and Patrick W. Inglett
209-6	10:50 AM	**Phosphorus Retention and Forms in Stormwater Treatment Area Wetlands of the Everglades.** Alan L. Wright, Taylor Smith*, K. Ramesh Reddy, Rupesh Bhomia and Rodolfo Villapando
209-7	11:05 AM	**Effects of Dry Down and Re-Hydration on Sediment P Storage in Stormwater Treatment Areas.** Carlos Pulido*
	11:20 AM	**Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 210—9:30 AM–11:35 AM

Tampa Convention Center, Room 8

Symposium--Current Issues in Soil and Water Management

ASA Section: Agronomic Production Systems

	9:30 AM	**Introductory Remarks**
210-1	9:35 AM	**Optimizing Land and Water Allocations for Irrigated Corn Production with Declining Well Capacities in Texas.** Jourdan M. Bell*, Robert C. Schwartz, Alan J. Schlegel, Freddie R. Lamm, Isaya Kisekka, Dan O'brien and Paul D. Colaizzi
210-2	9:50 AM	**Optimizing Land and Water Allocations for Irrigated Corn Production with Declining Well Capacities in Kansas.** Alan J. Schlegel*, Isaya Kisekka and Freddie R. Lamm
210-3	10:05 AM	**Droughtgard® Hybrids Corn Products Response to Overwatering.** Brian L. Olson* and Mark Edward Reiman
210-4	10:20 AM	**Evaluation of Alternate Wetting and Drying Irrigation Practices for Mid-South Rice Production.** Richard Lee Atwill* II, Larry Jason Krutz, Bobby R. Golden and Jason Bond
210-5	10:35 AM	**Evaluation of Furrow-Irrigated Rice in Mid-South Production Systems.** Richard Lee Atwill* II, Larry Jason Krutz, Bobby R. Golden, Jason Bond and Jason Satterfield
210-6	10:50 AM	**Response of Sugar Beet to Nitrogen Rate While Shifting from Conventional Tillage to Conservation Tillage.** Reza K. Afshar, Chengci Chen*, William B. Stevens and William M. Iversen
210-7	11:05 AM	**Relating Soil Test Nutrient Trends to Production Practices.** Larry J. Cihacek*
	11:20 AM	**Community Planning Session**
	11:35 AM	**Adjourn**

SESSION NO. 211—9:30 AM–11:35 AM

Marriott Tampa Waterside, Grand Ballroom J, Second Level

Symposium--Soil Chemistry, Food Security and Human Health

SSSA Division: Soil Chemistry

	9:30 AM	**Introductory Remarks**
211-1	9:35 AM	**Soil Chemistry, Food Security and Human Health: Overview.** Gary M. Pierzynski*, Vara Prasad, Zach P. Stewart, Jessie L Vipham and B Jan Middendorf
211-2	10:05 AM	**Soil Chemistry, Food Security and Human Health: Manipulating Soil Nutrient Chemistry.** Michael J. McLaughlin*
211-3	10:35 AM	**Micronutrients and the Link to Human Nutrition.** Steve McGrath*
211-4	11:05 AM	**Soil Chemical Transformations Affect Arsenic Bioaccessibility during Mine Tailings Phytostabilization.** Jon Chorover*, Robert Root, Corin Hammond and Raina Maier
	11:35 AM	**Adjourn**

SESSION NO. 212—9:30 AM–11:50 AM

Marriott Tampa Waterside, Grand Ballroom H, Second Level

Biogeochemistry of Natural and Engineered Nanoparticles in the Environment I (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Chemistry

Moderator: Zhenli He, Jalal Jabro

	9:30 AM	**Introductory Remarks**
212-1	9:35 AM	**Transport of Iron and Phosphorus By Authigenic Nanoparticles in Baseflow of the Southern Piedmont.** Mark River* and Curtis J. Richardson
212-2	9:50 AM	**Retention and Transport of Cellulosic Nanocrystals in Soils.** Jie Zhuang*, Xijuan Chen, Shuang Xu, Mark Radosevich and Siqun Wang
212-3	10:05 AM	**Accumulation of Microplastic Particles in Terrestrial Ecosystems.** Stephen Taylor* and Markus Flury
212-4	10:20 AM	**Studying the Effect of Soil pH on the Dissolution and Binding of Engineered ZnO Nanoparticles in Soil.** Zeinah Elhaj Baddar* and Jason Unrine
	10:35 AM	**Break**
212-5	10:45 AM	**CuO NP Effects on Lignification in Wheat Seedlings in the Presence of Beneficial Pseudomonad.** Astrid R. Jacobson*, Stephanie Doxey, Anne J Anderson, David Britt and Joan E. McLean
212-6	11:00 AM	**Impact of Abiotic Stresses on Plant Uptake and Accumulation of Cerium Oxide Nanoparticles.** Samuel Ma* and Lorenzo Rossi
212-7	11:15 AM	**Inhibition of Soil Respiration By Copper Oxide Nanoparticles Is Controlled By Cu Availability across Management Systems.** Devin A. Rippner*, Andrew J. Margenot, Peter G. Green, Thomas M. Young, Kate M. Scow and Sanjai J. Parikh
212-8	11:30 AM	**Detection of Uptake and Translocation of Multi-Walled Carbon Nanotubes in Lettuce.** Kamol Das*, Yaqi You, Miguel Torres, Lucas Bancroft, Felipe Barrios-Masias, Xiaoliang Wang, Judith Chow, Baoshan Xing and Yu Yang
	11:45 AM	**Concluding Remarks**
	11:50 AM	**Adjourn**

SESSION NO. 213—9:30 AM–12:00 PM

Tampa Convention Center, Room 10, First Floor

Nutrient Management and Soil and Plant Analysis General Oral I

SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: James McCray, Mriganka De

	9:30 AM	**Introductory Remarks**
213-1	9:35 AM	**Soil Potassium Availability to Corn and Soybean in Minnesota Assessed Using Field Moist Soil Samples.** Daniel E. Kaiser* and Jeffrey A. Vetsch
213-2	9:50 AM	**Manganese and Boron Coated Potash As an Alternative Method to Correct Soybean Nutrient Deficiency in Coastal Plain Soils.** Abigail Baxter*, Rory O. Maguire, Garnett Brooks Whitehurst, Mark S. Reiter and David L. Holshouser
213-3	10:05 AM	**Performance of Urea Enhanced with Sulfur.** Upendra Singh*, Deborah Hellums, Wendie Bible, Vaughn Henry, Joaquin Sanabria and Xinhua (Frank) Yin
213-4	10:20 AM	**Comparing Extractants for Calibrating Potassium Rates for Tomato Grown on a Calcareous Soil.** Qiang Zhu*, Yuncong Li, Monica Ozores-Hampton, Kelly T. Morgan and Rao S. Mylavarapu
213-5	10:35 AM	**Impact of Repeated Dairy Manure Applications on Nitrogen Mineralization Potential and Soil Physical Properties in Southern Idaho Calcareous Soils.** Mriganka De*, Amber D. Moore and April B. Leytem
	10:50 AM	**Break**
213-6	11:00 AM	**Sugarcane Yield Response to Silicon Related to Extractable Soil Silicon on Florida Mineral Soils.** James Mabry McCray* and Shangning Ji
213-7	11:15 AM	**Quantifying the Variability and Bias of NH4-N and NO3-N Soil Sampling Techniques.** Moslem Ladoni* and Nicholas Cizek
213-8	11:30 AM	**Infrared Spectroscopy – Moving from the Laboratory to the Field.** Sean Mason*, Michael Zerner, Les Janik, Michael McLaughlin and Ryan Walker
213-9	11:45 AM	**Sulfur Management of Brassica Carinata in Florida.** Theodor Stansly* and David L. Wright
	12:00 PM	**Adjourn**

SESSION NO. 214—9:30 AM–12:00 PM

Tampa Convention Center, Room 36, Third Floor

Soil Biology and Biochemistry General Session II

SSSA Division: Soil Biology and Biochemistry

	9:30 AM	**Introductory Remarks**
214-1	9:35 AM	**Soil Biogeochemical Cycling and Stable Isotope Dynamics during Vertebrate Carcass Decomposition.** Sarah W. Keenan*, Sean M. Schaeffer, Virginia L. Jin and Jennifer M. DeBruyn
214-2	9:50 AM	**Large Variation in Cast Properties of Earthworm Species: The Link to Soil Phosphorus.** Hannah M.J. Vos*, Lieke Beezemer, Gerwin F. Koopmans, Ron G.M. de Goede, Tjisse Hiemstra and Jan Willem van Groenigen
214-3	10:05 AM	**Potential Functional Role of Carrot Endophyte Communities.** Sahar Abdelrazek* and Lori A. Hoagland
214-4	10:20 AM	**Impacts of Oyster Aquaculture on Subaqueous Soils and Resident Infauna in Rhode Island Coastal Lagoons.** Chelsea Duball*, Jose Adolfo Amador and Mark Stolt
214-5	10:35 AM	**Integrated Management for Botrytis Control in Rose.** María M. Martínez* and Rodrigo A Ortega
	10:50 AM	**Break**
214-6	11:00 AM	**Impact of Grassland Management in Microbial Communities and Soil Structure.** Giulia Bondi*, David Wall, Matthias Bacher, Jeremy Emmett-Booth, Jessica Graca, Irene Marongiu, Gemma Torres and Rachel Creamer
214-7	11:15 AM	**Root and the Rhizosphere Microbiomes Associated with Productive Grafted Tomato Plants.** Ravin Poudel*, Lani Meyer, Ari Jumpponen, Megan M. Kennelly, Cary Rivard and Karen Garrett
214-8	11:30 AM	**Addressing Uncertainity in Global Soil Respiration Estimates By Quantiying Sources of Bias.** Jinshi Jian*, Meredith K Steele, Quinn Thomas, Susan D. Day and Steven C. Hodges
214-9	11:45 AM	**Seasonal Variability of Soil Biochemical Indicators on a Long-Term Crop Rotation Experiment.** Alex Woodley*, Craig F. Drury, Dan Reynolds, Xueming Yang and Tom Oloya
	12:00 PM	**Adjourn**

SESSION NO. 215—9:30 AM–12:00 PM

Tampa Convention Center, Room 9, First Floor

Organic Nutrient Sources and Enhancers

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor: SSSA Division: Nutrient Management and Soil and Plant Analysis, ASA Section: Agronomic Production Systems

Moderator: Lori Hoagland

	9:30 AM	**Introductory Remarks**
215-1	9:35 AM	**Effect of Phosphate-Metal-Humic Complexes on P Uptake in Hydroponics and Soil.** Fien Degryse*, Rodrigo Coqui da Silva, Roslyn Baird and Michael J. McLaughlin
215-2	9:50 AM	**Optimization of Nitrogen and Phosphorous Release Rates from Rendered Animal Products Using Natural Amendments.** Bhupinder Jatana*, Christopher Kitchens, Christopher Ray and Nishanth Tharayil
215-3	10:05 AM	**Effects of Summer Cover Crop Planting, Compost Application, and in-Season Fertigation on Organic Strawberry Production.** Xin Zhao*, Yurui Xie, Zack Black, Dustin Huff and Xinhong Dong
215-4	10:20 AM	**Extractable Soil Mineral Elements Following Poultry Litter Application By Surface and Subsurface Band Applications in a No-till Cotton System.** Haile Tewolde*, Mark W. Shankle, Thomas R. Way, Daniel H. Pote and Karamat R Sistani
	10:35 AM	**Break**
215-5	10:45 AM	**Maximizing Crop Productivity and Soil Fertility Benefits in Vegetable Systems Fertilized with Organic Amendments and Processed Organic Fertilizers.** Gabriel Maltais-Landry*, Matthew Godinez, Brianna Thompson and Sean M Smukler
215-6	11:00 AM	**Organic Inputs and Mineral Fertilizer Effects on Soil Chemical Properties and Maize Productivity in Central Highlands of Kenya.** Daniel N. Mugendi*, Monica Mucheru-Muna, Evelyn Njogu-Mureithi, Felix Kipchirchir Ngetich and Jayne Njeri Mugwe
215-7	11:15 AM	**Amendment Composition and Location Affect Soil Microbial Activity, Nitrogen Availability, and Pest Dynamics on Organic Vegetable Farms.** Lori A. Hoagland*, Elizabeth T Maynard and Daniel S. Egel
215-8	11:30 AM	**Effect of Straw Incorporated to Different Location in Soil Profile on Straw Humification Coefficient and Maize Yield.** Xiaozeng Han*, Wenxiu Zou, Lu Xinchun, Xiangxiang Hao and Mengyang You
215-9	11:45 AM	**Plant Growth and Yield Response of Maize to in-Furrow Biological and Plant Growth Regulator Products.** Jason Lee*, James Camberato and Robert L. Nielsen
	12:00 PM	**Adjourn**

SESSION NO. 216—9:30 AM–12:00 PM

Marriott Tampa Waterside, Room 4, Second Level

Managing, Manipulating, and Predicting Phosphorus Losses in Phosphorus Saturated Soils: Current State of the Science Oral (includes student competition)

SSSA Division: Soils and Environmental Quality

Moderator: Gurpal Toor, Andrew Sharpley

	9:30 AM	**Introductory Remarks**
216-1	9:35 AM	**Quantitative Approach for Recovering Legacy Phosphorus in Soils.** Vimala D. Nair*, Lynn Sollenberger, Andressa Freitas, Biswanath Dari, Willie Harris and Jose Carlos Batista Dubeux Jr.
216-2	9:50 AM	**Long-Term Patterns of Soil Test Phosphorus and Phosphorus Loss in Soils Historically Applied with Swine Manure Compost.** Tiequan Zhang*, Chin Tan, Yutao Wang and Tom Welacky
216-3	10:05 AM	**Soil Phosphorus Persistence after Manure Phosphorus Loading.** Emileigh Lucas*, Joshua M. McGrath, Frank Coale, Robert Kratochvil and Patricia M. Steinhilber
216-4	10:20 AM	**Limitations in Estimating Phosphorus Sorption Capacity from Soil Properties.** Carl H. Bolster* and Peter A. Vadas
216-5	10:35 AM	**Extractability and Fractionation of Phosphorus in Different Biochars.** Mingxin Guo* and Zhongqi He
	10:50 AM	**Break**
216-6	11:00 AM	**A Critical Source Area Index for Legacy Soil Phosphorus Management That Uses Water Extractable Phosphorus and Lidar DEMs.** Ian Alistair Thomas*, Paul N.C. Murphy, Per-Erik Mellander, Owen Fenton, Oliver Shine, Faruk Djodjic, Paul Dunlop and Phil Jordan
216-7	11:15 AM	**Phosphorus Source Identification Along Various Streams in the Minnesota River Basin.** Ashley Lynn Grundtner, Satish C. Gupta* and William James
216-8	11:30 AM	**Estimating Rates of Soil Phosphorus Drawdown Using the Aple Model.** Peter A. Vadas*, Nicole Fiorellino, Robert Kratochvil and Frank Coale
216-9	11:45 AM	**Modelling Phosphorus Loss Using the Daily Erosion Project.** Timothy Sklenar*, Brian Gelder, Daryl Herzmann, David James, Richard M. Cruse, John M. Laflen, Dennis C. Flanagan and Jim Frankenberger
	12:00 PM	**Adjourn**

SESSION NO. 217—9:30 AM–2:45 PM

Marriott Tampa Waterside, Room 12, Third Level

Soil and Water Management and Conservation General Oral II (includes student competition)

SSSA Division: Soil and Water Management and Conservation

	9:30 AM	**Introductory Remarks**

217-1	9:35 AM	**Temporal Variability of Soil C in Semi-Arid Soil on the Texas High Plains.** Joseph Burke*, Katie L. Lewis, Clayton Ray White, Paul B. DeLaune and J. Wayne Keeling
217-2	9:50 AM	**Soil Water Dynamics of Shallow Water Table Soils Cultivated with Potato Crop.** Andre Biscaia*, Lincoln Zotarelli, Heraldo Takao Hashiguti, Kati Migliaccio and Michael Dukes
217-3	10:05 AM	**Temporal Changes in Soil Physical Properties Due to Corn Residue Grazing and Baling.** Manbir Kaur Rakkar* and Humberto Blanco-canqui
217-4	10:20 AM	**Contributions to Suspended Sediment and Total Phosphorus Loads from Three Distinct Holocene Alluvial Deposits Comprising Streambanks in Central Iowa, USA.** William Beck*, Thomas M. Isenhart, Peter Moore, Keith E. Schilling, Richard Schultz and Mark D. Tomer
217-5	10:35 AM	**The Impacts of a Double Cropping System on Soil Water and Crop Yields.** Lauren Tomlin*, Haly L. Neely, Clark B. Neely, Jamie L. Foster, Katie L. Lewis, Ronnie W. Schnell and Paul B. DeLaune
	10:50 AM	**Break**
217-6	11:00 AM	**Reducing Winter Runoff Losses from Dairy Agroecosystems through Tillage and Manure Application Timing.** Melanie Stock*, Francisco Arriaga, Laura W. Good, K.G. Karthikeyan and Peter A. Vadas
217-7	11:15 AM	**Multifunctional Buffers on Marginal Farmland to Improve the Environmental Profile of Agriculture and Diversify Production Opportunities.** Moonsub Lee*, Dokyoung Lee, Sam Wortman, Anthony C. Yannarell, Nicholas D Paulson and Sarah Taylor Lovell
217-8	11:30 AM	**Multi-Sensor Data Fusion to Estimate Soil Moisture and Evapotranspiration for Irrigation Scheduling.** Abir Raihan* and Wenxuan Guo
217-9	11:45 AM	**Land Use Change and Soil Sustainability in South Dakota and Nebraska States.** Deepak R. Joshi*, David E. Clay, Alexander Smart and Sharon A. Clay
	12:00 PM	**Lunch Break**
217-10	1:30 PM	**The Effects of Cover Crops on Nutrient and Sediment Transport and Runoff.** Gene Spencer*, L. Jason Krutz, John M. Orlowski, Martin A. Locke, Brien Henry and Bobby Golden
217-11	1:45 PM	**Strategic-Rotational Grazing in Beef-Pastures for Improving Sustainability: As Measured By Soil Health, and Forage Productivity.** Subash Dahal*, Dorcas Franklin, Dennis W. Hancock, Lawton Stewart and Miguel L. Cabrera
217-12	2:00 PM	**Rainfall and Upslope Inflow Impacts on Ephemeral Gully Erosion: Topography and Rainfall Intensity Contributions.** Ximeng Xu*, Fenli Zheng and Glenn V. Wilson
217-13	2:15 PM	**Complementary Effects of Straw-Mulch and Deficit Irrigation on Radiation and Water-Use Efficiency of Wheat.** Muhammad Adil Rashid*, Xiying Zhang, Mathias Neumann Andersen and Jørgen E Olesen
217-14	2:30 PM	**Long-Term (35 years) No-till System Caused a Major Shift in Weed Community Structure in a Continuous Sorghum Cropping System.** Prabhu Govindasamy*, Jake E. Mowrer, Tony L. Provin, Frank M. Hons and Muthu Bagavathiannan
	2:45 PM	**Adjourn**

SESSION NO. 218—9:30 AM–3:00 PM

Marriott Tampa Waterside, Room 11, Third Level

Managing Soils and Crops with Cover Crops

SSSA Division: Soil and Water Management and Conservation

Moderator: Sabrina Ruis

	9:30 AM	**Introductory Remarks**
218-1	9:50 AM	**Alleviation of Soil Compaction, Using a Fodder Radish Cover Crop As a Biological Tillage Tool.** Ellen M. Wahlström*, Lars Juhl munkholm, Hanne Lakkenborg Kristensen and Ingrid Kaag Kaag Thomsen
218-2	10:05 AM	**Reducing Risk in Organic Systems with Intensive Cover Cropping and No-till Planting.** Joel Gruver*
218-3	10:20 AM	**Recycling 15N Fertilizer Using Cover Crops in a Corn System.** Kelsey L. Hoegenauer*, Trenton L. Roberts, Nathan A. Slaton, Richard J. Norman, William Jeremy Ross, Chester Eugene Greub and Jarom Davidson
218-4	10:35 AM	**Biomass Production and Nitrogen Accumulation By Hairy Vetch-Cereal Rye Mixtures: A Meta-Analysis.** Resham Thapa*, Hanna Poffenbarger, Katherine Tully, Victoria J. Ackroyd, Matthew H Kramer and Steven B Mirsky
	10:50 AM	**Break**
218-5	11:00 AM	**Cover Crop Benefits and Barriers in Wisconsin: Runoff and Productivity.** Laura Adams*, Francisco J. Arriaga and Michael Bertram
218-6	11:15 AM	**Cereal Rye in Continuous Corn with Fall Fertilizer N Application.** Lowell E. Gentry*, John M. Green, Corey A. Mitchell and Dan Schaefer
218-7	11:30 AM	**Leguminous Cover Crops As an Attempt to Combine Catch Crops and Green Manure.** Elly M. Hansen*, Ingrid Kaag Thomsen and Hans S. Østergaard
218-8	11:45 AM	**DNDC Modeling on Soil Organic Carbon Dynamics Under Long-Term Application of Hairy Vetch Cover Crop and Subsequent Cotton Cultivation in Northwest Louisianan.** Changyoon Jeong*, Hyun-Hwoi Ku and Patrick Colyer
	12:00 PM	**Lunch Break**
218-9	1:30 PM	**Interactive Effects of Animal Manure and Cover Crop Use in Improving Agricultural Soil Quality in Kentucky.** Sait Sarr*, Maheteme Gebremedhin, Mark S. Coyne, Karamat R Sistani and Avinash Tope
218-10	1:45 PM	**The Feasibility of Cover Crops in Dryland Cropping Systems in SW Colorado and SE Utah.** Abdelfettah Berrada*
218-11	2:00 PM	**The Nexus of Cover Crops, Water, and Nitrogen: Impact on Corn and Soybean Productivity and the Environment.** Axel Garcia y Garcia*, Gregg A. Johnson, Jeffrey S. Strock and Ronghao Liu
218-12	2:15 PM	**Effect of Soybean Maturity on Establishment of Cover Crops in Missouri.** Kelly A. Nelson*
218-13	2:30 PM	**Using Cover Crops to Capture and Recycle Deep Soil N: On-Farm Experiments.** Sarah Marie Hirsh* and Ray R Weil
218-14	2:45 PM	**Maximizing Cover Crop Biomass Production for Biofuel.** Sabrina Ruis* and Humberto Blanco-Canqui
	3:00 PM	**Adjourn**

SESSION NO. 219—9:55 AM–12:00 PM

Tampa Convention Center, Room 37

Understanding the Biology of High Carbon and Low Disturbance Soils: A Key to Soil Health and Sustainable Intensification

SSSA Division: Soil Biology and Biochemistry

Moderator: Mary Ann Bruns

	9:55 AM	**Introductory Remarks**
219-1	10:00 AM	**Soil Carbon Sequestration and Redefining Soil Health.** William R. Horwath*
219-2	10:15 AM	**Nitrogen Management Affects Microbial Communities and Enzyme Activities in an Organic Farming System.** Jeanette M. Norton*, Yang Ouyang and Jennifer R Reeve
219-3	10:30 AM	**Response of Ammonia Oxidizers to Elevated Zinc and Copper Levels in Poultry Litter Amended Soils.** Mussie Y. Habteselassie* and Abha Mundepi
219-4	10:45 AM	**Soil Nitrogen Dynamics Under Conservation Management in Continuous Cotton in West Tennessee.** Julie Konkel*, Donald D. Tyler, Brian G. Kozlowski, Virginia L. Jin and Sean M. Schaeffer
219-5	11:00 AM	**Decomposition of Tea Bags As a Soil Health Indicator in Agroecosystems.** Marshall D. McDaniel*, Teresa Middleton and Theresa Brehm
219-6	11:15 AM	**Conventional Vs Low External Input Cropping Systems: Soil Biology and Nutrient Cycling.** Rebecca Baldwin-Kordick*, Matt Liebman and Marshall Douglas McDaniel
219-7	11:30 AM	**Impacts of Conservation Reserve Program on Soil Health.** Mriganka De*, Michael Lawrinenko, Rebecca Baldwin-Kordick, Steven Hall, Larry J. Cihacek and Marshall Douglas McDaniel
	11:45 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 220—10:00 AM–11:35 AM

Marriott Tampa Waterside, Room 2, Second Level

Role of Soil Organic Matter in Soil and Water Management

SSSA Division: Soil and Water Management and Conservation

Moderator: Bharat Sharma Acharya

	10:00 AM	**Introductory Remarks**
220-1	10:05 AM	**Soil Carbon and Nitrogen Fractions in Transitioning System to Organic Management.** Maysoon M. Mikha*, Dwi P. Widiastuti, Tunsisa T. Hurisso, Joe E. Brummer and Jessica G. Davis
220-2	10:20 AM	**Drought-Resistant Soils: A Bounds Analysis.** Mitch C. Hunter*
220-3	10:35 AM	**Evaluation of DNDC Modelling Approaches for Predicting a Long-Term Effect of Rice Straw Incorporation on Soil Organic Carbon Changes and Rice Yield in a Korean Paddy Soil.** Hyun-Hwoi Ku*, Changyoon Jeong, Jin-Hee Ryu and Hui-Su Bae
220-4	10:50 AM	**Organic Matter and Soil Organic Matter Contribution to Available Water-Holding Capacity – How Much and What It Means for Water Conservation Practices.** Zamir Libohova*, Cathy A. Seybold, Douglas A. Wysocki, Philip J. Schoeneberger, Skye A. Wills, David Lindbo, Diane E. Stott, Candiss Williams and Phillip R. Owens
220-5	11:05 AM	**No-till Management Preserved Soil Organic C.** Peter C. Scharf*
220-6	11:20 AM	**Refining Regional Soil C Stock Estimates of Temperate Highlands in Southern Brazil.** Carlos G. Tornquist*, Giovanny Jurado Dávila, Gerhard Overbeck and Alberto Vasconcellos Inda Jr.
	11:35 AM	**Adjourn**

SESSION NO. 221—10:00 AM–12:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Special Session--ACS528 Diversity Student Poster Competition

Special Sessions

SESSION NO. 222—10:00 AM–12:00 PM

Tampa Convention Center, Room 19, First Floor

Symposium--Cover Crops and Forage Utilization in Integrated Crop-Livestock Systems II

ASA Section: Agronomic Production Systems

Section or Division Cosponsor: C06 Forage and Grazinglands, C03 Crop Ecology, Management and Quality

	10:00 AM	**Introductory Remarks**
222-1	10:05 AM	**Integrated Crop Livestock Research in Montana â€“ Challenges and Challenges.** Perry R Miller*, Anton Bekkerman, Patrick Hatfield, Fabian Menalled, Robert Walker, Luke Ward, Cathy Zabinski and Emily C Glunk
222-2	10:30 AM	**Evaluations of Alternative Economic Endpoints of Cover Crops in Northern Montana Replacing Fallow in a Crop-Fallow Rotation.** Darrin L. Boss*, Julia M. Dafoe, Roger Hybner, Peggy F. Lamb, Patrick Hensleigh and Maryse Bourgault
222-3	10:55 AM	**Can Cover (or Forage) Crops Replace Fallow in the Semiarid Central Great Plains?** Johnathon D. Holman* and Augustine K Obour
222-4	11:20 AM	**Introducing Grazeable Summer Cover Crops to Wheat Systems in the Southern Great Plains.** Alexandre C. Rocateli*, Charles P. West and Jason G. Warren
	11:45 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 223—10:00 AM–12:00 PM

Tampa Convention Center, Room 7, First Floor

Symposium--the Role of Precision Ag Tools for Profitability

ASA Section: Agronomic Production Systems

Moderator: Antonio Asebedo

	10:00 AM	**Introductory Remarks**
223-1	10:05 AM	**Profitable Use of Site-Specific Nutrient Management Technologies.** David W. Franzen*
223-2	10:27 AM	**Overcoming Gaps and Bottlenecks to Advance Precision Agriculture.** Newell R Kitchen*, Matt A. Yost, Charles Walthall and Kenneth A. Sudduth
223-3	10:49 AM	**Building a Precision Ag Research and Extension Program.** David B. Mengel*
223-4	11:11 AM	**Bridging the Gap between Innovation and Adoption in Todays Precision Ag.** Chad B. Godsey*
	11:33 AM	**Discussion**
	11:45 AM	**Community Planning Session**
	12:00 PM	**Adjourn**

SESSION NO. 224—10:00 AM–12:00 PM

Tampa Convention Center, Room 23

Applied Pest Management (includes student competition)

C05 Turfgrass Science

Moderator: James Kerns

	10:00 AM	**Introductory Remarks**
224-1	10:05 AM	**Effect of Various Irrigation Amounts on Fungicide Movement and Efficacy.** Wendell J. Hutchens*, James P. Kerns and Travis W. Gannon
224-2	10:20 AM	**The Influence of Carrier Water pH on Efficacy of Fungicides for Turf Disease Control.** Trevor Stacy* and Richard Latin
224-3	10:35 AM	**Optimizing Ferrous Sulfate Performance for Dollar Spot Suppression.** Camden D Shelton*, Erik H. Ervin, Shawn D. Askew and David S. McCall
224-4	10:50 AM	**Population Dynamics of Ectoparasitic and Endoparasitic Nematodes in North Carolina.** Glenn H. Galle*, Charles H. Opperman and James P. Kerns
	11:05 AM	**Break**
224-5	11:15 AM	**Impact of a Zoysiagrass and Tall Fescue Seed Mixture on Brown Patch Disease Severity.** Mingying Xiang*, Jack D. Fry and Megan M. Kennelly
224-6	11:30 AM	**Precision Guided Applications for the Suppression of Spring Dead Spot.** Jordan Booth*, David S. McCall, Dana Sullivan, Haseeb Chaudhry, Andrew Morgan and Kevin Kochersberger
224-7	11:45 AM	**A Sulfur and Phosphorous Acid Combination Applied in Rotation with a Mineral Oil to Reduce the Incidence of Microdochium Patch on an Annual Bluegrass Putting Green.** Clint Mattox*, Alexander R. Kowalewski and Brian McDonald
	12:00 PM	**Adjourn**

SESSION NO. 225—10:00 AM–12:05 PM

Marriott Tampa Waterside, Florida Salon V, Second Level

Symposium--Genome Editing Technologies for Crop Improvement

C07 Genomics, Molecular Genetics and Biotechnology

Section or Division Cosponsor: C01 Crop Breeding and Genetics

	10:00 AM	**Introductory Remarks**
225-1	10:05 AM	**Application of Multiplex CRISPR/Cas9-Based Genome Editing Strategy for Targeting Multiple Agronomic Genes in Wheat.** Wei Wang, Quanli Pan, Fei He, Shiaoman Chao, Alina Akhunova, Liuling Yan, Harold N Trick and Eduard Akhunov*
225-2	10:30 AM	**Editing the Complex Sugarcane Genome with Talen or CRISPR/Cas9.** Fredy Altpeter*, Baskaran Kannan, Tufan Mehmet Oz, Ratna Karan, Je Hyeong Jung and Aldo Merotto
225-3	10:55 AM	**Genome Editing Strategies for Rice Improvement.** Backki Kim, Endang M. Septiningsih and Michael J. Thomson*
225-4	11:20 AM	**Safety, Security, and Policy Perspectives for Genome-Edited Crops.** Jeffrey D. Wolt*
225-5	11:45 AM	**CRISPR/Cas9 in a Complex and Polyploid Genome, Wheat.** Burcu Alptekin and Hikmet Budak*
	12:05 PM	**Adjourn**

SESSION NO. 226—10:10 AM–11:10 AM

Tampa Convention Center, Room 4

Sensor-Based Nutrient Management Oral Session (contains student competition)

ASA Section: Agronomic Production Systems

Moderator: Olga Walsh

	10:10 AM	**Introductory Remarks**
226-1	10:15 AM	**Proximal Sensing and Impact of Hydraulically Restrictive Horizons on Nitrogen Uptake Efficiency in Winter Wheat.** Rachel Breslauer* and Haiying Tao
226-2	10:30 AM	**Predicting Potential Grain Protein Content of Spring Wheat with in-Season Hand-Held Optical Sensors.** Matthew Rellaford* and Joel Ransom
226-3	10:45 AM	**Improving Nitrogen Management Strategies in Louisiana Sugarcane Production Systems.** Daniel Forestieri*, Murilo Martins, Marilyn Dalen, Joseph Garrett, Samuel Kwakye, Wooiklee Paye, Flavia Bastos Agostinho and Brenda Tubana
	11:00 AM	**Discussion**
	11:10 AM	**Adjourn**

SESSION NO. 227—10:10 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom C, Second Level

Understanding the Yield Gap in World-Wide Wheat Production and the Opportunities for International Collaboration Oral

ASA Section: Global Agronomy

Moderator: Brian Beres

	10:10 AM	**Introductory Remarks**
227-1	10:15 AM	**Evaluating Nitrogen Use Efficiency of Wheat.** David R. Huggins* and Tabitha T. Brown
227-2	10:30 AM	**Examining Radiation Use Efficiency of Wheat in Controlled Environment Agriculture.** Oscar Monje*
227-3	10:45 AM	**Agronomic Learnings from Progressive Wheat Growers in Kansas Who Have Decreased the Yield Gap.** Romulo Pisa Lollato*, Allan Fritz, Dorivar A. Ruiz Diaz, Erick DeWolf, Dallas E. Peterson and Mary Knapp
227-4	11:00 AM	**Durum Wheat Production Constraints and Recent Research Findings in North Dakota.** Joel Ransom* and Shana Forster
227-5	11:15 AM	**Optimizing Agronomic Management on a Cultivar Basis: A Case Study with Canadian Prairie Spring Wheat.** Sheri Strydhorst*, Doon Pauly, Robyne Bowness, Kabal Gill, Rong-Cai Yang and Michael Harding
	11:30 AM	**Discussion**
	11:40 AM	**Concluding Remarks**
	11:45 AM	**Community Planning Session**
	12:00 PM	**Adjourn**

SESSION NO. 228—10:10 AM–12:00 PM

Tampa Convention Center, Room 22

Applications of Soil Moisture Monitoring in Agriculture, Hydrology, and Ecology

SSSA Division: Soil Physics and Hydrology

Moderator: Emmanuel Ojo, Andres Patrignani

	10:10 AM	**Introductory Remarks**
228-1	10:15 AM	**A Soil Moisture Monitoring and Forecast Network for Improved Water Resource Management and Risk Prediction.** Scott B. Jones*, Kshitij Parajuli, Rong Zhou, Morteza Sadeghi, Tyson E. Ochsner and Jirka Šimůnek
228-2	10:30 AM	**Diurnal Pattern of Soil Moisture and Temperature Under Corn and Soybean Fields in South Dakota.** Juan D. Pérez-Gutiérrez*, Liming Lai and Sandeep Kumar
228-3	10:45 AM	**Preliminary Evaluation of a DSSAT Model for Forage Forecasting in Southern Great Plains Grasslands.** Sonisa Sharma*, Phillip D Alderman and Tyson E. Ochsner
228-4	11:00 AM	**The Manitoba Mesonet Soil Moisture Monitoring.** E. RoTimi Ojo*, Lynn Manaigre and Christian Propp
228-5	11:15 AM	**Developing Soil Calibration Equation for Sentek's New Drill & Drop™ Capacitance Probe.** Ali Fares*, Ripendra Awal, Haimanote Bayabil and Almoutaz El Hassan
	11:30 AM	**Presentation by Soil Physics and Hydrology Division Early Career Award Winner**
	11:45 AM	**Presentation by Don and Betty Kirkham Soil Physics Award Winner**
	12:00 PM	**Adjourn**

SESSION NO. 229—10:10 AM–12:10 PM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Special Session Symposium--The Nutrient Uptake and Outcome Network (NUOnet)

Special Sessions

Moderator: Jeffrey Strock

	10:10 AM	**Introductory Remarks**
229-1	10:15 AM	**The Fertilizer Industry and Importance of Nutrient Management Databases.** T. Scott Murrell* and Thomas W. Bruulsema
229-2	10:40 AM	**Critical Infrastructure to Promote Data Synthesis into Evidence-Based Nutrient Management.** Sylvie M. Brouder* and Jeffrey J. Volenec
229-3	11:05 AM	**Toward a Sustainable Future Food System: The Need for Integrated Data across Multiple and Diverse Disciplines.** John Finley*, Naomi Fukagawa and Jorge A. Delgado
229-4	11:30 AM	**Nutrient Uptake and Outcome Network (NUOnet): Connecting a Wide Range of Natural Resource Conservation Networks.** Jorge A. Delgado*, Sharon L Lachnicht Weyers, Curtis J. Dell, Daren Harmel, Bruce Vandenberg, Greg Wilson, Jennifer Carter, Nancy Barbour, Peter J. A. Kleinman, Karamat R Sistani, April B. Leytem, David Huggins, Timothy Strickland, Newell R. Kitchen, John J. Meisinger, Stephen J. Del Grosso, Jane M-F Johnson, Kip Balkcom, John Finley, Naomi Fukagawa, J. Mark Powell and Robert Scott Van Pelt
	11:55 AM	**Discussion**
	12:10 PM	**Adjourn**

SESSION NO. 230—10:15 AM–11:30 AM

Tampa Convention Center, Room 39, Third Floor

Poster and 5 Minute Rapid--Ph.D. Grad Student Oral Competition

C03 Crop Ecology, Management and Quality

Moderator: Jochum Wiersma

	10:15 AM	**Introductory Remarks**
230-1	10:20 AM	**Delayed Plantings Shift Reproductive Phases and Alter Oleic Production of Soybean.** Ben Hall* and Shaun Casteel
230-2	10:25 AM	**Maize Composition in Africa.** Heather Pasley*, Jill Cairns, Mike Olsen, James Camberato and Tony J. Vyn
230-3	10:30 AM	**Can Narrow Row Spacing be Used to Manage Higher Planting Densities of Corn?** Brad Bernhard* and Frederick E. Below
230-4	10:35 AM	**Does Intensive Wheat Management Shifts Macro- and Micro-Nutrient Uptake and Partitioning in Winter Wheat?** Amanda de Oliveira Silva* and Romulo Pisa Lollato

230-5	10:40 AM	**Automatic Section Control on Planters: Effects in Corn and Soybean Yields.** Geomar M. Corassa*, Telmo J. C. Amado, Rai Schwalbert, Thomas Liska and Ignacio A. Ciampitti
230-6	10:45 AM	**Mitigating the Continuous Corn Yield Penalty with Residue and Agronomic Management.** Alison M. Vogel* and Frederick E. Below
230-7	10:50 AM	**Evaluating the Impact of Canopy Defoliation at Two Critical Timings in Peanut.** Chad Abbott*, Jason Sarver, Jeff Gore, L. Jason Krutz and Alan Henn
230-8	10:55 AM	**Double-Crop Soybean Responses to Management Practices.** Damaris Sulzbach Santos Hansel*, Douglas Edward Shoup, James Kimball, Gretchen F. Sassenrath and Ignacio A. Ciampitti
230-9	11:00 AM	**High Moisture Wheat Harvest Effects on Grain Quality and Dioxynivalenol (DON) Levels.** Douglas Alt*, Laura Lindsey and Pierce Paul
230-10	11:05 AM	**Estimating the Contribution of Soil Microbial Communities to the Crop Rotation Effect.** Marian Lund*, Shawn P. Conley and Jean-Michel Ané
230-11	11:10 AM	**Influence of Cover Crop Planting and Termination Time on Rainfed Corn Production in Western Nebraska.** Alexandre Tonon Rosa*, Liberty E. Butts and Rodrigo Werle
	11:15 AM	**Question/Answer and Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 231—10:20 AM–11:45 AM

Marriott Tampa Waterside, Room 10, Third Level

5 Minute Rapid--Perennial Grain Development

ASA Section: Global Agronomy

	10:20 AM	**Introductory Remarks**
231-1	10:25 AM	**Intermediate Wheat Grass-a Grain for Many Uses.** Vicki L. Morrone*, Sieglinde S. Snapp, Nicole Tautges and Jacob Jungers
231-2	10:30 AM	**Vernalization and Photoperiod Requirements for Perennial Grain Crop Intermediate Wheatgrass (Kernza®).** Kathryn Ivancic* and Valentin Picasso
231-3	10:35 AM	**Effects of Forage Harvest on Non-Structural Carbohydrates and Spring Regrowth of Kernza Intermediate Wheatgrass.** Chenfei Dong and Valentin Picasso*
231-4	10:40 AM	**Agronomic Responses of Intermediate Wheatgrass (Thinopyrum intermedium L.) to Plant Growth Regulators and Spring-Applied Nitrogen.** Charles Frahm*, Nicole Tautges, Jacob Jungers, Craig C. Sheaffer, Donald L. Wyse, Nancy Jo Ehlke and Donn Vellekson
231-5	10:45 AM	**Limited Nitrate Leaching Beneath Intermediate Wheatgrass.** Jacob Jungers*, Lee R. DeHaan, David Mulla, Craig C. Sheaffer and Donald L. Wyse
231-6	10:50 AM	**Weed Suppression in Dual-Purpose Intermediate Wheatgrass (Thinopyrum intermedium) Cropping Systems.** Joseph Zimbric*, David E. Stoltenberg and Valentin Picasso
231-7	10:55 AM	**Intermediate Wheatgrass + Legumes: Friends or Foes?** Nicole Tautges*, Jacob Jungers and Craig C. Sheaffer
231-8	11:00 AM	**Perennial Flax Breeding Progress and Goals.** Brian Smart* and Brent S. Hulke
231-9	11:05 AM	***Silphium Integrifolium*: An Alternative Perennial Oilseed Crop and Its Agronomic Potential.** Sydney Schiffner*, Nicole Tautges, John Hill Price, Kevin Smith, Yaniv Brandvain and Craig C. Sheaffer
231-10	11:10 AM	**Improvement of Agronomic Traits in Silphium.** Stephan Reinert*, Brent S. Hulke and Nolan Kane
	11:15 AM	**Question and Answer**
	11:25 AM	**Concluding Remarks**
	11:30 AM	**Community Planning Session**
	11:45 AM	**Adjourn**

SESSION NO. 232—10:30 AM–11:00 AM

Marriott Tampa Waterside, Florida Salon IV, Second Level

Poster and 5 Minute Rapid-- Plant Genetic Resources

C08 Plant Genetic Resources

	10:30 AM	**Introductory Remarks**
232-1	10:35 AM	**Emerging Crops in the USDA Arid Lands Germplasm Collection.** Claire Heinitz*
232-2	10:40 AM	**Preliminary Evaluations of Quinoa (Chenopodium quinoa) Varieties and Populations for Grain Yield in the Pacific Northwest USA.** Daniel Packer*, Kevin M. Murphy, Hannah Walters and Adam Peterson
232-3	10:45 AM	**Enhancing Upland Cotton Germplasm for Yield and Fiber Quality By Introgression from Wild Relatives.** Linghe Zeng* and Erik J. Sacks
	10:50 AM	**Discussion**
	11:00 AM	**Adjourn**

SESSION NO. 233—10:30 AM–12:00 PM

Marriott Tampa Waterside, Room 1, Second Level

Information Delivery Tools to Enhance Agricultural Productivity and Profitability for Smallholder Farmers

ASA Section: Global Agronomy

Section or Division Cosponsor: SSSA Division: Pedology, SSSA Division: Soil Education and Outreach

	10:30 AM	**Introductory Remarks**
233-1	10:35 AM	**A Farmstead-Specific Early Warning Service System for Weather Risk Management in Korea.** Kyo-Moon Shim*, Yong-Seok Kim, Myung-Pyo Jung, In-Tae Choi and Kee-Kyung Kang
233-2	10:50 AM	**When "Best Practices" Aren't Good Enough: Testing New Cultivars, Inorganic Fertilizers, and Organic Amendments in Semi-Arid West Africa.** Jon Eldon*, Graeme Baird and Carol Shennan
233-3	11:05 AM	**Non-Responsiveness of Maize and Soybean Crops to Inorganic Fertilizers: Assessing Probabilities and Understanding Biophysical Causes Across African Agro-Ecosystems.** Dries Roobroeck*, Generose Nziguheba, Bernard Vanlauwe and Cheryl A. Palm

233-4	11:20 AM	**Biochar Use in Tropical Farming Systems: A Unique Window to Sustainable Intensification of Crop Productivity.** Kristina Roing de Nowina, Geoffrey Kimutai, Erik Karltun, Gert Nyberg, Olof Andren, Dries Roobroeck*, Bernard Vanlauwe and Thomas Kätterer
	11:35 AM	**Discussion**
	11:45 AM	**Community Planning Session**
	12:00 PM	**Adjourn**

SESSION NO. 234—10:35 AM–12:00 PM

Tampa Convention Center, Room 32

Nutrient Management Using 4Rs Principles

SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Sally Flis

	10:35 AM	**Introductory Remarks**
234-1	10:40 AM	**Phosphorus 4R Management and Economics in Strip-Tillage Systems.** Cristie L Edwards*
234-2	10:55 AM	**Banding Depth and Granular Urea Source Effects on Yield and Nitrous Oxide Emissions from Canola.** Mario Tenuta*, Kevin Baron, Brad Sparling and Rigas E. Karamanos
234-3	11:10 AM	**Surface Streaming UAN at Side-Dress Is Ineffective at Improving Corn Grain Yields with/without Urease and Nitrification Inhibitors and Can Increase Ammonia Volatilization Losses As Compared to Injected UAN.** Alex Woodley*, Craig F. Drury, Wayne Calder, Xueming Yang, Dan Reynolds and Tom Oloya
234-4	11:25 AM	**Exploring the Relative Importance of 4R Components in Achieving Agronomic and Environmental Benefits in US Maize Production.** Shai Sela*, Harold van Es and Rebecca Marjerison
234-5	11:40 AM	**Improved Nitrogen Placement, Timing and Inhibitors Can Reduce N Losses and Increase Corn Yields.** Craig F. Drury*, Alex Woodley, Xueming Yang, Dan Reynolds, Lori Phillips, Wayne Calder and Tom Oloya
	11:55 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 235—10:40 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom I, Second Level

Speciation and Bioavailability of Nutrients and Pollutants in the Rhizosphere Oral (includes student competition)

SSSA Division: Soil Chemistry

	10:40 AM	**Introductory Remarks**
235-1	10:45 AM	**Root Hairs Increase Rhizosphere Extension and Carbon Input to Soil.** Maire Holz*, Mohsen Zarebanadkouki, Yakov Kuzyakov, Johanna Pausch and Andrea Carminati
235-2	11:00 AM	**Arsenic Cycling in the Rice (*Oryza sativa* L.) Rhizosphere: Evidence for the Passive Transport of Arsenite at Lateral Root Junctions and Root Apices.** Angelia L. Seyfferth*, Samuel M. Webb and Jean Ross
235-3	11:15 AM	**Effect of Plant Invasive Species on the Composition of Soil Organic Matter.** Gurbir Singh Dhillon*, Eric Lamb, Steven Siciliano and Derek Peak
235-4	11:30 AM	**Climate Change Coupled with Elevated Soil Arsenic Will Decrease Rice Productivity and Grain Quality.** E. Marie Muehe*, Tianmei Wang and Scott Fendorf
235-5	11:45 AM	**Structural Configuration of Arsenate on Nano Goethite Surface Using EXAFS and DFT Calculation.** Junho Han*, Seoyeon Lee and Hee-Myong Ro
	12:00 PM	**Adjourn**

SESSION NO. 236—11:00 AM–12:00 PM

Marriott Tampa Waterside, Florida Salon IV, Second Level

Calvin Sperling Memorial Biodiversity Lectureship

C08 Plant Genetic Resources

Moderator: Jianming Yu

	11:00 AM	**Introductory Remarks**
236-1	11:05 AM	**Use and Protection of Exotic Maize Germplasm: What the Past 35 Years Have Taught Us.** Major M. Goodman*
	11:55 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 237—11:30 AM–12:00 PM

Tampa Convention Center, Room 39, Third Floor

5 Minute Rapid--Crop Ecology, Management and Quality

C03 Crop Ecology, Management and Quality

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

Moderator: Jason Sarver

	11:30 AM	**Introductory Remarks**
237-1	11:35 AM	**Optimizing Nitrogen Rescue Strategies in Peanut.** Jason M. Sarver* and Chad Abbott
237-2	11:40 AM	**Weed Management on Direct Seeded Rice.** Madhav Dhakal* and Geeta Kharel
237-3	11:45 AM	**"You Want Me to Harvest 20% Moisture Wheat?".** David L. Holshouser*
237-4	11:50 AM	**Three Year Results of No-Tillage Sorghum and Garbanzo Seeding in California's San Joaquin Valley.** Jeffrey Mitchell*, Anil Shrestha, Daniel Munk, Jeff Dahlberg and Aldo Garcia
	11:55 AM	**Question/Answer and Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 238—11:30 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom G, Second Level

Poster and 5 Minute Rapid--Soils and Environmental Quality

SSSA Division: Soils and Environmental Quality

Moderator: Sandeep Kumar

	11:30 AM	**Introductory Remarks**
238-1	11:35 AM	**Characterization of Soil Bacterial Isolates Capable of Degrading Biodegradable Plastic Mulch Films.** Jose Liquet y Gonzalez*, Xianfang Wen, Kyle Bonifer, Sreejata Bandopadhyay, Todd Reynolds and Jennifer M. DeBruyn
238-2	11:40 AM	**Microbial Communities Associated with Biodegradable Plastic Mulch Films in Two Agroecosystems.** Sreejata Bandopadhyay*, Jose Liquet y Gonzalez, Lydia Tymon, Debra Inglis, Douglas G Hayes and Jennifer M. DeBruyn
238-3	11:45 AM	**Phosphorus Dynamics of Soils and Subsoils Treated By Thermal Desorption.** Samantha Jo Croat*, Thomas M. DeSutter, Caley Gasch, Francis X.M. Casey and Peter O'Brien
238-4	11:50 AM	**Animal Grazing and Forage Effect on Soil CO2 Fluxes in a Semi-Arid Pastureland in Northern Nevada.** Christina T Igono*
	11:55 AM	**Question and Answer**
	12:00 PM	**Adjourn**

SESSION NO. 239—12:00 PM–1:30 PM

Marriott Tampa Waterside, Grand Ballroom E, Second Level

Special Session--Science Policy Graduate Student Luncheon

Sponsored by Monsanto

Special Sessions

Moderator: Karl Anderson

SESSION NO. 240—1:00 PM–3:00 PM

Tampa Convention Center, Room 25, First Floor

Special Session--Interactive Workshop: Writing Manuscripts for Publication

ACS530 Early Career Members

Moderator: Ronald Taskey, Ruth Yanai

	1:00 PM	**Introductory Remarks**
240-1	1:05 PM	**Interactive Workshop: Writing Manuscripts for Publication.** Susan M. Chapman*, Ruth Yanai and Ronald D. Taskey
	3:00 PM	**Adjourn**

SESSION NO. 241—1:00 PM–3:50 PM

Marriott Tampa Waterside, Room 4, Second Level

Global Agronomy General Oral

ASA Section: Global Agronomy

	1:00 PM	**Introductory Remarks**
241-1	1:05 PM	**The Ggp Package: Tools for the Retrieval / Visualization / Analysis / Mining of Syngenta's Good Growth Plan Data.** Paul Kowalczyk*, Hannah Wickenden, Marcin Skorupka, Graham Mullier and Elisabeth Fischer
241-2	1:20 PM	**Accelerated Learning through Characterization of Smallholder Cassava Production Systems.** Veronica N. Uzokwe*, Theresa Ampadu-Boakye, Guillaume Ezui, Stefan Hauser, Abdulai Jalloh, Christine Kreye, Geoffrey Mkamilo, Deusdedit Mlay, Salako Kolawole Salako, Adeyemi Olujide Olojede, Pieter Pypers, Alex Verlinden and Bernard Vanlauwe
241-3	1:35 PM	**Forage Conservation - Its Place in African Livestock Production.** Sjoerd Willem Duiker*
241-4	1:50 PM	**Reducing Risk and Variability of Rice-Based Cropping Systems on the East India Plateau While Quantifying and Improving Water Use.** Alison Laing*, Donald Gaydon, Bill Bellotti, Murray Unkovich, Ashok Kumar and Siddharth Patil
241-5	2:05 PM	**Introducing the Treadle Pump: Local Innovation in Household-Based Irrigation Schemes in Eastern Ethiopia.** Teshome H. Regassa*, Shimelis Beyene and Belaineh Legesse
	2:20 PM	**Break**
241-6	2:35 PM	**Zai Pit Soil Fertility Improved with Cattle Manure on Sandy Soil in Southern Africa.** Timothy Motis*, Brandon Lingbeek and Christopher D'Aiuto
241-7	2:40 PM	**Using a Nitrification Inhibitor in Maintaining Wheat Grain Protein Under Elevated CO_2.** Shu Kee Lam*, Roger Armstrong, Deli Chen and Robert M. Norton
241-8	2:55 PM	**Evaluation of Stability Analysis Methods for Maize Improvement in Nigeria.** Morakinyo Abiodun Fakorede*, Abimbola Oluwaranti, Richard Olutayo Akinwale and Samson Temitayo Akintibu
241-9	3:10 PM	**The Effect of Soil Volume on the Relative Growth of Roots and Canopy of Opuntia Ficus-indica.** Sawsan Hassan, Paolo Inglese, Giorgia Liguori, Serkan Ates* and Mounir Louhaichi
241-10	3:25 PM	**Effect of Nutrition Management, Row Spacing and Earthing up on Lodging, Cane Yield and Quality of Spring Planted Sugarcane.** MUHAMMAD BILAL*
	3:40 PM	**Discussion**
	3:50 PM	**Adjourn**

SESSION NO. 242—1:25 PM–2:45 PM

Tampa Convention Center, Room 21, First Floor

Applying Soil Physics and Hydrology to Soil Health

SSSA Division: Soil Physics and Hydrology

Moderator: Ziru Liu, Ryan Stewart

	1:25 PM	**Introductory Remarks**
242-1	1:30 PM	**Soil Health and Soil Hydrology: Intimate Links.** Hangsheng (Henry) Lin*
242-2	1:45 PM	**Drought Resilience in Agricultural Systems: Interplay of Cover Cropping and Drip Irrigation to Improve Soil Aggregation and Hydro-Physical Properties.** Nathaniel Alexander Bogie*, Asmeret Asefaw Berhe, Michael V Schaefer, Claudia Avila, Macon Abernathy, Eric A. Dubinsky, Alison R. Marklein, Daniel Rath, Eoin Brodie, Sanjai J Parikh, William J Riley, Kate M. Scow, Margaret S Torn, Peter Nico, Samantha C. Ying and Teamrat Ghezzehei
242-3	2:00 PM	**Plant Growth Promoting Rhizobacteria Enhance Plant Drought Tolerance By Changing Soil Physical and Hydrological Properties.** Saiqi Zeng*, Wenjuan Zheng and Yan Jin
242-4	2:15 PM	**Translating Soil Physical Measures to Estimate on-Farm and Off-Farm Benefits: Linking Indicators.** Dianna K. Bagnall* and Cristine L. S. Morgan
242-5	2:30 PM	**The Effects of Constructing Fertile Cultivated Layer in Black Soil on Soil Physical Properties.** Wenxiu Zou*, Xiaozeng Han and Lu Xinchun
	2:45 PM	**Adjourn**

SESSION NO. 243—1:25 PM–4:00 PM

Tampa Convention Center, Room 24, First Floor

Symposium--Sea Level Rise Impacts on Coastal Soil Quality and Nutrient Dynamics

ASA Section: Environmental Quality

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

Moderator: Lisa Chambers, Havalend Steinmuller

	1:25 PM	**Introductory Remarks**
243-1	1:30 PM	**Understanding the Fate of Submerged Coastal Wetland Soils.** Havalend Steinmuller, Lisa G. Chambers*, John R. White, Kyle Dittmer and Ben Haywood
243-2	1:45 PM	**Sea-Level Rise Unlocks Agricultural Legacies on Maryland's Lower Eastern Shore.** Katherine Tully*, W Jesse Wyner and Danielle Weissman
243-3	2:15 PM	**Can Saltwater Intrusion Accelerate Nutrient Export from Freshwater Wetland Soils?** Havalend Steinmuller*
243-4	2:30 PM	**Changes in Capacity for Water Quality Improvement (denitrification) through Sea Level-Induced Coastal Wetland Loss.** John R. White* and Brian Levine
243-5	2:45 PM	**Acute and Long-Term Impacts of Climate Change on the Microbial Community Structure within the Soil Treatment Area of Coastal Septic System.** Jennifer Cooper*, George Loomis and Jose Adolfo Amador
243-6	3:00 PM	**Coastal Marsh Formation and the Record of Present-Day Sea-Level Rise.** Yuch Hsieh*
243-7	3:15 PM	**Dissolved Organic Matter and Nutrient Dynamics in Forest-Marsh Transition Zones – Implications of Sea Level Rise on Coastal Ecosystems in Southeastern US.** Alex Chow*, Dennis O Suhre, Alexander Ruecker, David Miller, William H Conner, Huan Chen, Yina Liu, Li-Jung Kuo and Nikola Tolic
243-8	3:30 PM	**Drowning Spodosols: The Unexpected Legacy of Terrestrial Soil Carbon in Coastal Environments.** Todd Z. Osborne*
243-9	3:45 PM	**An Introduction to USDA/NRCS Coastal Zone Soil Survey.** Greg Taylor* and Rob Tunstead
	4:00 PM	**Adjourn**

SESSION NO. 244—1:25 PM–4:00 PM

Marriott Tampa Waterside, Florida Salon V, Second Level

Nutrient Management and Soil and Plant Analysis General Oral II

SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: James McCray, Mriganka De

	1:25 PM	**Introductory Remarks**
244-1	1:30 PM	**Corn and Soybean Yield Response to Phosphorus and Potassium Fertilization in Ohio.** Steven W. Culman*, Anthony M. Fulford, Laura Lindsey, Peter R. Thomison, Rich Minyo, Anne Dorrance and Van Ryan Haden
244-2	1:45 PM	**Increasing the Productivity of ICP-OES Soil and Plant Analysis By Selecting the Optimum Sample Introduction System.** Sergei Leikin*
244-3	2:00 PM	**Analysis of Moisture, Oil, and Fatty Acid Composition of Olives By Near-Inferred Spectroscopy: Development and Validation Calibration Models.** Uttam K. Saha* and Daniel Jackson
244-4	2:15 PM	**Validation of Critical Soybean Tissue Potassium Concentrations during Reproductive Growth Stages.** Nathan A. Slaton*, Trenton L. Roberts and William Jeremy Ross
244-5	2:30 PM	**Comparison of CEC By Addition Method Using Exchangeable Acidity Plus NH4OAc and Mehlich3 Extractable Cations with NH4OAc Distillation Method in Missouri Soils.** Manjula V. Nathan*, Yichang Sun and Steven Abernathy
	2:45 PM	**Break**
244-6	2:55 PM	**Evaluating the Impacts of Sea Level Rise on Coastal Rhode Island Septic Systems and the Effectiveness of Vegetation-Based Mitigation Strategies.** Alissa Cox*, Alicia Boucher, Jonathan Ludovico, George Loomis and Jose Adolfo Amador
244-7	3:10 PM	**The Potential Agricultural Use of High Carbon Char As Soil Amendment: A Laboratory Study.** Dinesh Panday* and Bijesh Maharjan
244-8	3:25 PM	**Applying Fertilizers Mixed with Superabsorbent Polymer Improving Growth and Yield of Tomato Grown on Sandy Soil in Florida.** Muhammad Shahid*, Rashad Balal and Guodong Liu
244-9	3:40 PM	**Can Phosphorus and Calcium Inputs Improve Tuber Yield and Quality of Potato Grown on Soil Rich in the Both Nutrients in Northeast Florida?** Dario Racano*, Guodong Liu, Lincoln Zotarelli and Steven Sargent
	3:55 PM	**Concluding Remarks**
	4:00 PM	**Adjourn**

SESSION NO. 245—1:30 PM–2:30 PM

Tampa Convention Center, Room 31, Third Floor

Seed Physiology, Production and Technology General Oral

C04 Seed Physiology, Production and Technology

	1:30 PM	**Introductory Remarks**
245-1	1:35 PM	**Influence of Parental Soil Moisture Stress during Soybean Reproductive Stage on Seed Germination and Early Seedling Vigor of the Offspring.** Chathurika Wijewardana*, Nacer Bellaloui, Firas Ahmed Alsajri and K. Raja Reddy
245-2	1:50 PM	**Some like It Hot; QTL and Rnaseq Investigation into the Basis of a Unique Form Resistance to Heat-Induced Seed Degradation.** Jason D. Gillman*, Felix B. Fritschi and James R. Smith
245-3	2:05 PM	**Evaluation of Sweet Sorghum Accessions with Seedling Cold Tolerance.** Ming Li Wang*, Zhanguo Xin, Gloria B. Burow, Phiffie Vankus, David Pinnow, Brandon Tonnis, Hugo Edgardo Cuevas and Jianming Yu
245-4	2:15 PM	**Irrigation and Plant Growth Regulator Effects on White Clover Seed Crops.** Nicole P. Anderson, Thomas G. Chastain* and Carol J. Garbacik
	2:25 PM	**Concluding Remarks**
	2:30 PM	**Adjourn**

SESSION NO. 246—1:30 PM–2:55 PM

Tampa Convention Center, Room 4

Future of Weed Science: Thinking Beyond Herbicides in the Agricultural Landscape

ASA Section: Agronomic Production Systems

	1:30 PM	**Introductory Remarks**
246-1	1:35 PM	**An Ecological View to Herbicide Resistance Management.** Muthukumar Bagavathiannan*
246-2	1:50 PM	**Planting Date Affects Cover Crop Mixture Expression and Weediness.** Barbara Baraibar*, Brosi A Bradley and Charlie White
246-3	2:05 PM	**Optimizing Cover Crop and Herbicide Strategies to Diversify Herbicide-Resistant Weed Management in Annual Grain Crops.** Jess M Bunchek*, John M. Wallace, William S Curran, Mark J. VanGessel and David A. Mortensen
246-4	2:20 PM	**Weed Management and Soil Quality Outcomes of Non-Chemical Weed Control Tactics.** Kenneth P. Beamer*, Greta G. Gramig and Patrick M. Carr
	2:35 PM	**Concluding Remarks**
	2:40 PM	**Community Planning Session**
	2:55 PM	**Adjourn**

SESSION NO. 247—1:30 PM–3:30 PM

Marriott Tampa Waterside, Grand Ballroom H, Second Level

Symposium--How Is Plant Breeding Evolving with Rapidly Emerging Data Sciences?

ASA Section: Biometry and Statistical Computing

Section or Division Cosponsor: C01 Crop Breeding and Genetics, C07 Genomics, Molecular Genetics and Biotechnology

Moderator: Vikas Belamkar

	1:30 PM	**Introductory Remarks**
247-1	1:34 PM	**Plant Breeding in the Digital Era.** Jesse Munkvold*
247-2	1:58 PM	**Genomic Interrogation of Cultivated Potato: New Insights to Improve Breeding Efficiencies.** C. Robin Buell*
247-3	2:22 PM	**Application of Genomics-Assisted Breeding in New and Specialty Crops, Kernza and Sweetpotato.** Xiaofei Zhang*, Lee R. DeHaan, James A. Anderson and G. Craig Yencho
247-4	2:42 PM	**Data Driven Discoveries for Agricultural Innovation (D3AI) - a Plant Breeder's Perspective.** Asheesh K. Singh*
247-5	3:06 PM	**Big Data in Maize Breeding Research: Something Old, Something New, Something Borrowed.** Rex Bernardo*, Nick Ames and Sofia Brandariz
	3:30 PM	**Call for Nominations**
	3:30 PM	**Adjourn**

SESSION NO. 248—1:30 PM–3:30 PM

Marriott Tampa Waterside, Grand Ballroom I and J, Second Level

Symposium--On-Farm Research: Data Exploration and Analysis

Sponsored by Gylling Data Management

ASA Section: Biometry and Statistical Computing

	1:30 PM	**Introductory Remarks**
248-1	1:33 PM	**Modelling Interactions in on-Farm Trials of Bread and Durum Wheats in the Yaqui Valley of Sonora Mexico.** Jose Crossa*, Mateo Vargas-Hernandez, I Ortiz-Monasterio and Jose Alberto Mendoza-Lugo
248-2	1:58 PM	**Analyzing the Effectiveness of Farmers' Practices from on-Farm Replicated Strip Trials.** Anabelle Laurent*, Peter M. Kyveryga, David Makowski and Fernando Miguez
248-3	2:23 PM	**Replication, Randomization, and Treatment Design Concepts for on-Farm Research.** Michael D. Casler*
248-4	2:48 PM	**Dual Field of View Spectrometer System for Characterizing *Fusarium virguliforme* Infection and Yield in Soybean.** Ittai Herrmann*, Steve K. Vosberg, Prabu Ravindran, Philip A. Townsend and Shawn P. Conley
248-5	3:01 PM	**Modeling Spatial Variability across Farms to Estimate the Error in Experiments Replicated across Numerous Farms.** Joaquin Sanabria*, John Wendt and Oscar Nduwimana

248-6	3:14 PM	**Modelling Approaches for Determining Relationships between Crop Yield and Landscape Features.** Ashley Kissick*, J. J. Camberato and Robert L. Nielsen
	3:27 PM	**Concluding Remarks**
	3:30 PM	**Adjourn**

SESSION NO. 249—1:30 PM–3:30 PM

Tampa Convention Center, Room 9, First Floor

Symposium--Evapotranspiration (ET) Under Pressure: Measuring and Modeling ET Under Drought and Deficit Conditions

ASA Section: Climatology and Modeling

Section or Division Cosponsor: SSSA Division: Soil Physics and Hydrology, ASA Section: Agronomic Production Systems

	1:30 PM	**Introductory Remarks**
249-1	1:35 PM	**Crop ET Monitoring and Impact of Deficit Water Supplementation.** Jessica A Torrion*, Paul Stoy, Kent A. McVay, Skylar Williams and Mallory Morgan
249-2	1:58 PM	**Plant Response and Water Use Under Single and Combined Abiotic Stresses: Salinity Drought N and B.** Donald L. Suarez*
249-3	2:21 PM	**Canopy Temperature and Image Based Irrigation Scheduling: Proof of Concept.** Kendall DeJonge* and Huihui Zhang
249-4	2:44 PM	**ET for Full and Deficit Irrigated Sorghum Under Drought Conditions.** Susan O'Shaughnessy*, Steven R. Evett and Paul D. Colaizzi
249-5	3:07 PM	**Water Requirement of Drip Irrigated Pomegranate.** James Ayars*, Huihui Zhang and Dong Wang
	3:30 PM	**Adjourn**

SESSION NO. 250—1:30 PM–3:30 PM

Marriott Tampa Waterside, Room 8 and 9

Symposium--Beyond Indicators and Tradeoffs: Translating Sustainable Intensification Assessments into Action

ASA Section: Environmental Quality

	1:30 PM	**Introductory Remarks**
250-1	1:35 PM	**Operationalizing Trade-Offs and Synergies in the Design of Alternative Farming Systems.** Santiago Lopez Ridaura*
250-2	1:55 PM	**Assessing the Performance of Sustainable Intensification Strategies to Achieve Multiple Development Goals.** Jerry Glover*
250-3	2:15 PM	**Scale Dependencies of Sustainable Intensification and the Use of Integrated Assessment Modelling.** Frank Ewert*
	2:35 PM	**Break**
250-4	2:50 PM	**Critical Issues in the Development of Sustainable Intensification Indicators.** Niamh Mahon*, Ian Crute, Eunice Simmons and Md. Mofakkarul Islam
250-5	3:10 PM	**Sustainable Intensification Indicators: How Can They be Used for Action?** Cheryl A. Palm*, Mark Musumba, Sieglinde S. Snapp and Philip Grabowski
	3:30 PM	**Adjourn**

SESSION NO. 251—1:30 PM–3:30 PM

Tampa Convention Center, Ballroom A, First Floor

Symposium--Growing Relationships: Biochar Connections to Global Sustainability of Soil, Food, Energy and Environment

ASA Section: Environmental Quality

Moderator: Gilbert Sigua, Jeffrey Novak

	1:30 PM	**Introductory Remarks**
251-1	1:35 PM	**Biochar As a Tool for Nitrogen Management: Increasing Benefits While Reducing Environmental Burdens.** Claudia Kammann*, Andreas Haller, Hans-Peter Schmidt, James A. Ippolito, Nicole Wrage-Moennig, Teresa Fuertes-Mendizábal, José Mª Estavillo, Nils Borchard, Maria Luz Cayuela, Kurt A. Spokas and Jeffrey M. Novak
251-2	2:00 PM	**Designing Biochars for *in Situ* Remediation of Metal Contaminated Mine Spoils.** Mark G. Johnson* and Jeffrey M. Novak
251-3	2:25 PM	**"Carbon Symbiosis" - a Concept Integrating Reforestation, Indoor Carbon Dioxide Control and Urban Farming.** Harn Wei Kua*
251-4	2:50 PM	**Global Biochar Research Activities and Future Research Priorities.** Nils Borchard*
	3:15 PM	**Community Planning Session**
	3:30 PM	**Adjourn**

SESSION NO. 252—1:30 PM–3:30 PM

Tampa Convention Center, Room 19, First Floor

Symposium--Cover Crops and Forage Utilization in Integrated Crop-Livestock Systems III

ASA Section: Land Management and Conservation

Section or Division Cosponsor: C06 Forage and Grazinglands, C03 Crop Ecology, Management and Quality

Moderator: Jay Norton

	1:30 PM	**Introductory Remarks**
252-1	1:35 PM	**Cover Crop Cocktails As Forage Source for Livestock.** Jaymelynn Farney*
252-2	2:00 PM	**Adopting Cover Crops for Soil Health and Grazing in Irrigated Cropping Systems of Southern Idaho.** Joel Packham* and Steven Hines
252-3	2:25 PM	**Grazing Cover Crops in Southeastern US Cropping Systems.** Alan J. Franzluebbers*
252-4	2:50 PM	**Does Grazing or Harvesting of Cover Crops Affect Soils and Crop Production? Assessment in Different Soil Types and Management Scenarios.** Humberto Blanco*, Mary E. Drewnoski, Chuck Burr, Gary Lesoing, Tyler Williams, Daren D. Redfearn and Jay Parsons
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 253—1:30 PM–3:30 PM

Tampa Convention Center, Room 22

Symposium--Root Physiology: Integration of Molecular Biology to Functional Traits

C02 Crop Physiology and Metabolism

Section or Division Cosponsor: C07 Genomics, Molecular Genetics and Biotechnology, C06 Forage and Grazinglands

Moderator: Louise Comas

	1:30 PM	**Introductory Remarks**
253-1	1:35 PM	**Understanding Differences in Alfalfa Root Systems and Their Importance for Abiotic Stress Tolerance.** Maria J. Monteros*, Silvas Prince, M. Rokebul Anower, Nadim Tayeh, Deborah Samac, Elison Blancaflor, Christy M. Motes and Timothy Hernandez
253-2	2:00 PM	**The Influence of Rhizosphere Nitrogen Form and Rising Atmospheric CO2 on the Balance between Root and Shoot Processes.** Arnold Bloom*
253-3	2:25 PM	**Role of the Transcription Factor Nin-like Protein 7 (NLP7) in Root Development and Stress Responses.** Rucha Karve, Frank Suarez-Roman and Anjali S. Iyer-Pascuzzi*
253-4	2:50 PM	**Root Exudates Are a Functional Trait That Influence Root Microbiome Interactions.** Daniel Schachtman* and Peng Wang
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 254—1:30 PM–3:30 PM

Marriott Tampa Waterside, Grand Ballroom B

Turf Pest Management: Insects and Diseases

C05 Turfgrass Science

	1:30 PM	**Introductory Remarks**
254-1	1:35 PM	**A Nonsynonymous Substitution in the Iron-Sulfur Protein Subunit of Succinate Dehydrogenase (SdhB) Confers Sdhi Fungicide Resistance to Sclerotinia Homoeocarpa Field Isolates.** James T. Popko Jr., Hyunkyu Sang, Toshihiko Yamada and Geunhwa Jung*
254-2	1:50 PM	**Incorporating Organic Tools in Conventional Management Systems for Golf Course Fairways in the Mid-Atlantic.** Cody Beckley* and Joseph Roberts
254-3	2:05 PM	**Influence of Management Practices on Distribution of Fungicides in Golf Course Turf.** Ling Ou* and Richard Latin
	2:35 PM	**Break**
254-4	2:45 PM	**Expanding Uses for Kabuto™(isofetamid) in the Turfgrass Industry.** Brian Alexander Aynardi*, Jeffrey W Marvin and Alan Estes
254-5	3:00 PM	**Plants Diseases of Traditional Chinese medicines：20 Years of Progress in Research on Understanding and Management.**
254-6	3:15 PM	**Awareness, Support, and Impact of Hri.** Jill Calabro*
	3:30 PM	**Adjourn**

SESSION NO. 255—1:30 PM–3:30 PM

Tampa Convention Center, Room 18, First Floor

CrossDiv--Symposium--Agroforestry for Sustainable Resource Management and Food Security

SSSA Cross-Divisional Symposium

Section or Division Cosponsor: SSSA Division: Soil and Water Management and Conservation, SSSA Division: Soil Biology and Biochemistry, SSSA Division: Soils and Environmental Quality

	1:30 PM	**Introductory Remarks**
255-1	1:35 PM	**Agroforestry for Farm Diversification and Ecosystem Services in Temperate North America.** Shibu Jose*
255-2	2:00 PM	**Agroforestry for Carbon Sequestration and Climate Change Mitigation.** Ramachandran P.K. Nair*
255-3	2:25 PM	**Water Quality and Quantity: How Agroforestry Can Help?** Ranjith P. Udawatta*
255-4	2:50 PM	**Can Agriculture Achieve Emissions Neutrality By 2050 through Agroforestry?** Dennis Garrity*
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 256—1:30 PM–3:30 PM

Tampa Convention Center, Room 10, First Floor

Symposium--Microbial Controls on Soil Carbon and Nutrient Ecological Flows in Terrestrial Ecosystems

SSSA Division: Soil Biology and Biochemistry

Moderator: Kristin Trippe

	1:30 PM	**Introductory Remarks**
256-1	1:35 PM	**New Paradigms of Nitrogen Mineralization and Availability.** Stuart Stuart Grandy*
256-2	2:00 PM	**Through the Eye of the Needle: Microbial Processing of Carbon in Soils in Response to Drought and Rewetting.** Vanessa L. Bailey*, Lisa Bramer, Sarah J. Fansler, Taniya Roy Chowdhury, A. Peyton Smith, Malak Tfaily, Katherine Todd-Brown and Ben Bond-Lamberty
256-3	2:25 PM	**How Can Soil Biotic Interactions Influence Biogeochemically Relevant Microbial Trait Emergence Under Agricultural Management?** Cynthia M. Kallenbach*
256-4	2:50 PM	**Integrated Management, Underexplored Microbial Metabolisms, and Nutrient Flow in Soils.** Mary Ann V. Bruns* and Mara Cloutier
	3:15 PM	**Discussion**
	3:30 PM	**Adjourn**

SESSION NO. 257—1:30 PM–3:30 PM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Symposium--Celebrating the Impactful Career of Dr. E.J. Kamprath

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: James Camberato

	1:30 PM	**Introductory Remarks**
257-1	1:35 PM	**Eugene J. Kamprath - an Introduction to the Man and His Career.** James Camberato*
257-2	1:45 PM	**Soil Acidity and Liming: The Kamprath Approach.** David B. Mengel*
257-3	2:10 PM	**Soil Phosphorus Availability: Dr. Kamprath's Impact and Legacy.** Andrew N. Sharpley*
257-4	2:35 PM	**Nitrogen Use Efficiency Analysis from Soil Fertility, Breeding and Physiology Perspectives.** William L Pan*, Tai McClellan Maaz and James Camberato
257-5	3:00 PM	**Leadership and Mentoring: Dr. Eugene Kamprath's Legacy on Generations of Soil Scientists.** Michael G Wagger*
	3:25 PM	**Concluding Remarks**
	3:30 PM	**Adjourn**

SESSION NO. 258—1:30 PM–3:35 PM

Tampa Convention Center, Room 14, First Floor

Symposium--Long-Term Agro-Ecosystem Research (LTAR)

ASA Section: Agronomic Production Systems

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

	1:30 PM	**Introductory Remarks**
258-1	1:33 PM	**Challenges, Opportunities and Themes of Sustainability across Ltar's 18 US Sites.** Peter J. A. Kleinman*
258-2	1:45 PM	**The LTAR Common Experiment: Vision, Framework and Status.** Mark A. Liebig*
258-3	1:57 PM	**A Conceptual Model of Agroecosystem Function As a Basis for Synthesis.** Brandon Bestelmeyer*, Sheri Spiegal, Timothy Strickland, Hilary Swain, Raoul Boughton and Elizabeth H Boughton
258-4	2:09 PM	**Sustainable Intensification of U.S. Agriculture: Aspirations, Barriers, and the Role of the Ltar Network.** Sheri Spiegal* and Brandon Bestelmeyer
	2:21 PM	**Question and Answer 1**
258-5	2:26 PM	**Carbon and Nutrient Budgets of the Long-Term Agroecosystem Research (LTAR) Network.** David R. Huggins* and Tabitha T. Brown
258-6	2:36 PM	**Addressing Biological Linkages with the USDA Long-Term Agroecosystem Research Network.** Hilary Swain*, Elizabeth Boughton, Raoul Boughton and Maria Lucia A. Silveira
258-7	2:46 PM	**Hydrologic Budgets across the Long-Term Agroecosystems Research Network.** Claire Baffaut*, Erin Brooks, Fred Pierson, Eleonora Demaria, Dave Goodrich, Emile Elias, David Hoover, Mark A. Liebig, Daniel Moriasi, Daren Harmel, Douglas R Smith, Jane Okalebo, Thomas B. Moorman, lindsey Yasarer, Stephen Hamilton, David Bosch, Kevin King, Amartya Saha, Anthony R. Buda and Gregory W. McCarty
258-8	2:56 PM	**Regional and National Agroecosystem Ltar Climate Representativeness.** Phil Heilman*
	3:06 PM	**Question and Answer 2**
258-9	3:11 PM	**Enabling Sustainability through a Transdisciplinary G x E x M Approach.** Charles Walthall*
	3:23 PM	**Reception**
	3:35 PM	**Adjourn**

SESSION NO. 259—1:30 PM–3:35 PM

Marriott Tampa Waterside, Grand Ballroom D

Partnerships with Private and Public Entities

ASA Section: Education and Extension

Moderator: Candace Schaible

	1:30 PM	**Introductory Remarks**
259-1	1:35 PM	**Opportunities and Challenges of Interacting with Industry Partners.** Allan Fritz*
259-2	1:50 PM	**Including Private and Public Partners to Improve Impact and Further the University's Soil Health Message.** Jodi DeJong-Hughes*
259-3	2:05 PM	**Using Innovative Outreach and Producer Testimony to Reach Colorado Farmers and Ranchers on Nutrient Management Practices.** Troy A. Bauder*, Erik Wardle, Christie Bode, Diane De Jong and MaryLou Smith
259-4	2:20 PM	**Lessons Learned from University of Nebraska-Lincoln - Monsanto Company Collaboration on Research and Extension Programs.** Charles Burr*, Brian L. Olson, Mark Edward Reiman, Greg Kruger, Tim M. Shaver, Daran R. Rudnick, Rodrigo Werle and Humberto Blanco
	2:35 PM	**Community Planning Session**
259-5	2:50 PM	**Cover Crop Road Show: A Strategy to Facilitate Discussion on Cover Crop Use in Southwest Kansas.** Anserd J. Foster*, Andrea Burns, DeWayne Craighead, Marty Gleason, Kurt Werth, Jenni Carr, Mark Ploger, Katelyn Barthol and Dale Younker
259-6	3:05 PM	**Advancing Agronomy in Canal Irrigated Areas through Participatory Water Resources Development and Management.** Krishna Gopal Mandal*, Rajeeb Kumar Mohanty and Sunil Kumar Ambast
259-7	3:20 PM	**Noco Bloom: A County, City and University Partnership Provides Horticultural Information to Home Gardeners.** Alison O'Connor, Michelle Provaznik, Korrie Johnston and Anthony J. Koski*
	3:35 PM	**Adjourn**

SESSION NO. 260—1:30 PM–3:35 PM

Tampa Convention Center, Room 11, First Floor

Symposium--the Bridge from Biofortification to Bioavailability

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

Section or Division Cosponsor: C01 Crop Breeding and Genetics, C04 Seed Physiology, Production and Technology

Moderator: Mary Guttieri

	1:30 PM	**Introductory Remarks**
260-1	1:35 PM	**Challenges and Techniques for Measuring Iron Bioavailability in Foods.** Raymond P. Glahn*
260-2	1:55 PM	**Biofortification of Pea and Lentil.** Thomas D. Warkentin*, Albert Vandenberg and Raymond P. Glahn
260-3	2:15 PM	**Iron Biofortification of Beans Coupled with Fast Cooking Traits.** Karen A. Cichy*
260-4	2:35 PM	**Biofortified Sweet Potato and Maize.** Sherry Tanumihardjo*
260-5	2:55 PM	**Mineral Bioavailability in Low Phytic Acid Wheat (Triticum aestivum L.).** Jorge Patricio Venegas*, Robert A. Graybosch, Devin Rose and P. Stephen Baenziger
260-6	3:15 PM	**Innovative Approaches to Study Dietary Zinc Bioavailability, Absorption and Deficiency Status.** Elad Tako*
	3:35 PM	**Adjourn**

SESSION NO. 261—1:30 PM–3:35 PM

Tampa Convention Center, Room 20, First Floor

Symposium--New Insights on Biogeochemical Processes in Terrestrial Ecosystems As Revealed By Isotopic and Biomarker Approaches II

SSSA Division: Forest, Range and Wildland Soils

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

	1:30 PM	**Introductory Remarks**
261-1	1:35 PM	**The Interacting Controls of Pyrolysis Temperature and Plant Taxa on the Reactivity of Pyrogenic Organic Matter and Its Influence on Soil Carbon in a Northern Michigan Forest Soil.** Timothy Filley*, Christy Gibson and Jeff Bird
261-2	2:00 PM	**Using Biomarker Approaches to Predict the Chemical Attributes of Organic Matter That Facilitates Soil Carbon Sequestration.** Vidya Suseela* and Nishanth Tharayil
	2:25 PM	**Break**
261-3	2:35 PM	**From Isotopes and Biomarkers to Metabolic Flux Tracing: New Insights into Soil C and Nutrient Cycles.** Sandra Spielvogel*, Michaela Anna Dippold, Jennifer Herschbach, Carolin Apostel, Thomas Zilla, Joerg Prietzel, Georg Guggenberger, Ingrid Koegel-Knabner and Yakov Kuzyakov
261-4	3:00 PM	**Boreal Under Pressure- Vegetation Shifts and Soil Carbon Response.** Sylvie A. Quideau*
	3:25 PM	**Discussion**
	3:35 PM	**Adjourn**

SESSION NO. 262—1:30 PM–3:35 PM

Tampa Convention Center, Room 15, First Floor

Symposium--Societal Challenges and Soil Chemistry

SSSA Division: Soil Chemistry

	1:30 PM	**Introductory Remarks**
262-1	1:35 PM	**Soil and 21st Century Societal Challenges.** Ronald G. Amundson*
262-2	2:05 PM	**Unconventional Oil and Gas Development: Implications for Soil and Water Quality.** Thomas Borch*, Molly C McLaughlin and Jens Blotevogel
262-3	2:35 PM	**Soil Processes As Solutions and Threats to Sustaining Groundwater Quality.** Scott Fendorf*
262-4	3:05 PM	**Science, Language and Society: The Case of the "Humic Substances".** Markus Kleber* and Johannes Lehmann
	3:35 PM	**Adjourn**

SESSION NO. 263—1:30 PM–3:35 PM

Tampa Convention Center, Room 2

Symposium--Soils, Minerals and Landscapes of the Gulf Coast

SSSA Division: Soil Mineralogy

Section or Division Cosponsor: SSSA Division: Pedology, SSSA Division: Wetland Soils

Moderator: Craig Rasmussen

	1:30 PM	**Introductory Remarks**
263-1	1:35 PM	**The Soils of Texas.** David C. Weindorf* and Jim Attebury
263-2	2:05 PM	**Soil Hydrology of Texas Vertisols and Claypans.** Cristine L. S. Morgan*
263-3	2:35 PM	**Mineralogical and Geomorphological Relationships of Select Alabama Coastal Plain Soils.** Joey N. Shaw* and Ben F. Hajek
263-4	3:05 PM	**Multiple Faces of Podzolization on the Coastal Plain of the Southeastern United States.** Willie Harris*, Allan Roy Bacon, Yaslin Gonzalez, Todd Z. Osborne and Rex Ellis
	3:35 PM	**Adjourn**

SESSION NO. 264—1:30 PM–3:35 PM

Tampa Convention Center, Room 6

Symposium--Biogeochemistry of Natural and Engineered Nanoparticles in the Environment II

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Chemistry

Moderator: Zhenli He, Jalal Jabro

	1:30 PM	**Introductory Remarks**

264-1	1:35 PM	**Effects of Nanomaterials on Soil Microbial Communities, Plant-Rhizobia Symbiosis, and Mycorrhizal Colonization of Plant Roots in Biosolid-Amended Soil.** Jonathan Judy*
264-2	2:05 PM	**Heteroaggregation of Graphene Oxide with Minerals in Aqueous Phase.** Jian Zhao and Baoshan Xing*
264-3	2:35 PM	**Fate and Transport of Graphene Oxides in Porous Media: Important Role of Temperature.** Bin Gao* and Mei Wang
264-4	3:05 PM	**Nano-Delivery Systems for Enhancing Use Efficiency of Pesticides and Fertilizers.** Xiaoping Xin and Zhenli He*
	3:35 PM	**Adjourn**

SESSION NO. 265—1:30 PM–3:35 PM

Tampa Convention Center, Room 32

Symposium--Pb in Urban Soils

SSSA Division: Urban and Anthropogenic Soils

Section or Division Cosponsor: SSSA Division: Soil Chemistry

Moderator: Gregory Evanylo

265-1	1:30 PM	**Introduction to "Pb in Urban Soils".** Gregory Evanylo*
265-2	1:35 PM	**Pb Sources and Chemistry in the Urban Environment.** Jeffrey Howard*
265-3	1:55 PM	**Testing and Interpreting Soil Pb Concentration and Bioavailability.** Nicholas T. Basta*, Kristen Kathleen Theibert, John Obrycki and Kirk G Scheckel
265-4	2:15 PM	**Considerations in Remediating Urban Soil Pb.** Kirk G. Scheckel*
265-5	2:35 PM	**Food Safety in Pb-Enriched Garden Soils.** Ganga M. Hettiarachchi*, Chammi P. Attanayake, Phillip P. Defoe, Sabine Martin and Gary M. Pierzynski
265-6	2:55 PM	**Lead in Urban Soils: Studies on Mitigating Health Risks.** Zhongqi Cheng*, Sara Perl Egendorf and Anna Paltseva
265-7	3:15 PM	**Community-University Partnerships to Address Legacy Soil Lead and Advance Urban Gardening.** Kirsten Schwarz*, Jonathan K. London, Bethany B. Cutts and Mary Cadenasso
	3:35 PM	**Adjourn**

SESSION NO. 266—1:30 PM–3:50 PM

Tampa Convention Center, Room 23

Genomics, Molecular Biology and Biotechnology

C07 Genomics, Molecular Genetics and Biotechnology

	1:30 PM	**Introductory Remarks**
266-1	1:35 PM	**Dissecting Genetic and Molecular Mechanisms of Nodulation in Cultivated Peanut (Arachis hypogaea. L).** James Maku*, Ze Peng, Hai Zhou and Jianping Wang
266-2	1:50 PM	**Dissecting Gene Network Underlying Essential Micronutrients like Iron, Zinc and Toxic Elements like Cadmium to Improve Wheat Nutritional Quality for Human Health.** Ajay Kumar*, Elias M. Elias and Mohamed Mergoum
266-3	2:05 PM	**Rapid Identification of Causal Gene Mutations through Sequencing Bulked F2 Derived from Independent Alleles.** Yinping Jiao, Nicholas Gladman, Gloria B. Burow, Chad Hayes, John J. Burke, Junping Chen, Doreen Ware and Zhanguo Xin*
266-4	2:20 PM	**A Novel Gamma-Glutamyl Cycle and Its Role in Mediating Oxidative Stress and Glutamate Recycling Via Maintaining Glutathione Homeostasis.** Om Parkash Dhankher*, Bibin Paulose and Sudesh Chhikara
	2:35 PM	**Break**
266-5	2:50 PM	**Night-Break Experiments Shed Light on *PHOTOPERIOD1*-Mediated Flowering in Wheat.** Stephen Pearce*, Lindsay Shaw, Huiqiong Lin, Jennifer Cotter, Chengxia Li and Jorge Dubcovsky
266-6	3:05 PM	**Constructing Eleusine Transcriptome References for Determination African Finger Millet (Eleusine coracana) Parentage.** Hui Zhang*, Nathan Hall, Leslie R Goertzen, Charles Yiwu Chen, Eric Peatman and J. Scott McElroy
266-7	3:20 PM	**Transcriptome Analysis and Differential Expression of Tall Fescue Harboring Different Endophyte Strains Response to Water Deficit.** Randy D. Dinkins*, Padmaja Nagabhyru and Christopher Schardl
266-8	3:35 PM	**Proteomic Profiling of Barley during Various Stages of Malting.** Ramamurthy Mahalingam*
	3:50 PM	**Adjourn**

SESSION NO. 267—1:30 PM–4:15 PM

Marriott Tampa Waterside, Florida Salon I-III, Second Level

Turf Physiology, Breeding and Genetics

C05 Turfgrass Science

Moderator: Michelle DaCosta

	1:30 PM	**Introductory Remarks**
267-1	1:35 PM	**Proteomic Analysis of Cold Acclimation in Zoysiagrass.** Helen McCamy Pruitt, Rachael Bernstein, Jefferson Lu, Michelle DaCosta, Tan D. Tuong, Consuelo Arellano, David P. Livingston and Susana R. Milla-Lewis*
267-2	1:50 PM	**Cold-Regulated Genes Associated with Differential Freezing Tolerance in Perennial Ryegrass.** Rachael Bernstein*, Evan Rees, Michelle DaCosta, Geunhwa Jung and Jeffery Scott Ebdon
267-3	2:05 PM	**A New Java Program to Rapidly Quantify Several Turfgrass Parameters from Digital Images.** Douglas E. Karcher*, Carlin J. Purcell, Michael D. Richardson and Larry C. Purcell
267-4	2:20 PM	**Growth Responses of Sacaton Grass (Sporobolus airoides Torr.) and Seashore Paspalum (Paspalum Vaginatum Swartz) Under Prolonged Drought Stress Condition.** Mohammad Pessarakli* and David M. Kopec
267-5	2:35 PM	**Effects of Drought Stress on Shaded and Non-Shaded Bermudagrass.** Manoj Chhetri* and Charles Henry Fontanier
	2:50 PM	**Break**
267-6	3:00 PM	**Nitrogen Effect on Fine Fescue Fiber and Protein Contents.** Hui Chen* and James A. Murphy
267-7	3:15 PM	**Effects of Elevated Atmospheric Carbon Dioxide on Drought Tolerance and Post-Drought Recovery of Kentucky Bluegrass.** Cathryn Chapman*, Patrick Burgess and Bingru Huang

267-8	3:30 PM	**Overexpression of Rice microRNA319 Improves Thermotolerance of Perennial Ryegrass.** Kehua Wang*, Xiaoxia Dai, Tianran Shi, Jinli Tian and Wanjun Zhang
267-9	3:45 PM	**SSR Allelic Diversity of Bermudagrass (CYNODON SPP.) Cultivars Released from 1936 to 2016.** Kelly Anne Moore, William Casey Reynolds, Yanqi Wu, Brian M. Schwartz, Kevin E. Kenworthy and Susana R. Milla-Lewis*
267-10	4:00 PM	**Changes of Leaf Membrane Fatty Acid Composition and Saturation Level of Warm-Season Turfgrass during Drought.** Jing Zhang*, Kevin E. Kenworthy, J. Bryan Unruh, John Erickson and Greg E. MacDonald
	4:15 PM	**Adjourn**

SESSION NO. 268—1:30 PM–4:20 PM

Tampa Convention Center, Room 1, First Floor

Plant Genetic Resources General Oral

C08 Plant Genetic Resources

Moderator: Clarice Coyne

	1:30 PM	**Introductory Remarks**
268-1	1:35 PM	**Leasyscan - a Novel Semi-Field Platform to Phenotype Traits Controlling Plant Water Budget.** Paul McMahon*, Vincent Vadez, Jana Kholova, Grégoire Hummel, Uladzimir Zhokhavets, S.K. Gupta and Charles Hash
268-2	1:50 PM	**Screening Maize Tropical-Derived Lines and NAM Founders for Gametophytic Alleles: Risk Assessment and New Opportunities.** Zachary Jones* and Major Goodman
268-3	2:05 PM	**Evaluation of Winter Wheat Germplasm of Diverse Genetic Background for Heat Tolerance in Central Asia.** Ram C. Sharma*, Diyor Juraev, Amir Amanov, Oybek Amanov, Shukhrat Amanov, Tadesse Walettaw, Miguel Sanchez-Garcia, Alexey Morgounov, Mesut Keser and Michael Baum
268-4	2:20 PM	**Variability in 2980 Chickpea Accessions for Agronomic and Nutritional Traits and Identifying Multitrait Germplasm through Multienvironment Evaluation.** Hari D. Upadhyaya*
268-5	2:35 PM	**Association Mapping of SSR Markers to Sweet, Bitter and Roasted Peanut Sensory Attributes in Cultivated Peanut.** Tao Jiang, Lisa Dean, Yueyi Tang, Phat Dang, Ming Li Wang, Guohao He, Marshall Lamb, C. Corley Holbrook, Peggy Ozias-Akins and Charles Yiwu Chen*
	2:50 PM	**Break**
268-6	3:05 PM	**Genetic Control and Eco-Geographic Adaption of Pod Dehiscence during Soybean Domestication.** Jiaoping Zhang* and Asheesh K. Singh
268-7	3:20 PM	**Morpho-Physiological and Yield Variability Assessment Among indica Rice Lines.** Naqeebullah Naqeebullah*, Edilberto Redoña and K Raja Reddy
268-8	3:35 PM	**Farmer-Driven Approach to Sorghum Improvement in Burkina Faso.** Soutonnoma Zara Nikiema*, Morakinyo Abiodun Fakorede, Vernon Gracen, S K Offei and Bernard Pangirayi Tongoona
268-9	3:50 PM	**Crop Wild Relatives of Sunflower As a Genetic Resource for Resistance to Sunflower Broomrape.** Gerald J. Seiler*
268-10	4:05 PM	**Open-Pollinated and Hybrid Maize Varieties for the Rainforest Agroecology of Southwest Nigeria.** Adeyoola Omolara Ayanniyi and Morakinyo Abiodun Fakorede*
	4:20 PM	**Adjourn**

SESSION NO. 269—1:30 PM–4:30 PM

Tampa Convention Center, Room 8

Development of Tools for Precision Agriculture II

ASA Section: Agronomic Production Systems

Moderator: Antonio Asebedo, Lakesh Sharma

	1:30 PM	**Introductory Remarks**
269-1	1:35 PM	**Smart Farming Technologies for Profitability and Sustainability.** Frits K. Van Evert*, Spyros Fountas, Thanos Balafoutis, Pieter Blok, Chris van Dijk, Sandra Wolters, Sakura Tomita, Sasa Marjanovic, Milica Trajkovic, Samy Aït-Amar, Marcos Apesteguía, Klaus Erdle, Harm Brinks, Beatriz Arribas, Ulrich Adam, Stephane Volant and David Tinker
269-2	1:50 PM	**Remote Sensing and Apparent Electrical Conductivity to Characterize Soil Water Content.** Alfonso deLAra, Raj Khosla* and Louis Longchamps
269-3	2:05 PM	**Developing Irrigation Zones from a Field Scale Crop Water Productivity Map.** Jeffrey D. Svedin*, Ruth Kerry, Neil C. Hansen and Bryan G. Hopkins
269-4	2:20 PM	**Minimum Data Reporting Requirements for Field-Scale, Replicated Strip Trials.** John McGuire*, Thomas F. Morris, Alison J Eagle and Karen Chapman
269-5	2:35 PM	**Big-Data to Understand Spatial and Temporal Patterns of Crop Yields.** Bruno Basso*, Bernardo Maestrini and Ruben Ulbrich
	2:50 PM	**Break**
269-6	3:00 PM	**Application of Unmanned Aerial Systems for Precision Weed Detection and Management.** Muthukumar Bagavathiannan*, Vijay Singh, Aman Rana, Michael Bishop, Dale Cope and Sorin Popescu
269-7	3:15 PM	**Early Prediction and Mapping of Yield in an Orchard Using Color and Shape Features of Apple Fruit.** Rong Zhou*, Lutz Damerow and Michael Blanke
269-8	3:30 PM	**Relationship of Red and Red-Edge Reflectance-Based Vegetation Indices with Stalk and Fiber Yield of Energy Cane Harvested at Different Dates.** Marilyn Dalen*, Samuel Kwakye, Daniel Forestieri, Murilo Martins and Brenda Tubana
269-9	3:45 PM	**Delineation of Soil Management Zones: Comparison of Two Proximal Soil Sensor Systems.** Athyna N. Cambouris*, Felipe Vargas, Isabelle Perron, Bernie Zebarth, Karem Chokmani, Viacheslav Adamchuk and Asim Biswas
269-10	4:00 PM	**From Handheld to in-Ground to on-the-Go: Innovative Application of Sensors in the Field.** Calden Carroll*
269-11	4:15 PM	**'Agbot' Ground Robot That Can Take Pictures and Spray in the Peach Orchard.** Bipul Biswas*, Anthony Choi, Nathan Burnham, Spencer Penley, Nabin Sedhain, Ankush Sangra, Zimri Blake and Wayne Whitehead
	4:30 PM	**Adjourn**

SESSION NO. 270—1:30 PM–4:30 PM

Tampa Convention Center, Room 3, First Floor

Soil Health for Agroecosystems Oral

ASA Section: Land Management and Conservation

Moderator: Michael Lehman

1:30 PM **Introductory Remarks**

270-1 1:30 PM **Soil Health-15 Year Review of USDA OREI/ ORG Research.** Diana Jerkins*

270-2 1:45 PM **Basal Soil CO_2 Respiration during an Organic Cropping Season.** William F. Brinton* Jr., Jeremiah Vallotton, Mark Hutton and Mark L. Hutchinson

270-3 2:00 PM **Long-Term Tillage Effects on Soil Health.** Rafiq Islam, Vinayak S. Shedekar*, Natalia Didenko, Raut Yogendra and Botir Khaitove

270-4 2:15 PM **The Albrecht System: A Case for Soil Health?** Timothy M. Reinbott*

270-5 2:30 PM **Evaluating Soil Health at the Lethbridge Long-Term Manure Plots.** Ben W. Thomas*, Xiying Hao, Jessica Stoeckli, Kui Liu, Courtney Soden and Katelyn Lutes

270-6 2:45 PM **Comparison of Highly Managed Winter Wheat Soils to Improved and Tallgrass Prairie Pastures on Soil Microbial Community Structure Using PLFA.** Brekke Peterson* and Jean L. Steiner

270-7 3:00 PM **Temporal and Cropping System Effects on Labile Carbon and Nitrogen Pools in Agroecosystems.** Kalyn Diederich*, Kavya Krishnan, Erin Silva and Matthew D. Ruark

3:15 PM **Break**

270-8 3:30 PM **Assessment of Soil Quality Under Different Farming Conditions in Subtropical United States.** Eric Cantu*, Pushpa Soti and Alexis Racelis

270-9 3:45 PM **Does High Soil Nitrate and Potassium Availability Drive Plant Metabolic Processes Towards Maximizing Growth at the Expense of Drought Tolerance?** Harris Ivens* and Paul Grogan

270-10 4:00 PM **Soil Quality Associated with Biofuel Crop Management.** Manjula V. Nathan*, Robert J. Kremer, Timothy M. Reinbott and Kelly A. Nelson

270-11 4:15 PM **Midwest Regional Hydrology Impacts of Improved Crop and Soil Management.** Andrea Diane Basche*, Lorraine Flint, Alan L. Flint and Marcia DeLonge

4:30 PM **Adjourn**

SESSION NO. 271—1:30 PM–4:30 PM

Marriott Tampa Waterside, Florida Salon IV, Second Level

Turf Weed Management and Plant Growth Regulators (includes student competition)

C05 Turfgrass Science

Moderator: J. Scott McElroy

1:30 PM **Introductory Remarks**

271-1 1:35 PM **Developing a Growing Degree Day Model for Trinexapac-Ethyl Applications on Miniverde Bermudagrass Putting Greens.** Austin Brown*, Jim Harris, Adam Boyd, Clebson Gomes Goncalves and J. Scott McElroy

271-2 1:50 PM **Annual Bluegrass Control Via Fraze Mowing.** James T Brosnan*, Gregory K Breeden, Aaron J. Patton and Quincy Daker Law

271-3 2:05 PM **Innovative Approaches to Goosegrass (*Eleusine indica* (L.) Gaertn.) Control and Turfgrass Safety.** Bobby Kerr*, Lambert B. McCarty, Matthew Cutulle, Nathaniel Gambrell, William Bridges and Christopher Saski

271-4 2:20 PM **Growing Degree Day Models for Plant Growth Regulators Applied to Creeping Bentgrass and Kentucky Bluegrass.** Benjamin Henke*, Douglas J. Soldat, Ph.D. and William Collin Kreuser

271-5 2:35 PM **Impacts of Environmental and Management Factors on Gibberellin Production in Turfgrass.** Jacob Fuehrer* and William Collin Kreuser

2:50 PM **Break**

271-6 3:00 PM **Effect of Plant Growth Regulators on *Agrostis Stolonifera* Growth during Combined Heat and Salt Stress.** Arly M Drake* and David S. Gardner

271-7 3:15 PM **Chemical Control Options for Juncus Species in Maintained Turfgrass.** Zachary Small*, James D. McCurdy, James T Brosnan, Gregory K Breeden and Michael Richard

271-8 3:30 PM **Preemergence Herbicide Effects upon Hybrid Bermudagrass Sprigged Establishment.** Erick Begitschke*, James D. McCurdy, Te Ming (Paul) Tseng, Casey Barickman, Barry Stewart, Christian M. Baldwin, Michael Richard, Maria Tomaso-Peterson and Jason Ward

271-9 3:45 PM **Strategies for Increased Yellow Nutsedge (Cyperus esculentus L.) Control with Halosulfuron and Sulfentrazone.** Luqi Li*, Matt Sousek, Zachary A Reicher and Roch E. Gaussoin

271-10 4:00 PM **Phytotoxicity Evaluation of Poacure(Methiozolin) on Different Fine Fescue Species.** Henry Yuanshuo Qu*, Stacy A. Bonos and William Meyer

271-11 4:15 PM **Application Timing Affects Tolerance of Zoysiagrass Toward Fluazifop and Safening Effect of Triclopyr.** Wenwen Liu*, Greg E. MacDonald, J. Bryan Unruh, Kevin E. Kenworthy, Laurie E. Trenholm and Ramon G Leon

4:30 PM **Adjourn**

SESSION NO. 272—1:30 PM–4:40 PM

Tampa Convention Center, Room 7, First Floor

Alternative Cropping Systems and Soil Health

ASA Section: Agronomic Production Systems

Section or Division Cosponsor: ASA Section: Land Management and Conservation

1:30 PM **Introductory Remarks**

272-1 1:35 PM **The Solar Corridor - a Crop System for Improving Soil Health and Sustsinability.** Charles LeRoy Deichman*, Robert J. Kremer, Timothy M. Reinbott and Kristen S. Veum

272-2	1:50 PM	**The Solar Corridor Cropping System for Efficient Grain Production and Improved Soil Quality on Claypan Soils.** Robert J. Kremer*, Charles LeRoy Deichman, Timothy M. Reinbott and Kristen Sloan Veum
272-3	2:05 PM	**Multifunctional Perennial Cropping Systems: Design and Implementation in Central Illinois.** Erik Christian Stanek* and Sarah Taylor Lovell
272-4	2:20 PM	**The Solar Corridor Crop System - a Logical Attempt to Maximize Solar Radiation Efficiency.** Charles LeRoy Deichman*, Robert J. Kremer and Timothy M. Reinbott
	2:50 PM	**Community Planning Session**
272-5	3:05 PM	**Soil Health Indicators during Transition from ROW CROPS to Grass/Legume SOD.** Eugenia M. Pena-Yewtukhiw*, Emily Leslie Romano, Nicole Waterland Waterland and John H. Grove
272-6	3:20 PM	**Effects of Maize-Forage Legumes Intercropping on ACTIVE Carbon Dynamics and Maize YIELD in Southern Malawi.** Stanlee Juma* and Ray R. Weil
272-7	3:35 PM	**Development of Mu's Soil Health Website: Providing Regional Data for Realistic Goals.** Ray Wright* and Timothy M. Reinbott
272-8	3:50 PM	**Intensifying Production in the Northern Corn Belt By Incorporating Cash Cover Crops.** Heather L Dose*, Russell W. Gesch, Frank Forcella, Kyle Aasand, Burton L. Johnson, Nicholas Steffl, M. Scott Wells, Swetabh Patel, Andrew W. Lenssen and Marisol T. Berti
272-9	4:05 PM	**Long-Term Productivity in Traditional, Organic and Low-Input Management Systems of the Upper Midwest.** Sharon L Lachnicht Weyers*, David W. Archer, Jane M-F Johnson, Russell W. Gesch and Frank Forcella
	4:20 PM	**Discussion**
	4:35 PM	**Concluding Remarks**
	4:40 PM	**Adjourn**

SESSION NO. 273—2:00 PM–4:30 PM

Tampa Convention Center, Ballroom D

Special Session--Women in Science Workshop: Connecting Mindfulness and Work-Life Balance

Sponsored by Bio Huma Netics and Monsanto

Special Sessions

Moderator: Rita Abi-Ghanem

SESSION NO. 274—2:00 PM–4:00 PM

Tampa Convention Center, Room 5, First Floor

Symposium--Double-Cropping Systems for Soybean

C03 Crop Ecology, Management and Quality

Moderator: David Holshouser

	2:00 PM	**Introductory Remarks**
274-1	2:05 PM	**Double Crop Soybean in the Southern Great Plains.** Douglas Edward Shoup*
274-2	2:30 PM	**Double Crop Soybean Production: A Mid-South Perspective.** William Jeremy Ross*
274-3	2:55 PM	**Double Crop Soybean in the North Central US.** Shaun Casteel*, Carrie A. Knott, Laura Lindsey, William J. Wiebold and Emerson D. Nafziger
274-4	3:20 PM	**Double Crop Soybean in the Mid-Atlantic.** David L. Holshouser*, E. James Dunphy, Robert Kratochvil, Rasel Parvej, Gregory W. Roth and Cory Whaley
	3:45 PM	**Question/Answer and Discussion**
	4:00 PM	**Adjourn**

SESSION NO. 275—2:00 PM–4:00 PM

Marriott Tampa Waterside, Room 3, Second Level

Symposium--Importance of Soil Health to Food Security: National and Global Security Concerns

SSSA Division: Soil and Water Management and Conservation

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

Moderator: Mahdi Al-Kaisi

	2:00 PM	**Introductory Remarks**
275-1	2:05 PM	**Soil Health and Sustainability through the Soil Health Partnership: Large Scale, Real-World, on-Farm Assessment and Education of Soil Health and Agrononmic Management Practices.** Nicholas J. Goeser*
275-2	2:25 PM	**Soil Health, Climate Variability, and Global Food Security.** Jerry L. Hatfield*, Ken Wacha and Christian Dold
275-3	2:45 PM	**Integrated System Approach (crops, livestock, and perennials) for Improving Soil Health and Food Provision.** John Hendrickson*, Mark A. Liebig, David W. Archer and Scott L. Kronberg
275-4	3:05 PM	**Development of Soil Health Metrics for Improving Soil Productivity and Food Security Challenges.** Harold van Es*, Aubrey Fine, Bianca Moebius-Clune and Robert Schindelbeck
275-5	3:25 PM	**Implications of Soil Health and Food Security.** C. Wayne Honeycutt*
	3:45 PM	**Discussion**
	4:00 PM	**Adjourn**

SESSION NO. 276—2:00 PM–4:05 PM

Marriott Tampa Waterside, Grand Ballroom C, Second Level

Symposium--New Ideas and Instruments in Pedology (includes student competition)

SSSA Division: Pedology

Moderator: Alfred Hartemink

	2:00 PM	**Introductory Remarks**
276-1	2:05 PM	**Digital Soil Morphometrics for Advancing Pedology.** Alfred E. Hartemink*
276-2	2:20 PM	**Soil Landscape Models and Big Data in the Context of Global Models – Training Challenges for the New Generation of Soil Scientists.** Philip J. Schoeneberger*, Doug Wysocki, Zamir Libahova and Phillip Owens

276-3	2:35 PM	**Assessing Soil Organic Carbon Content in the Peruvian Central Andes Using Visible Near Infrared (VNIR) and Mid Infrared (MIR) Spectroscopy.** Carla Gavilan*, Sabine Grunwald and Roberto Quiroz
276-4	2:50 PM	**Mixed-Effects Modeling for Soil Property Prediction Using Chemometric and Environmental Data.** Christopher M Clingensmith*, Sabine Grunwald and Suhas Wani
276-5	3:05 PM	**Fine Earth Aggregates and Aggregating Particles at the Calhoun Critical Zone Observatory.** Julio Cesar Pachon*, Allan Roy Bacon and Daniel deB. Richter
276-6	3:20 PM	**External Parameter Orthogonalization (EPO) for Soil Moisture Correction of Eastern European Visnir-DRS Data.** Bogdan Duda*, David C. Weindorf, Somsubhra Chakraborty, Cristine L. S. Morgan, Bin Li and Laura Paulette
276-7	3:35 PM	**Predicting Soil Health and Function from Remote-Sensed Evapotranspiration and Terrain Attributes in the Glaciated Plains of Eastern North Dakota.** Meyer Bohn*, David G. Hopkins, Caley Gasch, Dean D Steele and Sheldon Tuscherer
276-8	3:50 PM	**High Resolution Instruments for the Study of Soil Carbon in Sandy Soils.** Jenifer L. Yost* and Alfred E. Hartemink
	4:05 PM	**Adjourn**

SESSION NO. 277—2:00 PM–6:00 PM

Tampa Convention Center, Room 13, First Floor

William H. Patrick, Jr. Memorial Lectureship

SSSA Division: Wetland Soils

Moderator: Bruce Vasilas

	2:00 PM	**Introductory Remarks**
277-1	2:05 PM	**Wetlands and Human Health: Hydrology, Biogeochemistry, and West Nile Virus.** Graeme Lockaby*
	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. 278—2:30 PM–3:15 PM

Tampa Convention Center, Room 31, Third Floor

CSSA Business Meeting--Seed Physiology, Production and Technology

C04 Seed Physiology, Production and Technology

2:30 PM	**Introductory Remarks**
2:35 PM	**Division Business Meeting**
3:15 PM	**Adjourn**

SESSION NO. 279—2:45 PM–4:50 PM

Tampa Convention Center, Room 21, First Floor

Poster and 5 Minute Rapid--Soil Physics and Hydrology Division Student Competition, Part 1 - Lightning Orals

SSSA Division: Soil Physics and Hydrology

Moderator: Ryan Stewart, Ziru Liu

	2:45 PM	**Introductory Remarks**
279-1	2:50 PM	**Evaluation and Calibration of Empirical Methods to Estimate Reference Evapotranspiration in Northwest Texas.** Yassine Cherif*, Ripendra Awal and Ali Fares
279-2	2:55 PM	**Application of the Parswms Parallelized Code for Simulation of Three-Dimensional Water Flow and Solute Transport in Containerized Soilless Substrates.** Mohammad R Gohardoust*, Horst Hardelauf, Asher Bar-Tal, Hadar Heller, Michal Amichai and Markus Tuller
279-3	3:00 PM	**Effects of Wildfire on Soil Hydrophobicity Persistence in Humid Hardwood Forests.** Jingjing Chen* and Ryan Stewart
279-4	3:05 PM	**Measuring Soil Moisture in Skeletal Soils Using a Cosmos Rover.** Candice Medina*, Haly L. Neely, Darin Desilets, Binayak P. Mohanty and Georgianne W. Moore
279-5	3:10 PM	**Improving Irrigation Management By Understanding Rhizosphere Processes.** Luke Carter*, Thorsten Knappenberger, Joey N. Shaw, Charles Monks and Julie A. Howe
279-6	3:15 PM	**Towards Novel Techniques for Root Phenotyping Using GPR.** Catherine Kobylinski*, Haly L. Neely, Dirk Hays, Katie L. Lewis and Mark Everett
279-7	3:20 PM	**Biodegradable Plastic and Paper Mulch Effects on Soil Moisture Dynamics.** Henry Sintim*, Mustafa Saglam, Andy Bary and Markus Flury
279-8	3:25 PM	**Temporal Dynamics of Soil Water Among Delineated Management Zones.** Javier Reyes* and Ole Wendroth
279-9	3:30 PM	**Accounting for Stony Soil in Noah-MP Land Surface Model Simulations.** Kshitij Parajuli*, Scott B. Jones, LIn Zhao and David Tarboton
279-10	3:35 PM	**Comparison of Surface Energy Balance Components between a Tilled and an Un-Tilled Bare Soil.** Ohene Akuoko*, Dilia Kool, Thomas J. Sauer, Joshua L. Heitman and Robert Horton
	3:40 PM	**Question and Answer**
279-11	3:50 PM	**Exchangeable Sodium Percentage and Salinity Impacts on Soil Atterberg Limits, Shrinkage, Strength and Water Retention.** Hans Klopp*, William Bleam, Ph.D. and Francisco Arriaga
279-12	3:55 PM	**Evaluation of Different Models for Estimating the Hydraulic Parameters and Thermal Conductivity of Pasture Unsaturated Soils.** Geeta Kharel*, Sanjit K Deb and Charles P West
279-13	4:00 PM	**Numerical Analysis of Soil Water Dynamics Under Subsurface Ring-Shaped Emitter Irrigation Using Hydrus.** Reskiana Saefuddin*, Hirotaka Saito and Jirka Šimůnek
279-14	4:05 PM	**Soil Thermal Property Values As a Function of Water Content and Bulk Density.** Bing Tong*, Dilia Kool, Ohene Akuoko, Joshua L. Heitman, Thomas J. Sauer and Robert Horton

279-15	4:10 PM	**Water Movement in T- and Y- Shaped Capillary Tubes Under Microgravity.** Yuichi Maruo*, Naoto Sato and Kosuke Noborio
279-16	4:15 PM	**Kinetics of Molybdenum Adsorption-Desorption in Soils.** Wenguang Sun* and Magdi Selim
279-17	4:20 PM	**In Situ Correction of Probe Deflection for a Thermo-TDR Sensor Provides Accurate Determination of Soil Water Content.** Minmin Wen*, Gang Liu and Robert Horton
279-18	4:25 PM	**Relationships between Soil Cracks and Behaviors of CO2, CH4 and N2O Gases and Soil Water in Paddyfield Soil.** Toshihiro Doi* and Kosuke Noborio
279-19	4:30 PM	**Evaluating the 2-D Distribution of Volumetric Water Content and Electrical Conductivity with Cloud-Based Drip Fertigation System.** Shinsuke Aoki*, Yuki Ito, Sota Yaegashi, Ryuta Honda, Kiyoshi Ozawa, Hiroshi Takesako, Eiji Kita and Kosuke Noborio
279-20	4:35 PM	**Water Imbibition in Porous Media Under Simulated Microgravity Conditions.** Naoto Sato*, Yuichi Maruo and Kosuke Noborio
	4:40 PM	**Question and Answer**
	4:50 PM	**Adjourn**

SESSION NO. 280—3:15 PM–5:00 PM

Tampa Convention Center, Room 25, First Floor

Special Session--Expert panel: ASA/CSSA/SSSA Journals – From Manuscript Submission to Publishing.

ACS530 Early Career Members

Moderator: Alexander Lindsey

SESSION NO. 281—3:30 PM–4:00 PM

Marriott Tampa Waterside, Grand Ballroom I and J, Second Level

Round Table--On-Farm Research: Data Exploration and Analysis with Community Planning Sessions

ASA Section: Biometry and Statistical Computing

Moderator: Peter Claussen

3:30 PM	**Round Table Discussion**
3:45 PM	**Community Planning Session - Bioinformatics in Crops and Soils**
3:50 PM	**Community Planning Session - Spatial Statistics Applications**
3:55 PM	**Community Planning Session - Statistical Education/Training for Researchers**
4:00 PM	**Adjourn**

SESSION NO. 282—3:30 PM–4:30 PM

Tampa Convention Center, Room 13, First Floor

SSSA Business Meeting--Wetland Soils

SSSA Division: Wetland Soils

Moderator: Patrick Inglett

3:30 PM	**Division Business Meeting**
4:30 PM	**Adjourn**

SESSION NO. 283—3:30 PM–5:00 PM

Marriott Tampa Waterside, Room 8 and 9

Round Table--Beyond Indicators and Tradeoffs: Translating Sustainable Intensification Assessments into Action

ASA Section: Environmental Quality

Moderator: Timothy Krupnik

3:30 PM	**Introductory Remarks**
3:35 PM	**Round Table Discussion**
4:55 PM	**Concluding Remarks**
5:00 PM	**Adjourn**

SESSION NO. 284—3:45 PM–4:20 PM

Tampa Convention Center, Room 11, First Floor

Poster and 5 Minute Rapid--Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

	3:45 PM	**Introductory Remarks**
284-1	3:50 PM	**Genome-Wide SNP Identification and QTL Mapping for Seed Mineral Nutrients and Amino Acids in Mung Bean (*Vigna radiata* L.).** XINGBO WU*, Matthew Blair and Andres Cortes
284-2	3:55 PM	**Cadmium (Cd) Accumulation and Partition in Above Terminal Node Tissues and Its Use in Selecting Low-Cd Wheat Genotypes.** Caixia Liu*, Mary Guttieri, Brian M. Waters and P. Stephen Baenziger
	4:00 PM	**Question and Answer**
284-3	4:05 PM	**Rice Plasma Membrane Intrinsic Proteins Play Critical Role in Arsenite and Boron Transport and Providing Tolerance in Plants.** Om Parkash Dhankher*, Kareem Mosa, Kundan Kumar and Ahmed Meselhy Ali Gameel
	4:20 PM	**Adjourn**

SESSION NO. 285—3:45 PM–4:30 PM

Tampa Convention Center, Room 15, First Floor

Panel Discussion: Soil Chemistry and Grand Challenges of Food, Water, Energy and Climate

SSSA Division: Soil Chemistry

Moderator: Ronald Amundson

3:45 PM **Introductory Remarks**
3:50 PM **Discussion**
4:25 PM **Concluding Remarks**
4:30 PM **Adjourn**

SESSION NO. 286—3:50 PM–4:30 PM

Marriott Tampa Waterside, Room 4, Second Level

ASA Business Meeting--Global Agronomy

ASA Section: Global Agronomy

3:50 PM **Division Business Meeting**
4:30 PM **Adjourn**

SESSION NO. 287—4:00 PM–4:30 PM

Marriott Tampa Waterside, Grand Ballroom I and J, Second Level

ASA Business Meeting--Biometry and Statistical Computing

ASA Section: Biometry and Statistical Computing

SESSION NO. 288—4:00 PM–5:00 PM

Marriott Tampa Waterside, Florida Salon VI, Second Level

SSSA Business Meeting--Nutrient Management and Soil and Plant Analysis

SSSA Division: Nutrient Management and Soil and Plant Analysis

SESSION NO. 289—4:00 PM–5:00 PM

Marriott Tampa Waterside, Florida Salon VI, Second Level

SSSA Business Meeting--Soil Fertility and Plant Nutrition

SSSA Division: Soil Fertility and Plant Nutrition

SESSION NO. 290—4:00 PM–5:30 PM

Tampa Convention Center, Room 32

SSSA Business Meeting--Urban and Anthropogenic Soils

SSSA Division: Urban and Anthropogenic Soils

4:00 PM **Introductory Remarks**
4:05 PM **Division Business Meeting**
5:05 PM **Discussion**
5:25 PM **Concluding Remarks**
5:30 PM **Adjourn**

SESSION NO. 291—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Bioenergy Systems Poster Competition

ASA Section: Agronomic Production Systems

1345 **Influence of Species Composition and Management on Biomass Production in Missouri.** Ranjith P. Udawatta*, Clark J. Gantzer, Timothy M. Reinbott, Ray Wright, Robert Pierce and Walter Wehtje

1346 **Bioenergy Crops Effect on Aggregate Stability after Long-Term Land Conversion.** Thomas Stephenson* Jr., Joshua L Heitman and Adam Howard

1347 **Harvest Frequency and Timing Effects on Dry Matter Yield of Two Switchgrass (Panicum virgatum L.) Cultivars.** Raul Rivera Chacon*, Miguel S. Castillo and Travis W. Gannon

1348 **Evaluating *camelina sativa* (winter camelina) and *thlaspi arvense* (pennycress) for the Benefits of Water Quality and Clean Energy.** Matthew A. Ott*, Carrie A. Eberle, Matt D. Thom, Frank Forcella, Russell W. Gesch, Donald L. Wyse, James J. Eklund and Dean H. Peterson

1349 **Agronomic Performance of Newly Developed Lignocellulosic Bioenergy Crops in Texas.** Pramod Pokhrel*, Nithya Rajan, John Jifon, Dorothy Menefee, Miles Mikeska and Diana Zapata

1350 **Miscanthus Response to Plant Density and Harvesting Time in the Virginia Piedmont.** Martin Battaglia*, John Herschel Fike and Wade E. Thomason

1351 **Ecosystem Services of Bioenergy Crop Integration into an Agricultural Landscape: Impact on Nutrient Loss Reduction.** Brittney Madison*, Dokyoung Lee, Colleen Zumpf and Maria Cristina Negri

1352 **Post-Senescence Composition and Yield of Two Switchgrass Cultivars Receiving Three Nitrogen Rates.** Brooke Stefancik* and Keith D. Johnson

SESSION NO. 292—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

General Organic Management Systems Poster (includes student competition)

ASA Section: Agronomic Production Systems

1353 **Enhancing Tropical Conservation Tillage Cropping Systems with Sunn Hemp (Crotalaria juncea) Cover Crop Residue As in Situ Mulch in the Production of Organic Calabaza Pumpkin (Cucurbita moschata).** Stuart A. Weiss, David Hensley* and Michael Hurak

1354 **Organic Farming Implementing Cover Croping and Varying Tillage Practices.** Jonathan Moreno*, Ronnie W. Schnell, Muthu Bagavathiannan, Clark B. Neely and Nithya Rajan

1355 **New Tools and Techniques for High Residue Organic Vegetable Strip Tillage in the Maritime Pacific Northwest.** Douglas P. Collins*, Chris Benedict, David Sullivan, Andy Bary and Elizabeth A. Myhre

1400 **The Potential for Robotic Weeders in Organic Cropping Systems.** Robert Turnbull*, Jingyao Gai, Lie Tang and Kathleen Delate

1401 **Soil Health Response to Thermal Weed Management in an Organic System.** Jill Staples*, Kerry M. Clark, Robert J. Kremer, Kimberly Griffin and Kristen Sloan Veum

1402 **Long-Term Study on the Impact of Manure on Winter Wheat Grain Yields.** Joy Abit*, Jeremiah Butler, William R. Raun and D. Brian Arnall

1403 **Understanding the Value of Tillage Radish and Perennial Cover Crops As Nutrient Sources for Field Crops.** Paulo H. Pagliari*, Emily Evans and Lee Klossner

1404 **Nitrogen Contributions from Winter Annual Cover Crops in the Upper Midwest.** Sharon Perrone*, Alexander Liebman, Thanwalee Sooksa-nguan, Jessica Gutknecht and Julie Grossman

1405 **Combining Ability for Husk Extension and Corn Earworm Resistance.** Virginia Moore* and William F. Tracy

1406 **Freezing Tolerance of Two Legume Cover Crops for Upper Midwest High Tunnel Conditions.** Charlotte Thurston*, Elizabeth Perkus, Eric Watkins, Garett Heineck and Julie Grossman

1407 **Compost Carryover and Cover Crop Effects in Dryland Organic Wheat.** Michael Deakin*, Earl Creech, Jennifer R Reeve and David J. Hole

1408 **Testing Organic Pesticides for Vegetable Production in the Southeast United States.** Imena Ezell*, Kokoasse Kpomblekou-A., Franklin Quarcoo, Desmond Mortley, Ellene Kebede, Adelia Bovell-Benjamin and Wendell McElhenney

1409 **How Do Moisture Patterns in Subsurface Drip Irrigation Impact Soil Microbial Communities and Nutrient Transformations in Organic Systems?** Deirdre E. Griffin*, Daoyuan Wang, Sanjai J Parikh and Kate M. Scow

1410 **Variety, Seeding Rate and Fertility Effects on Organic Oat Production.** Paulo H. Pagliari*, Lee Klossner and Steve Quiring

1411 **The Tomato Organic Management and Improvement Project (TOMI): An Interdisciplinary Approach to Managing Foliar Pathogens.** Lori A. Hoagland*, Micaela Colley, Julie Dawson, Daniel S. Egel, Jeanine Davis, James Myers, Sanjun Gu and Micaela Colley

SESSION NO. 293—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Evapotranspiration Measurement and Modeling Poster (includes student competition)

ASA Section: Climatology and Modeling

1412 **Assessment of Agricultural Drought in a Semi-Arid Area Using Remote Sensing.** Tugba Yildirim* and Serafettin ASIK

1413 **Evapotranspiration, Gross Primary Production and Water-Use Efficiency Estimates of Cotton and Corn in East-Central Texas Using Eddy Covariance and Remote Sensing.** Dorothy Menefee*, Nithya Rajan, Song Cui, Pramod Pokhrel, Diana Zapata, Miles Mikeska and Miles Mikeska

1414 **Modeling the Growth of Bioenergy Crops Using DSSAT.** Pramod Pokhrel*, Nithya Rajan and John Jifon

1415 **Assessing the Effects of Native and Introduced Pastures on the Hydrology of Southern Great Plains Using Nutrient Tracking Tool.** Rewati Niraula*, Ali Saleh and Rajen Bajgain

1416 **Effects of Naturally Occurring Drought on the Productivity of Miscanthus in Southeastern U.S.** Jerome Maleski*, David D. Bosch and Timothy Strickland

1417 **Evapotranspiration in Winter Wheat Under Different Grazing and Tillage Practices in the Southern Great Plains.** Prasanna H. Gowda*, Pradeep Wagle, Priyanka Manjunatha, Brian K. Northup, Kenneth Turner, James Neel and Jean L. Steiner

1418 **The Effects of Surface Soil Heat Flux on the Estimation of Evapotranspiration.** Xinhua Xiao*, Xianyan Kuang, Dedrick D. Davis and Qunying Yuan

SESSION NO. 294—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Global Climate Change and AgMIP: More Recent Observations and Adaptations Poster

ASA Section: Climatology and Modeling

1427 **Response of Faba Bean Subjected to Drought Stress Under Free Air CO2 Enrichment Facility (FACE) in a Mediterranean Dry Environment.** Shahnaj Parvin*, Shihab Uddin, Glenn J. Fitzgerald, Roger Armstrong and Michael Tausz

1428 **High Resolution Simulation of Winter Wheat Production in Future Climates of Oklahoma.** Vijaya Gopal Kakani* and Kundan Dhakal

1429 **Canola Lodging Assessment Under Elevated Temperatures for Adaptation to Climate Change.** Bao-Luo Ma* and Xudong Song

1430 **Impact of the Accumulation of QTLs for Heat Tolerance on Grain Appearance Quality of Rice and Differences Among Cultivars and Years Under Free-Air CO_2 Enrichment (FACE).** Yasuhiro Usui*, Hidemitsu Sakai, Takeshi Tokida, Hirofumi Nakamura, Hitomi Wakatsuki, Asako Kobayashi, Hiroshi Nakagawa, Mayumi Yoshimoto and Toshihiro Hasegawa

1431 **Quantification of Heat Stress Effects on Grain Formation in Maize.** Dennis Timlin*, David H. Fleisher and Vangimalla R. Reddy

1432 **Modelling the Effects of Post-Anthesis Heat Stress on Seed-Setting Rate in Rice.** Ting Sun*, Yan Zhu and Toshihiro Hasegawa

1433 **Simulating the Effects of Climate Change on Rice Yield and Appearance Quality in Japan.** Hiroe Yoshida*, Tsuneo Kuwagata, Yasushi Ishigooka, Motoki Nishimori and Hiroshi Nakagawa

SESSION NO. 295—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil-Plant-Water Relations Poster (includes student competition)

ASA Section: Climatology and Modeling

Section or Division Cosponsor: ASA Section: Climatology and Modeling, ASA Section: Agronomic Production Systems

1419 **Sweetpotato Cultivar Responses to Interactive Effects of Temperature, Drought, and Carbon Dioxide.** Shasthree Taduri, Ajaz Lone, Stephen L. Meyers, Mark W. Shankle and K. Raja Reddy*

1420 **Developing Economically Optimal Irrigation for Soybean Production in East Central Mississippi.** Xiaofei Li, Gary Feng*, Dennis Reginelli and Johnie N. Jenkins

1421 **Cover Crop Effects on Soil Moisture in Transitioning Organic Cropping Systems.** Nithya Rajan*, Diana Zapata and Ronnie W. Schnell

1422 **Yield Responses of Different Alternative Crops to Growth Stage Based Irrigation Management.** Sangu Angadi*, Sukhbir Singh, Krishna Katuwal, Sultan Begna and Dick L. Auld

1423 **Growth Responses of Moringa Oleifera to N, P, and K Levels of Fertilization.** Qian He*, Xiaocui Gao, Xiaoyang Chen and Deying Li

1424 **Evaluating Phenological Responses of Three Crop Models to Water Deficits in the Spatially Distributed Agricultural Ecosystem Services (AgES) Model.** Gregory S. McMaster*, Debbie Edmunds, Roger Marquez, Marc Moragues, Timothy R. Green, Robert H. Erskine, Scott D. Haley, Patrick Byrne, Gerald Buchleiter, Nathan Lighthart, Holm Kipka, James C. Ascough II, Fred A. Fox, Larry Wagner and John Tatarko

1425 **Real-Time Observation of the Soil-Plant-Atmosphere-Continuum – Substrate Moisture Responses to Forced Ventilation Events in Polytunnel Grown Raspberry Rubus Idaeus L. Plants.** Martin S Goodchild* and Malcolm D Jenkins

1426 **Using Real-Time Observation of the Soil-Plant-Atmosphere-Continuum to Predict Daily Water-Use in Polytunnel Grown Raspberry Rubus Idaeus L. Plants.** Martin S Goodchild* and Malcolm D Jenkins

SESSION NO. 296—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Undergraduate Education General Poster Session

ASA Section: Education and Extension

1434 **Experiential Learning in and out of the Classroom.** Indi S. Braden*

1435 **Applied Crops Lab - Watching Grass Grow.** Beatrix J. Haggard*, Emily Kate Landoll and Jodie Crose

1436 **Public Scholarship Gets Dirty: Leveraging Open Soil Science Resources and Wikipedia for Authentic Student Learning and Knowledge Dissemination.** Maja Krzic*, Julie Wilson, Will Engle, Novak Rogic and Sepand Dyanatkar

1437 **Use of Workshops to Prepare Students for Their Internship Experience.** Kim J. Kerschen* and Kevin J. Donnelly

SESSION NO. 297—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Agricultural Practices to Enhance Nitrogen-Use Efficiency and Mitigate Greenhouse Gas Emissions Poster

ASA Section: Environmental Quality

1438 **Tandem Measurements of CO2, O2, N2O and N2O Isotopomers on an Agricultural Field.** Nick Nickerson*, David L. Burton and Gordon McArthur

1439 **Nitrous Oxide Emissions in Soybean Fields with Differential Drainage in Poorly Drained Soils in Minnesota.** Fabián G. Fernández, Rodney T. Venterea, Karina P. Fabrizzi* and Seth L. Naeve

1440 **Greenhouse Gas Modeling: A Simplified Approach.** Yogendra Raut*, Warren A Dick, R. Mark Sulc, Norman Fausey, Richard Moore and Khandakar R. Islam

1441 **Using Tannins to Alter Nitrogen Cycling in a Grazing System.** Jennifer Long and Rhonda L. Miller*

1442 **Assessing Long-Term Nitrogen Use Efficiencies, Sources and Sinks.** Jorge A. Delgado*, Ardell D. Halvorson, Catherine Stewart, Stephen J. Del Grosso, Daniel K. Manter, Robert D'Adamo and Bradley Floyd

1443 **Improving Nitrogen Use Efficiency for Winter Canola Using 4R Stewardship.** Marissa Porter*, Haiying Tao, William L Pan, Karen Sowers, Laban Molsee and Dennis Roe

1444 **Vertical Tillage to Reduce Ammonia Volatilization and Conserve Residue after Dairy Manure Application.** Jess Sherman*, William Jokela and Jason Cavadini

1445 **Options for Sustainable Intensification in Dairy Grazed Grassland.** Nyncke Hoekstra, Karl G Richards*, Patrick J Forrestal, Deirdre Hennessy, Gary J Lanigan, Christoph Mueller, Laurence Shalloo and Eddy Minet

1446 **Estimating Denitrification Rates in Soil from Field Nitrous Oxide Emission Monitoring: A Meta-Analysis from Agricultural Settings.** Andrew R. McGowan* and John B. Gates

SESSION NO. 298—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Tropical Legumes General Poster (includes student competition)

ASA Section: Global Agronomy

1447 **Maize and Legume Interactions in a Multi-Species Relay Cropping System in Southern Africa.** Arun D Jani*, Timothy Motis, Joy Longfellow and Christopher D'Aiuto

1448 **Uncovering the Potential of a Multi-Purpose Legume, *Lablab Purpureus* (L.) Sweet.** Alison Nord*, Sieglinde S. Snapp, Neil R. Miller and Wilfred Mariki

1449 **Groundnut Residue Management and Soil Fertility in Western Uganda.** Alexia Witcombe* and Lisa Tiemann

1450 **Putting Biological Nitrogen Fixation to Work for Smallholder Farmers in Africa: The N2Africa Project Example.** Fred Kanampiu*, Theresa Ampadu-Boakye, Edward Baars, Bernard Vanlauwe and Ken E. Giller

SESSION NO. 299—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Health for Agroecosystems Poster (includes student competition)

ASA Section: Land Management and Conservation

1451 **Effect of Long-Term (35 years) No-till and Conventional Tillage Systems on Soil Quality.** Prabhu Govindasamy*, Jake E. Mowrer, Tony L. Provin, Frank M. Hons, Nithya Rajan and Muthu Bagavathiannan

1452 **Soil Health Assessment of Land Under Bioenergy Crop.** Toru Nakajima*

1453 **Cover Crop Impacts on Soil Microbial Activity and Nitrogen Cycling in Rainfed Cotton.** Brian Hux*, Terry Gentry, Paul B. DeLaune and Onder Ozal

1454 **Changes in Soil Microbial Community Under a 28-Year Conservation Reserve Program in the Semi-Arid Grasslands.** Chenhui Li*, Jennifer Kucera, Veronica Acosta-Martinez and Lisa M. Fultz

1455 **Time after Mine Land Reclamation: Influence on Soil Health.** Katie Stutler*, Eugenia M. Pena-Yewtukhiw, Jeffrey G. Skousen and Domingo Mata-Padrino

1500 **Nitrogen and Crop Rotation As Drivers of Soil Microbial Community Structure.** Ashley Stengel*, Rhae A. Drijber, Salvador Ramirez II, Virginia L. Jin, Elizabeth Sue Jeske, Sydney R Everhart and Joshua R Herr

1501 **Impact of Cover Crops on Soil Microbial Populations and Mycorrhizal Diversity in Dryland Cotton.** Onder Ozal*, Terry Gentry, Paul B. DeLaune, Partson Mubvumba and Anil Somenahally

1502 **Effect of Topsoil Depth and Amendments on Soil Health and Agronomic Productivity in Central Ohio.** Nall Moonilall* and Rattan Lal

1503 **Enhancing Production of Pulses in the US Delmarva Region to Improve Bio-Diversity, Food Security, and Soil Health.** Alhadi Ahmed*, Fawzy M. Hashem and Robert Dadson

1504 **Distribution of Plant Available Nitrogen in Beef Pastures: As Affected By Management and Landscape.** Subash Dahal*, Dorcas Franklin, Dennis W. Hancock, Lawton Stewart and Miguel L. Cabrera

1505 **A Survey Approach to Identify the Effect of Agricultural Management Practices on Labile Soil Carbon and Nitrogen in Wisconsin.** Greg Richardson*, Matthew D. Ruark, Erin Silva, Megan Chawner, Erica Olson, Amber Radatz and Chelsea Zegler

1506 **Increasing Labile Carbon and Nitrogen Pools in Agricultural Soils Requires a Change in System Rather Than Practice.** Kalyn Diederich*, Kavya Krishnan, Erin Silva and Matthew D. Ruark

1507 **Factors Affecting Efficacy of Biological Nutritional Products for Plant Health.** Kevin Jackson*, Cale Bigelow, Kevin Gibson and Lori A. Hoagland

1508 **Impacts of Diverse Crop Rotations and Cover Crops Under Different Tillage Systems on Soil Health in South Dakota, USA.** Navdeep Singh*

1509 **Measuring Multiple Enzyme Activities in One Sample As Soil Health Indicators of Biogeochemical Cycling.** Veronica Acosta-Martinez*, Amanda Cano and Jane M-F Johnson

1510 **Resuscitate Soil Health: Cover Crops and Nitrogen Management in Michigan Corn Production.** Jeff Rutan*, Noah Rosenzweig and Kurt Steinke

1511 **Effects of Cover Crop Mixtures on Biological Indicators of Soil Health.** Gokhan Ucar*, Yucheng Feng and Kipling S. Balkcom

1512 **Impacts of Crop Management Systems on Arid Land Soil Quality.** Mohammed Nasir Omer*, Omololu J. Idowu, April L. Ulery, Dawn VanLeeuwen, Steven J. Guldan, Nicole Pietrasiak and Mark A. Marsalis

1513 **Impact of Cover Crop Species on Enzyme Activity and Nitrogen Supply at Corn Growth Stages.** Clayton J. Nevins*, Corey Lacey, Lori A. Hoagland, Ronald F. Turco, Cindy Nakatsu and Shalamar D. Armstrong

1514 **Soil Active Carbon and Aggregation Measurements to Help Farmers Assess Progress in Soil Health.** Nicole A. Benally*, Stacy M. Zuber and Eileen J. Kladivko

1515 **Sensor Fusion for Soil Health Assessment on a Claypan Soil.** Kristen Sloan Veum*, Kenneth A Sudduth, Robert J. Kremer and Newell R Kitchen

1516 **Predicting Soil Organic C and N in the Russian Chernozem from Wireless Color Sensor Measurements.** Elena Mikhailova*, roxanne stiglitz, Christopher Post, Mark A. Schlautman, Patrick Gerard and Julia Sharp

1517 **Developing Predictive Soil Organic C and N Models for Glaciated Soils Using Quantitative Color Sensor Measurements.** Elena Mikhailova, Roxanne Stiglitz*, Christopher Post, Mark A. Schlautman, Julia Sharp and Patrick Gerard

1518 **Filling the Gap: Adding Soil Inorganic Carbon into Ecosystem Services Framework for the United Nations Sustainable Development Goals.** Elena Mikhailova, Garth Groshans*, Christopher Post and Mark A. Schlautman

1519 **Shifts in Nematode Foodweb Structure and Nutrient Cycling Following Sustainable Soil Management in a California Vineyard.** Holly Deniston-Sheets*

1520 **Effects of Traditional Field Retting of Industrial Hemp (Cannabis sativa L.) on Soil Carbon and Soil Microbial Community Dynamics.** Shawn T. Lucas* and Elisa D'Angelo

1521 **Measuring Soil Organic Carbon from Different Agronomic Systems in North Carolina Soils.** Wayne R Roper* III, Deanna L Osmond, Joshua L Heitman, Michael G Wagger and S Chris Reberg-Horton

1522 **Linked Crop Production and Soil Organic Matter Impacts of Winter Annual Legumes in Upper Midwest Organic Agroecosystems.** Alexander Liebman*, Sharon Perrone, Thanwalee Sooksa-nguan and Julie Grossman

1523 **Size Matters: Sunn Hemp Cultivar Choice Influences Companion Species Biomass Production in a Cover Crop Mixture.** Carlene A. Chase*, Preeti Ahuja, Mickie E. Swisher, Xin Zhao and Oscar E. Liburd

1524 **Does Soil Health Drive Increased Irrigation Water Productivity in Tomato Cropping Systems?** Leah LR Renwick*, Rebekah Velasco, Margaret Lloyd, Anna Azimi, Scott Park and Amelie CM Gaudin

SESSION NO. 300—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Breeding & Genetics Poster II

C01 Crop Breeding and Genetics

100 **New Look at an Old Problem: Breeding for Multiple Traits.** Deborah Jo Heuschele*

101 **A Jsl Script for the Analysis of Experimental Data in the Prognostic Breeding Methodology.** Vasilia A. Fasoula*, Kevin C Thompson and Andy Mauromoustakos

102 **Design of Prediction Guided Plant Breeding Programs.** Jianming Yu*

103 **Sustaining the Future of U.S. Plant Breeding.** Michael Benjamin Kantar*

104 **"Beta-One", New Barley Cultivar with High β-Glucan Content in Korea.** Taeil PARK* and Yang-Kil Kim

105 **Current Breeding Programs to Develop Winter Cereal Cultivars for Animal Feeds Production in Korea.** Jongwoong Ahn*

106 **Grain Quality Improvement in Winter Wheat: GWAS and Genomic Selection.** Jayfred Gaham Godoy*

107 **Genomic Selection for Forage Quality Traits: A Case Study in a Forage Wheat Breeding Program.** Frank Maulana*, Joshua D Anderson and Xue-Feng Ma

108 **Breeding Approach to Diminish Barley Yellow Dwarf Epidemics in Kansas Wheat.** Byron Evers*, Alma Laney, Dorith Rotenberg, Allan Fritz and Jesse Poland

109 **Fast Screening of Italian Ryegrass (*Lolium multiflorum*) Half-Sib Progenies Tolerant to Water Deficit.** Leonidas P. Passos*, Cristiano A. V. Borges, Daniel Pereira Lizardo, Andrea Mittelmann, Jober Condé Evangelista Freitas, Lucas P. Eiterer, Diego Henrique da Silva Dias, Julio Cesar José da Silva, Jemima Gonçalves Pinto da Fonseca and Paola R.C. Reis

110 **Application of Genomic Selection to Increase the Rate of Genetic Gain of Intermediate Wheatgrass (Thinopyrum intermedium).** Jared Crain*, Lee DeHaan and Jesse Poland

112 **Identification of Genomic Region Associated to Drought Tolerance Traits during Vegetative Growth Stage of Rice Using Genotyping By Sequencing Approach.** Uttam Bhattarai* and Prasanta K. Subudhi

113 **Value-Added Bioproducts: Biorefining Perennial Grass Biofuel Feedstocks.** Russell W. Jessup, Yifeng Xu*, Jamie L. Foster and James P. Muir

114 **Development of an Indoor Freezing Tolerance Test for Switchgrass.** Annie Claessens*, Francois Langevin, Annick Bertrand and Solen Rocher

115 **Calculation of Heritability and Genetic Correlations between Yield Traits of Sugarcane (Saccharum Spp.) in Early Selection Breeding Populations in Louisiana.** James Ryan Todd*, Collins Kimbeng and Anna Hale

116 **Introgression of Resistance Genes from Feral Relatives Has No Impact on Yield Traits of ALS and Accase Inhibitor Herbicide Resistant Sorghum.** Dilooshi Weerasooriya*, Ananda Yapa Bandara, Ramasamy Perumal and Tesfaye Tesso

117 **Genetic Variability and Characters Association of Sorghum Germplasm Collections from Eastern Oromia Region of Ethiopia.** Alemnesh Bekele, Firew Mekbib, Ketema Belete and Tesfaye Tesso*

118 **Stalk Lodging: Recent Advances in Phenotyping.** Daniel J Robertson*, Witold de la Chapelle and Douglas Cook

119 **Stalk Lodging Phenotyping: An Improved Device.** Witold de la Chapelle, Daniel Robertson and Douglas Cook*

200 **Combining Ability Analysis of Recombinant Inbred Lines Developed from YML32 × Q11 Cross for Grain Yield and Resistance to Gray Leaf Spot.** Li Liu, Yudong Zhang, Daniel P Jeffers, Manjit Singh Kang and Xingming Fan*

201 **Combining Ability and Heterotic Patterns of Early-Maturing Provitamin a Inbreds Under Contrasting Environments.** Baffour Badu-Apraku*

202 **Soybean PI 494182: A New Source of More Durable Resistance to Nematode Populations.** Prakash R. Arelli*, Lisa Fritz, Alemu Mengistu, Dechun Wang, Silvia R. Cianzio and Zenglu Li

203 **Assessment of a Soybean Recombinant Inbred Population for Agronomic Performance and Resistance to Frogeye Leaf Spot.** Curtis Wolf, Raphael Lemes Hamawaki and Stella Kantartzi*

204 **Phenotyping and Genotyping of Ril Populations of Peanut for Gene Discovery and Marker Development.** C. Corley Holbrook*, Peggy Ozias-Akins, Ye Chu, Thomas George Isleib, Scott A. Jackson, Albert K. Culbreath, Tim Brenneman, Charles Yiwu Chen, Chris Butts, Marshall Lamb, Thomas R. Sinclair, Barry L. Tillman, Mark D. Burow, Craig Kvien, Josh Clevenger, Baozhu Guo, Carolina Chavarro and Renjie Cui

205 **Sclerotinia Blight Resistance in the US Peanut Mini Core Germplasm Collection.** Kelly Dawn Chamberlin* and Rebecca S Bennett

206 **Screening Germplasm and Quantification of Components Contributing to Thrips Tolerance in Tetraploid Cotton.** Baljinder Kaur, Jack Bacheler, Linglong Zhu, Hui Fang, Daryl Bowman and Vasu Kuraparthy*

SESSION NO. 301—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Breeding & Genetics Poster III

C01 Crop Breeding and Genetics

207 **Effect of Allelic Variation in Rht Genes on Grain Yield and Plant Height of Winter Wheat.** Habibullah Hayat*, Richard Esten Mason, Andrea Acuna, Dennis Nicuh Lozada and Amanda Holder

208 **Whole Genome Sequencing and Resequencing for Genome-Wide Study in Common Bean (Phaseolus vulgaris L.).** Jun Qin*, Ainong Shi, Senyu Chen, Thomas Michaels and Yuejin Weng

209 **Study on Freezing Tolerance in Rapeseed/Canola (Brassica napus L.).** Mukhlesur Rahman* and Danielle Fiebelkorn

210 **Enhancing Water Use Efficiency in Tall Fescue for Greater Persistence.** Shyamal Krishna Talukder*, Konstantin Chekhovskiy, Jennifer Black and Malay C. Saha

211 **Enhanced Utilization of Germplasm for Increased Genetic Gains in Breeding Programs.** Hari D. Upadhyaya*

212 **Genome-Wide Selection in Soft Winter Wheat: Effects of Training Population Size, Number of Markers, and Relatedness on Genomic Prediction Accuracy.** Dennis Nicuh Lozada*, Richard Esten Mason and Jose Martin Sarinelli

213 **Study of QTL By Environment Interactions for Stripe Rust Resistance in TAM 111 Using Saturated Genetic Maps with 90K and GBS SNPs.** Yan Yang*, Bhoja R. Basnet, Amir M.H. Ibrahim, Jackie C. Rudd, Qingwu Xue, Shichen Wang, Charles Johnson, Richard Metz, Xianming Chen, Robert L. Bowden, Richard Esten Mason, Dirk B. Hays and Shuyu Liu

214 **Identifying Efficient Nitrogen-Uptake Genotypes from Tomato Germplasm Banks.** Yang Fang* and Guodong Liu

215 **Genetic Mapping and Kasp Markers Development for Wheat Curl Mite Resistance in TAM112.** Smit Dhakal*, Chor-Tee Tan, Hangjin Yu, Maria Pilar Fuentealba, Jackie C. Rudd, Amir M.H. Ibrahim, Qingwu Xue and Shuyu Liu

216 **Evaluation of Cowpea Genotypes for Drought Tolerances in the Savannah Ecology of Ghana.** Damba Yahaya*, Matthew Blair and Nicholas Ninju Denwar

217 **Blackeye Cowpea Varietal Improvement for California and the USA Focused on Biotic Stress Resistance.** Bao-Lam Huynh*, Nicholas E. Clark, Carol A. Frate, William C. Matthews, Timothy J. Close and Philip A. Roberts

218 **Measuring Corn Dry-Down: Validation and Application of a Non-Destructive Method.** Nasir Javed*, Yvonne Lawley, Navneet Brar and Lana Reid

219 **Mapping a Quantitative Trait Loci for Fusarium Head Blight Associated with Resistance in Winter Wheat.** Abdulrahman Hashimi*

SESSION NO. 302—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Physiology and Metabolism Poster I

C02 Crop Physiology and Metabolism

300 **Effect of Drought Stress on Cotton Fiber Development and Fiber Quality Traits.** Junping Chen*, Noureddine Abidi, John J. Burke and Eric F Hequet

301 **Root-Leaf Continuum Traits to Improve Resilience of Rice to Water-Deficit Condition.** Raju Bheemanahalli*, Cherryl Quinones, Sherry Hechanova, Kshirod K Jena, P.V. Vara Prasad and S.V. Krishna Jagadish

302 **Improving Plant Tolerance to Drought Stress By Overexpression of ZmDBP2 Gene in Switchgrass.** Xunzhong Zhang*, Yiming Liu, Quoqiang Wu, Kevin L. Childs and Bingyu Zhao

303 **Ground and Aerial Remote Sensing for Peanut Drought Tolerance Phenotyping.** Maria Balota*, Joseph Oakes, Amir Sadeghpour, Thomas R. Sinclair and Thomas G. Isleib

304 **Early Drought Can Reduce Maizeggrain Yield By Shifting Both the Time of Pollen Shedding and Silking without Extending the Anthesis Silking Interval.** Yebei Li*, Hongbin Tao, Qingfeng Meng, Pu Wang and Felix B. Fritschi

305 **Seed Priming Improves the Performance of Barley Under Drought Stress.** Tahira Tabassum, Ali Zohaib, Abdul R. Mohammed and Lee Tarpley*

306 **Assessment of Soybean [*Glycine Max* (L.) Merr.] Yield Response to Drought Stress Using 1-m Rooting Columns Under Controlled-Environment Conditions.** Michael G. Gebre* and Hugh J. Earl

307 **Effect of Soil Moisture Stress on Post Harvest Seed Physiology, Quality, and Chemical Composition of Soybean.** Chathurika Wijewardana*, Nacer Bellaloui, Firas Ahmed Alsajri and K. Raja Reddy

308 **Improving Nitrogen Fertilizer Management in Maize with Split Fertilizer Applications: Implications for Precision Agriculture.** Joshua Nasielski* and Bill Deen

309 **Effect of Drought on Nutrient Uptake and Levels of Nutrient-Uptake Proteins in Roots of Drought-Sensitive and -Tolerant Plants.** Deepesh Bista*, Scott A Heckathorn, Dileepa M Jayawardena, Jennifer Boldt and Charles Krause

310 **Chlorophyll Fluorescence-Derived Photosynthetic Parameters and Yield of Common Bean (Phaseolus vulgaris L.) Under Multiple Stress and Drought.** Crocus Hamsini*, Phillip N. Miklas and Bernardo Chaves-Cordoba

311 **The Effects of Salinity and Nitrogen Fertilizer on Growth and Nitrogen Uptake of Alfalfa.** Berenice Gomez*, Adam Campbell-Tylor, Hossein Zakeri, Sharon Benes and Daniel H. Putnam

312 **Canola Seedling Growth As Affected By Salt Type and Concentration.** Qi Zhang*, Kevin Rue and Liqi Yang

313 **Waterlogging Tolerance in Corn.** Qi Zhang*, Kevin Rue and Liqi Yang

314 **Response of Diverse Rice (Oryza sativa L.) Varieties to High Night Temperature and Ethylene Perception Inhibitor.** Abdul R. Mohammed*, Michael J. Thomson and Lee Tarpley

315 **Thermotolerance of Commercial Sugarcane Genotypes in Four Phenological Stages.** SERGIO CASTRO-NAVA*, Alfredo Huerta, Epifanio Mireles-Rodríguez, Jose Manuel Garcia-Giron and Martín Juarez-Sanchez

316 **Evaluation of Diverse Soybean Genotypes for Reproductive Success Under High Temperature Conditions.** Arun Prabhu Dhanapal*, Jessica J Biever, Jason Gillman and Felix B. Fritschi

317 **Can Current Prominent Kansas Winter Wheat Lines Tolerate Post-Flowering Heat Stress?** Blake Bergkamp*, Impa Muthappa Somayanda, Allan K Fritz and S.V. Krishna Jagadish

318 **Mechanistic Basis for High Night Temperature Induced Carbon Imbalance and Yield Loss in Winter Wheat.** Nithin Jayaram Shetty*, Impa Muthappa Somayanda, P.V. Vara Prasad and S.V Krishna Jagadish

319 **Unraveling Mechanisms Inducing Heat Stress Resilience in Sorghum during Flowering.** Anuj Chiluwal*, Vinutha Kanaganahalli, Ramasamy Perumal, P. V. Vara Prasad and S. V. Krishna Jagadish

400 **High Night Temperature Stress Interferes with Yield and Seed Quality in Canola (Brassica napus L.).** Meghnath Pokharel*, Michael J. Stamm and S.V. Krishna Jagadish

401 **Expression Profiling of Genes Related to Antioxidant and Photosynthesis Capacity in Flue-Cured Tobacco Seedlings Subjected to Chilling Stress.** Cui CUI*, Qingyuan Zhou, Cunmin Qu, Zhengsheng Zhang and Avat Shekoofa

402 **Mechanistic Responses of Contrasting Sorghum Genotypes for Resilience to Early Vegetative Stage Chilling Stress.** Naghmeh Moghimi*, Raju Bheemanahalli, Ramasamy Perumal and S. V. Krishna Jagadish

403 **Physiological Strategies for Yield Preservation Despite Delayed Nitrogen Availability in Modern Maize Hybrids.** Sarah M. Mueller*, James Camberato, Carlos D. Messina, John Shanahan, Hao Zhang and Tony J. Vyn

SESSION NO. 303—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Ecology, Management and Quality General Poster II

C03 Crop Ecology, Management and Quality

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

417 **Does Intensive Wheat Management Shifts Macro- and Micro-Nutrient Uptake and Partitioning in Winter Wheat?** Amanda de Oliveira Silva* and Romulo Pisa Lollato

418 **Estimating the Contribution of Soil Microbial Communities to the Crop Rotation Effect.** Marian Lund*, Shawn P. Conley and Jean-Michel Ané

419 **Maize Composition in Africa.** Heather Pasley*, Jill Cairns, Mike Olsen, James Camberato and Tony J. Vyn

500 **Double-Crop Soybean Responses to Management Practices.** Damaris Sulzbach Santos Hansel*, Douglas Edward Shoup, James Kimball, Gretchen F. Sassenrath and Ignacio A. Ciampitti

501 **High Moisture Wheat Harvest Effects on Grain Quality and Dioxynivalenol (DON) Levels.** Douglas Alt*, Laura Lindsey and Pierce Paul

502 **Automatic Section Control on Planters: Effects in Corn and Soybean Yields.** Geomar M. Corassa*, Telmo J. C. Amado, Rai Schwalbert, Thomas Liska and Ignacio A. Ciampitti

503 **Evaluating the Impact of Canopy Defoliation at Two Critical Timings in Peanut.** Chad Abbott*, Jason Sarver, Jeff Gore, L. Jason Krutz and Alan Henn

504 **Delayed Plantings Shift Reproductive Phases and Alter Oleic Production of Soybean.** Ben Hall* and Shaun Casteel

505 **Mitigating the Continuous Corn Yield Penalty with Residue and Agronomic Management.** Alison M. Vogel* and Frederick E. Below

506 **Influence of Cover Crop Planting and Termination Time on Rainfed Corn Production in Western Nebraska.** Alexandre Tonon Rosa*, Liberty E. Butts and Rodrigo Werle

507 **Can Narrow Row Spacing be Used to Manage Higher Planting Densities of Corn?** Brad Bernhard* and Frederick E. Below

508 **Impact of Cover Crop Species Selection on Rainfed Corn Production in Western Nebraska.** Liberty E. Butts*, Alexandre Tonon Rosa and Rodrigo Werle

509 **Physiological Activity and Biomass Production in Crop Canopy Under a Tropical Environment in Soybean Cultivars with Temperate and Tropical Origins.** Andy Saryoko*, Yasuko Fukuda, Iskandar Lubis, Koki Homma and Tatsuhiko Shiraiwa

510 **Cultivar and Planting Date Selection for Relay-Cropping Soybean with Winter Oilseeds.** Russell W. Gesch* and Heather Matthees

511 **Early High Moisture Wheat Harvest Improves Wheat and Double-Crop Soybean Yield and Quality.** Rasel Parvej, David L. Holshouser*, E. James Dunphy, Robert Kratochvil, Gregory W. Roth and Cory Whaley

512 **Seeding Rates for Full-Season and Double-Crop Soybean.** Rasel Parvej* and David L. Holshouser

513 **Double-Crop Soybean Production System in the USA - Literature Review.** Rasel Parvej* and David L. Holshouser

SESSION NO. 304—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

M.S. Grad Student Poster Competition

C03 Crop Ecology, Management and Quality

404 **Double-Cropping Pennycress (Thlapsi arvense L.) with High-Value Short-Season Crops in the Upper Midwest.** Sarah A. Moore*, M. Scott Wells, Alexander Hard, Michelle Dobbratz, Roger L. Becker, Russell W. Gesch and Frank Forcella

405 **Evaluating Forage Sorghum and Pearl Millet for Forage Production and Quality in the Texas High Plains.** Joshua Machicek*, Brock C. Blaser and Bradley Crookston

406 **Which Management Strategies Are Required to Economically Reduce Winter Wheat Yield Gaps?** Brent Jaenisch* and Romulo Pisa Lollato

407 **Relative Maturity and Population Effects on Yield Components in Double-Crop Soybean in Indiana.** Stephen Boersma* and Shaun Casteel

408 **Calcium Uptake in Irrigated and Non-Irrigated Runner Peanut.** Kristen D'Ann Pegues*, R. Scott Tubbs, Glendon Harris and W. Scott Monfort

409 **Effects of Root Architectural Diversity on Grain Sorghum Yield Under Irrigated and Rainfed Conditions.** Jackson Nielsen*, John Erickson, Curtis Adams, Maria Lucia A. Silveira and Esteban F. Rios

410 **Industrial Hemp Herbicide Tolerance Studies in Virginia.** Jabari Byrd*, Michael L Flessner and John Herschel Fike

411 **Genotype By Plant Density Interaction in Wheat: Summary.** Ana Julia Azevedo*, Sebastian Varela, Romulo Pisa Lollato, Rai Schwalbert and Ignacio A. Ciampitti

412 **Water Use of Pearl Millet Forage in Response to Cultural Practice in the Semiarid Southern Great Plains.** Bradley Crookston*, Joshua Machicek and Brock C. Blaser

413 **Management Techniques for Perennial Cover Crops.** Rebekah Carlson*, Donald L. Wyse, John Baker and M. Scott Wells

414 **Injury to Peanut Cultivars from Postemergence Herbicide Tank-Mixtures with Paraquat.** Kayla Eason*, R. Scott Tubbs, Timothy L. Grey and Steve Li

415 **Dual Fungicide Application Project.** Branden Watson*, Robert M. Hunger and David A. Marburger

416 **Are Modern Wheat Varieties More Responsive to in-Furrow Phosphorus Fertilizer Than Historical Ones?** Rafael E. Maeoka* and Romulo Pisa Lollato

SESSION NO. 305—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Sports and Golf Turf Management Poster (includes student competition)

C05 Turfgrass Science

817 **Quantifying Water Required to Cool Artificial Turf.** Ahmed Kanaan*, Matteo Serena, Elena Sevostianova, Igor Sevostianov and Bernd Leinauer

818 **Effect of Fraise Mowing on Soil Physical Properties.** Raymond McCauley*, Grady L. Miller and Drew Pinnix

819 **Evaluation of Surface Tension and Infiltration of Wetting Agents.** Matthew Fleetwood*, Stephen Anderson, Keith Goyne, Mingyan Jiang and Xi Xiong

900 **Effects of Trinexapac-Ethyl and Lightweight Rolling on Putting Green Performance of Miniverde Hybrid Bermudagrass.** Eric H Reasor*, James T Brosnan, Conner Grant Cross and Gregory K Breeden

901 **Hammer Time: Management Practices and Field Surface Hardness.** Chrissie Segars*, Adam Thoms, Tim Van Loo, Jeff Salmond, Jeff Salmond and Justin Quetone Moss

902 **Influence of Brushing and Mowing Frequency on Green Speed and Plant Health on a Creeping Bentgrass Putting Green.** Timothy T. Lulis* and John E Kaminski

903 **Influence of Nitrogen, Trinexepac-Ethyl, and Mowing Pattern and Frequency on Putting Green Speed and Plant Health on a Creeping Bentgrass Putting Green.** Timothy T. Lulis and John E Kaminski*

904 **Effect of Calcium and Nitrogen Fertilizer on Creeping Bentgrass (Agrostis stolonifera L.) Plant Growth and Tolerance to Dollar Spot (Sclerotinia homoeocarpa (Bennett) Under Low Temperature.** Waana Kaluwasha*, Xi Xiong and Mingyan Jiang

905 **Performance Testing on Bermudagrass Athletic Fields.** Taylor Williams*

906 **Using Digital Image Analysis to Assess Tall Fescue Traffic Tolerance during Spring, Summer, and Autumn.** Bradley S. Park* and James A. Murphy

907 **Evaluation of Compost Topdressing and Compost Tea Applications on Sports Field Turfgrass Swards.** Kathleen Laura Dodson* and Laura Cortese Chaves

908 **Fairway Sand-Capping and Subsoil Influences on Tifway Bermudagrass Drought Resistance and Recovery Following a 60-Day Dry-Down.** Reagan Hejl*, Benjamin Wherley, Kevin J. McInnes and Don W. Dyer

909 **Nitrogen Fertilization of Newer Bentgrass Cultivars.** Elizabeth A. Guertal* and Freddie Clinton Waltz Jr.

910 **Comparing Surface Firmness Measurements on Sand-Based Putting Greens.** Daniel P. O'Brien*, Douglas E. Karcher and Michael D. Richardson

911 **Organic Land Care Practices in Maintaining Sustainability of Athletic Field Turf.** Jeffrey S. Ebdon* and William M. Dest

912 **Maintenance of Grass Tennis Courts for Optimum Water Use and Wear Tolerance.** Jeffrey S. Ebdon* and Michelle DaCosta

913 **Developing Bermudagrass Genotypes for Putting Green Use in the Transition Zone.** Dustin Harris*, Justin Quetone Moss, Yanqi Wu, Dennis L. Martin and Charles Henry Fontanier

914 **Do Wetting Agents Improve Athletic Field Safety and Performance.** Adam Thoms*, Benjamin Pease, Isaac Mertz and Nick E. Christians

915 **Uniformity and Spatial Variability of Soil Moisture and Irrigation Distribution on Natural Turfgrass Sports Fields.** Chase M. Straw* and Gerald M. Henry

916 **Creeping Bentgrass Water Use in Response to Plant Growth Regulators and Evapotranspiration Replacement.** David Flores*, Cale Bigelow and Jeff Atkinson

917 **Removal of Coarse Sand from Topdressing Applied to Putting Green Turf.** Hui Chen*, James W. Hempfling, Charles J Schmid, Kyle M. Genova and James A. Murphy

918 **The Effect of Core Recycling on Putting Green Performance.** Benjamin Pease*, Adam Thoms, Nick E. Christians and Isaac Mertz

919 **Development of a Remote Sensing Tool for Golf Course Irrigation Management.** Saeed Beyki*, Charles Henry Fontanier and Justin Quetone Moss

920 **Infiltration Rates of Golf Course Putting Greens Following Various Cultivation Types.** Naba Amgain*, Charles Henry Fontanier and Justin Quetone Moss

SESSION NO. 306—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Turf Fertility, Nutrition and Water Quality Poster (includes student competition)

C05 Turfgrass Science

921 **Influence of Preemergent Herbicides on Nitrogen and Phosphorus Uptake and Leaching from Tifway 419 Bermudagrass.** Lucas Oliveira Ribeiro Maia*, Travis W. Shaddox, Ramon G Leon and Jason Kruse

922 **Carbon Dioxide Flux of Newly-Sodded and Established Bermudagrass Fertilized By Slow-Release and Soluble Fertilizers.** Kaiyuan Tang*, Travis W. Shaddox, J. Bryan Unruh and Jason Kruse

923 **Evaluation of Creeping Bentgrass (*Agrostis stolonifera* L.) Responses Following Fertilization with Branched-Chain Amino Acids in a Field Setting.** Isaac Mertz*, Nick E. Christians, Adam Thoms and Benjamin Pease

924 **Spectral Reflectance Response of Riviera Bermudagrass Under Saline Irrigation.** Matthew Barton, Lakshmy Gopinath*, Justin Q. Moss and Michael Q. Kress

925 **Sulfuric Acid Effect on Bicarbonate Concentration and Sodium Adsorption Ratio in Soils.** Elena Sevostianova*, Matteo Serena, Brian S. Whitlark and Bernhard Leinauer

926 **Exploring Florida Decision Makers' Social Networks for Fertilizer Policy.** Christopher D. Ryan*, J. Bryan Unruh, Kevin E. Kenworthy, Alexa J. Lamm, John Erickson and Laurie E. Trenholm

927 **Water Conservation Practices on the Reduction of Greenhouse Gas Emissions on Creeping Bentgrass Putting Greens.** Kristina S. Walker* and Katy E.. Smith

928 **Effect of Surfactant and Deficit Irrigation on Water and Nutrient Retention in Simulated Urban Lawns.** Baoxin Chang*, Benjamin Wherley and Jaqueline Aitkenhead-Peterson

929 **Identification of Drought Resistant Standards for Transcriptomic Study of Common Bermudagrass (Cynodon dactylon).** Christopher Reid*

930 **Topography and Sampling Strategy Influence Soil Fertility Parameters of Golf Course Fairways.** Benjamin E. Brace* and Maxim J. Schlossberg

931 **Efficient Method to Determine Daily Light Integral Requirements of Various Warm Season Turfgrass Cultivars.** Travis R. Russell*, Douglas E. Karcher and Michael D. Richardson

SESSION NO. 307—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Turf Management: Pests Poster (includes student competition)

C05 Turfgrass Science

714 **Preemergence Crabgrass Spp. Control with EH1579 and EH1580 Containing Vexis in Bermudagrass.** Kevin Tucker*, Gerald M. Henry, James T Brosnan, Gregory K Breeden and Alan Estes

715 **Postemergence Broadleaf Weed Control with EH1587.** Kevin Tucker*, Gerald M. Henry, James T Brosnan, Gregory K Breeden and Alan Estes

716 **Monitoring Seasonal CO2 Efflux of Dallisgrass and Bermudagrass: Implications for Non-Selective Weed Control.** Gerald M. Henry* and Christopher R. Johnston

717 **Development of Large Patch Resistant and Cold Hardy Zoysiagrass Cultivars for the Transition Zone.** Mingying Xiang*, Jack D. Fry, Megan M. Kennelly, Ambika Chandra, Dennis Genovesi, Meghyn Meeks, Michael D. Richardson, Aaron J. Patton, Justin Quetone Moss, Erik H. Ervin, Xi Xiong, Grady L. Miller, John C. Sorochan, Jesse Benelli and Edward J. Nangle

718 **Targeting Postemergence Dallisgrass Control Using Cooling Degree Days.** Will Jackson Bowling*, Kevin Tucker, Gerald M. Henry, James T Brosnan and Gregory K Breeden

719 **Postemergence Control of Carolina Dichondra in Hybrid Bermudagrass.** Will Jackson Bowling*, Kevin Tucker and Gerald M. Henry

800 **Preemergence Herbicide Effects upon Hybrid Bermudagrass Root Growth and Architecture.** Erick Begitschke*, James D. McCurdy, Te Ming (Paul) Tseng, Casey Barickman, Barry Stewart, Christian M. Baldwin, Michael Richard and Maria Tomaso-Peterson

801 **Digital Image Analysis Using Aerial Imagery to Quantify Spring Dead Spot.** Jordan Booth*, David S. McCall, Dana Sullivan, Haseeb Chaudhry, Andrew Morgan and Kevin Kochersberger

802 **Novel Spring Dead Spot Control Using Isofetamid.** Travis L Roberson*, David S. McCall, Alan Estes and Camden D Shelton

803 **Selective Preemergence and Postemergence Control of Panic Liverseedgrass (Urochloa panicoides) in Desert Turf.** Kai Umeda*

804 **Preemergent Control of Crabgrass Using Vexis(TM) Pyrimisulfan and Vexis(TM) with Penoxsulam.** Matthew Fleetwood*, Jeffrey W Marvin, Dale R. Sanson and Xi Xiong

805 **Evaluations of Single-Application Herbicide Efficacy for Control of Bermudagrass (Cynodon dactylon).** Leslie Beck* and Matteo Serena

806 **Characterizing Hormesis and the *in Vitro* Effects of Sublethal Fungicide Exposure on Oxalic Acid Production in *Sclerotinia Homoeocarpa* F.T. Bennett.** Kyle Robertson*, Harley D. Naumann and Gerald L Miller

807 **Post-Emergence Control of Windmill Grass Using HPPD Herbicides.** Shiliang Liu, Reid J. Smeda and Xi Xiong*

808 ***In Vitro* Analysis of Nematicides and Fungicides on *Belonolaimus Longicaudatus*.** Glenn H. Galle*, Kathleen H. Nunez and James P. Kerns

809 **Mowing Timing Doesn't Affect Common Broadleaf Herbicide Efficacy.** Jared A Hoyle, Cole Thompson, Benjamin Van Ryzin and Ross Braun*

810 **Evaluation of a Soil Enhancement Product for Necrotic Ring Spot Control.** Kelly Kopp*, Paul Harris and Xin Dai

811 **The Effects of Various Scalping Timings on Tall Fescue Control with Glyphosate.** Cole Thompson*, Jared A Hoyle, Nicholas Mitchell and Benjamin Van Ryzin

812 **Seed Endophytes of Smooth Crabgrass (*Digitaria ischaemum*) Increase White Clover (*Trifolium repens*) and Dandelion (*Taraxacum officinale*) Seedling Mortality.** Matthew T. Elmore*, James F. White, Kathryn L. Kingsley, Katherine H.D. Diehl, Daniel P. Tuck and Satish K. Verma

813 **Use of Tartrazine Dye to Measure Foliar Spray Deposition on Turfgrass.** Pingyuan Zhang* and Bruce E. Branham

814 **Potassium Effects on Pink Snow Mold Incidence of Annual Bluegrass.** Kyle M. Genova*, Bruce B. Clarke and James A. Murphy

815 **Evaluation of Dollar Spot Predictive Models on Bentgrasses in New Jersey.** James W. Hempfling*, James A. Murphy and Bruce B. Clarke

816 **Assessing Different Rates and Combinations of Sulfur, Phosphorous Acid, and a Mineral Oil to Reduce the Incidence of Microdochium Patch on an Annual Bluegrass Putting Green.** Clint Mattox*, Alexander R. Kowalewski and Brian McDonald

SESSION NO. 308—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Turf Science and Management General Poster (includes student competition)

C05 Turfgrass Science

514 **Reducing Water Use on Twin Cities Lawns through Assessment, Research, and Demonstration.** Samuel Bauer* and Brian Horgan

515 **CRISPR-Cas9 Knockout of the Epichloë Festucae Antifungal Protein Gene.** Ruying Wang*, Bruce B. Clarke and Faith C. Belanger

516 **Evaluation of Warm- and Cool-Season Turfgrass Species and Mixes Under Deficit Irrigation in Southern California.** Marco Schiavon* and James H. Baird

517 **Osmotic Stress Contributions to Salinity Induced Damage in Seashore Paspalum.** David Jespersen*

518 **Plant Growth Regulators Efficiency for the Removal of Annual Bluegrass from a Creeping Bentgrass Putting Green.** Kevin Laskowski* and Emily B Merewitz

519 **Does Miniverde Bermudagrass Respond Differently to Trinexapac-Ethyl Applications throughout the Season?** Austin Brown*, Jim Harris, Adam Boyd, Clebson Gomes Goncalves and J. Scott McElroy

600 **Chronic Drought Stress of Common Lawn Turf Species in the United States Transition Zone.** Travis John Culpepper* and Joseph Ronald Young

601 **Simple Sequence Repeat and Single Nucleotide Polymorphism Marker-Based Detection and Quantification of Fine Fescues (*Festuca* spp.) in a Mixed Stand.** Yinjie Qiu*, Angela Orshinsky, Maggie Reiter and Eric Watkins

602 **Sod Handling Quality and Tensile Strength of Seashore Paspalum in Oklahoma.** Puja Jha*, Dennis L. Martin, Shuhao Yu, Lakshmy Gopinath, James R. Underwood, Justin Q. Moss, Yanqi Wu and Charles Henry Fontanier

603 **Comparison of Methods for Quantifying Soil Water Repellency in Surfactant-Applied Soil.** Ryan Schwab*, Florence Sessoms, Brian Horgan and Samuel Bauer

604 **ET Rates of Warm-Season Turfgrasses Under Shaded and Non-Shaded Environments.** Mark Battershell*, Charles Henry Fontanier, Dennis L. Martin and Yanqi Wu

605 **A Genetic Linkage Map of Perennial Ryegrass (*Lolium perenne* L.) Using Single Nucleotide Polymorphism Markers.** Phillip L. Vines*, Josh A. Honig, Jennifer Vaiciunas, Christine Kubik, B. Shaun Bushman, Eric N. Weibel, William Meyer and Stacy A. Bonos

606 **Effects of Consumer End Conservation Products on Bermudagrass Quality in Severe Drought Conditions.** Vikram Baliga* and Joseph R Young

607 **Sod Production Characteristics of Advanced Bermudagrass Lines Having Improved Drought Resistance.** Dennis L. Martin*, Puja Jha, Shuhao Yu, James R. Underwood, Lakshmy Gopinath and Yanqi Wu

608 **Shade Tolerance in Warm Season Turfgrass.** Jonathon Fox*, Brian M. Schwartz, John Snider and David Jespersen

609 **Bermudagrass Tolerance of the Herbicide Sethoxydim.** Allison Couch*, Brian M. Schwartz and Timothy L. Grey

610 **Tree to Grass Water Use Ratios; Tradeoffs in the Urban Landscape.** Tamara Wynne* and Dale Devitt

611 **Low-Input Nativegrasses and Alternative Groundcovers for the Southwest.** Worku Burayu* and Kai Umeda

612 **Water Use of Various Turfgrass Species and Lawn Mixes.** Jada Powlen* and Cale Bigelow

613 **Development of a Growing Degree Day Model for Plant Growth Regulators on Ultradwarf Bermudagrass.** Wendell J. Hutchens*, James P. Kerns and William Collin Kreuser

614 **Succession Bloom in Bermudagrass for Pollinator Forage.** Michelle Wisdom*, Michael D. Richardson, Douglas E. Karcher and Garry V. McDonald

615 **Survival of Turfgrasses Under Extended Ice Cover in a Controlled Environment.** Andrew Hollman* and Eric Watkins

616 **Effects of Plant Growth Hormones on Drought Tolerance and Post-Drought Recovery in Creeping Bentgrass.** Cathryn Chapman* and Bingru Huang

617 **Application of Plant Growth Regulators on Growth and Physiological Responses of Perennial Ryegrass Under Salinity Stress.** Zhongjie Ji*, Cankui Zhang, J. J. Camberato and Yiwei Jiang

618 **Tall Fescue and Kentucky Bluegrass Cultivars Subjected to Deficit Irrigation in the Field.** Daniel Sandor*, Douglas E. Karcher and Michael D. Richardson

619 **24-Epibrassinolide Impacts on Salt Tolerance of Perennial Ryegrass.** Wenli Wu*, Qiang Zhang, Erik H. Ervin, Zhiping Yang and Xunzhong Zhang

700 **Drought and Salt Stress-Induced Senescence Is Associated with Hormonal Balance Alteration in Kentucky Bluegrass.** Xunzhong Zhang*, Wenli Wu, Erik H. Ervin, Chao Shang and Kim Harich

701 **Effect of Seeding Date on Tall Fescue and Fine Fescue Performance.** Jon M. Trappe*, Samuel Bauer, Eric Watkins and Matthew Cavanaugh

702 **Evaluation of Candidate Roadside Turfgrasses for Heat Stress Tolerance.** Florence Sessoms*, Andrew Hollman, Garett Heineck, Walid Sadok and Eric Watkins

703 **Golf Industry Best Management Practices: A Tool for Success.** J. Bryan Unruh*, Mark Johnson, Travis W. Shaddox, Jason Kruse and Don Rainey

704 **Seedling Emergence and Establishment of Agrostis Cultivars on a Putting Green Following Simulated Winterkill.** Devon Carroll*, John E. Kaminski and Peter J. Landschoot

705 **Salt Tolerance Evaluation of Cool-Season Turfgrasses for Roadsides in Cold Climates.** Michael Laskowski*, Eric Watkins and Changbin Chen

706 **Identification of Species Associated with a New Disease of Annual Bluegrass Putting Greens.** Patrizia Rollo* and John E. Kaminski

707 **The Real Color of Money: Athletic Field Paint and Turfgrass Health.** Chrissie Segars* and Justin Quetone Moss

708 **Physiological, and Molecular Responses of Perennial Ryegrass to Low Nitrogen Stress.** Yanyu Yao*, Cankui Zhang, J. J. Camberato and Yiwei Jiang

709 **Effect of Late-Fall Wetting Agent Application on Winter Survival of Ultradwarf Bermudagrass Putting Greens.** Eric DeBoer*, Douglas E. Karcher, Michael D. Richardson and John McCalla

710 **Comparative Relationship and Genome Evolution in St. Augustinegrass and Other Grasses.** Xingwang Yu* and Susana R. Milla-Lewis

711 **Identification of Earthworm Species on Golf Course Turf in Arkansas and Oklahoma.** Paige Boyle*, Michael D. Richardson, Mary Savin and Douglas E. Karcher

712 **Complete Plastid Genome Sequence of Goosegrass (Eleusine indica) and Comparison with Other Poaceae.** Hui Zhang*, Nathan Hall, Elijah K Lowe, Leslie R Goertzen and J. Scott McElroy

713 **Over-Expressing OsNac60-Srdx to Improve the Light Sensitive of Perennial, Which Is a Possible Way to Enhance the Shade-Tolerance of Plants.** Xin Huang*

SESSION NO. 309—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Forages in the Intermediate South and Southern Plains Poster

C06 Forage and Grazinglands

932 **Development of Feedstuff to Use Grinded Silage of Whole Crop Barley and Wheat.** Taeil PARK*

933 **Screening Barley Lines for Adaptation in Texas.** Brandon James Gerrish*

934 **No-till or Tillage Established Wheat Pasture Production Following a Summer Cover Crop.** James K. Rogers*, Scott G. Robertson, Gregg R. Sweeten and Ryan T. Hicks

935 **Stocker Cattle Performance Grazing Wheat Pasture Established Following a Summer Cover Crop.** James K. Rogers*, Scott G. Robertson, Gregg G. Sweeten and Ryan T. Hicks

1000 **Nitrogen Use Efficiency of Wheat Lines Evaluated for Forage.** Raquel Schneider-Canny*, Konstantin Chekhovskiy and Malay C. Saha

1001 **Endophytes in Summer Dormant Tall Fescue: Are There Benefits?** Erin Hubbard*, Ginger Swoboda, William Krogman, Carolyn Young and Michael A. Trammell

1002 **Tall Fescue Grazing Systems in the Southern Great Plains.** Sindy M. Interrante*, Jeremy Joshua Pittman, Jimmy Stein, Justin K. Hoffman, Narayan P Nyaupane, Jon Biermacher and Twain J. Butler

1003 **Using Summer Interns to Advance Forage Research and Extension.** S. Ray Smith* Jr.

1004 **Arthropod and Soil Microbial Community Size and Composition of Native and Introduced Pastures.** Krishna Bhandari*, Charles P West, Scott B Longing and Veronica Acosta-Martinez

1005 **Short-Term Winter Wheat (Triticum aestivum L.) Cover Crop Grazing Influence on Calf Growth, Grain Yield, and Soil Properties.** Annesly Netthisinghe*, Hunter Galloway, Fred Degraves and Karamat R Sistani

1006 **Alfalfa (Medicago sativa L.) Forage Production, Tissue and Soil Nutrient Concentration Under Three N Based Broiler Litter Regimes.** Annesly Netthisinghe*, Paul Woosley, Naomi Rowland, Rebecca Gilfillen, Todd Willian and Karamat Sistani

1007 **Managing Phymatotrichopsis Root Rot in Arizona Alfalfa.** Worku Burayu*, Kyle Harrington and Ayman Mostafa

1008 **Evaluating Yield and Nutritive Value of Tifton-85 Bermudagrass and Tifton-85 Bermudagrass-Alfalfa Mixtures As Baleage in the Southeast.** Taylor Hendricks*, Jennifer Tucker, Dennis W. Hancock and Lawton Stewart

1009 **Effect of Nitrogen Rate and Timing on Forage Dry Matter and Quality of Teff in the Rolling Plains of Texas.** Emi Kimura* and Jonathan Ramirez

1010 **Evaluation of New Sorghum-Sudangrass and Pearl Millet Hybrids As Feedstock for the Oklahoma Beef Production System - Year 2.** Alexandre C. Rocateli*, Kyle Martin Horn, Owen McSpadden and Rick Kochenower

1011 **Genotype By Environment Interaction in Cynodon Germplasm for Biomass Yield across the Southeastern USA.** Esteban F. Rios*, Alexandra M. Rucker, Jose Carlos Batista Dubeux Jr., Malay C. Saha, Raquel Schneider-Canny, Miguel S. Castillo, Susana R. Milla-Lewis, William F. Anderson, Brian M. Schwartz, Luis Inosroza and Patricio R. Munoz

1012 **Harvest Management Effects on Nutrient Uptake and Forage Nutritive Value of 'Tifton 44' Bermudagrass Receiving Broiler Litter.** John Read*, David J. Lang and Ardeshir Adeli

1013 **Precise Nitrogen Management of Biomass Sorghum Using Vegetation Indices.** Amir Sadeghpour*, Joseph Oakes, Sayantan Sarkar and Maria Balota

1014 **Evaluation of Various Biomass Feedstock for Degradability and Energy Content.** Kun Jun Han*

SESSION NO. 310—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Plant Genetic Resources General Poster

C08 Plant Genetic Resources

1015 **Enhancing Upland Cotton Germplasm for Yield and Fiber Quality By Introgression from Wild Relatives.** Linghe Zeng* and Erik J. Sacks

1016 **Emerging Crops in the USDA Arid Lands Germplasm Collection.** Claire Heinitz*

1017 **Preliminary Evaluations of Quinoa (Chenopodium quinoa) Varieties and Populations for Grain Yield in the Pacific Northwest USA.** Daniel Packer*, Kevin M. Murphy, Hannah Walters and Adam Peterson

1018 **Phenotypic and Biochemical Trait Evaluation of the USDA Core Peanut Germplasm Collection.** Will Dezern*, Greg E. MacDonald, C. Corley Holbrook, Edzard van Santen, Michael J. Mulvaney and Noelle Anglin

1019 **The USDA Sorghum Collection: Past, Present, and Future.** Melanie L. Harrison* and Merrelyn Spinks

1020 **Screening for Resistance to Bacterial Fruit Blotch in Watermelon Fruit.** James Daley* and Todd Wehner

1021 **Genetic Resources in the USDA, ARS, Pgrcu Legume Crop Germplasm Collections with Phyto-Pharmaceutical Uses.** J. Bradley Morris* and Ming Li Wang

1022 **Cross-Transferability Analysis of SSRs from *V. Macrocarpon* between Different Species of *Vaccinium*.** Lorraine Rodriguez Bonilla*, Juan E. Zalapa, Walter Salazar, Brandon Schlautman, Jennifer Johnson-Cicalese, James Polashock, Nicholi Vorsa, Shawn Steffan and Giovanny Eduardo Covarrubias Pazaran

1023 **Variation in Transpiration Efficiency and Its Related Traits in Valencia Mapping Population ICGV 7243 X Valencia-C.** Naveen Puppala*, Jyostna Devi Mura, Janila Pasupuleti, Manish K Pandey, Rajeev K. Varshney, Vincent Vadez, Paxton Payton and Mark D. Burow

1024 **Genotyping By Sequencing (GBS) Polymorphism Diversity in Grain Amaranths and Relatives.** XINGBO WU* and Matthew Blair

1025 **Genetically-Enhanced Winter-Hardy Faba Bean (Vicia faba L.) Germplasm for Cover Crop Cultivar Development.** Jinguo Hu, Erik Landry, Junda Jiang, Ariana Gehrig and Clarice J. Coyne*

1026 **Yield Components in the USDA Pea Core Collection.** Clarice J. Coyne*, Jamin Smitchger, Yu Ma, Crystal Allen, Dorrie Main and Rebecca Mc Gee

SESSION NO. 311—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Biomedical, Health-Beneficial and Nutritionally Enhanced Plants General Poster

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

1027 **Cadmium (Cd) Accumulation and Partition in Above Terminal Node Tissues and Its Use in Selecting Low-Cd Wheat Genotypes.** Caixia Liu*, Mary Guttieri, Brian M. Waters and P. Stephen Baenziger

1028 **Genome-Wide SNP Identification and QTL Mapping for Seed Mineral Nutrients and Amino Acids in Mung Bean (*Vigna radiata* L.).** XINGBO WU*, Matthew Blair and Andres Cortes

1029 **Physiochemical Characteristics of Ramie Leaves According to Races and Growing Periods.** Jongkug Lee*

1030 **Development of Oat-Chocolate and Evaluation of Its Physicochemical Properties.** In-Sok Lee*

1031 **Study on Functional Improvement of Various Crop Sprouts Grown Under the LEDs.** So-Hee Shin*

1032 **In-Vitro Protein Digestibility, Phytic Acid and Phytase Concentrations in Sorghum As Affected By Genotype and Food Processing Method.** Dilooshi Weerasooriya*, Scott Bean and Tesfaye Tesso

SESSION NO. 312—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

New Insights on Biogeochemical Processes in Terrestrial Ecosystems As Revealed By Isotopic and Biomarker Approaches Poster

SSSA Division: Forest, Range and Wildland Soils

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

1033 **Can Foliage- and Root-Specific Plant Lipids be Redistributed with Soil Water?** Antra Boca*, Jeff A. Hatten and Helga Van Miegroet

1034 **Soil Phosphorus Distributions in the Calhoun CZO Landscape.** Maryam Foroughi*, Lori Sutter and Daniel Markewitz

1035 **Local Alterations to the Nitrogen Cycle As Indicated By Soil, Foliage, and Tree-Ring Total N and δ15N: Shaanxi Province, China.** Stephani Michelsen-Correa*

1100 **Temperature and Moisture Effects on Soil C Fluxes and Microbial Enzyme Activity in a Coastal Freshwater Forested Wetland.** Kevan Minick*, Xuefeng Li, Asko Noormets and John S King

1101 **Effect of Management Intensification on Deeper Soil Carbon in Subtropical Rangeland.** Dipti Rai* and Patrick W. Inglett

1102 **Improving Sustainability of Coniferous Ecosystems across the Southeastern United States Using 15N.** Jay Raymond* and Thomas R. Fox

1103 **Effects of Pyrolysis Temperature and Soil Depth on Pyrogenic Carbon Dynamics from a Forest Soil of Sierra Nevada, California.** Fernanda Santos*, Jeffrey A. Bird and Asmeret Asefaw Berhe

1104 **Stand Scale Variability in Humification Processes of Boreal Forest Soils.** Sylvie A. Quideau, Se-Woung Oh and Paul Sewell*

1105 **Liming Alters Soil Microbial Community Structure and Function in Northern Mixed Hardwood Forests.** Bhavya Sridhar*, Spencer J Debenport, Timothy Fahey, Christine Goodale and Daniel H Buckley

1106 **Looking below: Climate Change and Microbial Communities in the Rhizosphere of Boreal Forest Soils.** Sarah Thacker* and Sylvie A. Quideau

SESSION NO. 313—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil and Water Management and Conservation General Poster II (includes student competition)

SSSA Division: Soil and Water Management and Conservation

1107 **Conservaton Tillage Impacts Soil Microbial Community Structure and Function in a Long-Term Maize-Soybean Cropping System.** Hussein Alserae*, Virginia L. Jin, Humberto Blanco-Canqui, Marty R. Schmer and Rhae A. Drijber

1108 **Soil Erosion in South and Southeast Asia: A Review.** Dhanuska Wijesinghe* and Dara Park

1109 **Using Physiological Parameters to Monitor Plant Water Status Under Different Irrigation Systems.** Nastaran Basiri Jahromi*, Forbes R. Walker, Amy Fulcher, James E. Altland and Neal Samuel Eash

1110 **Feasibility Matrix to Identify Locally Sourced Mixed Media to Mitigate Agricultural Pollutants in Land Drainage.** Golnaz Ezzati, Mark G. Healy, Gary W. Feyereisen, Laura Christianson, Karen Daly, Steven F Thornton and Owen Fenton*

1111 **Drought Stress and Variability Assessment Among indica Rice Lines at Early Growth Stage.** Naqeebullah Naqeebullah*, Edilberto Redoña and K Raja Reddy

1112 **Vineyard Soil Management: The Effects of "Soil Hilling" and Straw Mulch Winter Protection Practices on Soil Temperature, Moisture, and Quality.** Jaclyn C. Fiola* and Imed Dami

1113 **Effects of Crop Rotation and Depth on Biochemical Composition of Soil Organic Matter.** Jordan Kersey*, Hanna Poffenbarger, Dan Olk, Antonio P. Mallarino, Michael J. Castellano and Matt Liebman

1114 **The Use of Smart Phone Application (SmartIrrigation Vegetable) for Irrigation Scheduling in Tomato (Solanum Lycopersicon) Production.** Ibukun Timothy Ayankojo* and Kelly T. Morgan

1115 **Impacts of Crop Diversity Under No-Tillage on Soil Quality Parameters.** Atilla Polat*, Shannon L. Osborne and Sandeep Kumar

1116 **Does High Soil Moisture in No-till Systems Increase CO2 Emissions and Reduce Carbon Sequestration?** Diana Zapata*, Nithya Rajan and Frank M. Hons

1117 **Assessing the Impact of Satellite Imagery Resolution on Biomass Estimation Accuracy of Cover Crop Mixtures.** Mike Swoish*, Wade E. Thomason and Mark S. Reiter

1118 **Best Soil and Water Management Practice for Bioenergy Sorghum Production in South Central US.** Yong Wang*, Fugen Dou and Frank M. Hons

1119 **Corn Cob Biochar Effects on Tropical Soil Aggregate Stability and Aggregate-Associated Carbon and Nitrogen Contents.** Emmanuel Amoakwah*, Kwame Agyei Frimpong, Emmanuel Arthur and Rafiq Islam

1120 **Effective Vs. Affordable: A Tackifier Comparison.** Maria Polizzi*

1121 **Cover Crop Influence on Soil Water Dynamics Under Corn-Soy Bean Rotation.** Lalith M. Rankoth*, Ranjith P. Udawatta, Clark J. Gantzer, Shibu Jose, Stephen H. Anderson and Chamara Weerasekara

1122 **Characteristics of in-Channel Sediment Storage, Walnut Creek, Central Iowa, USA.** William Beck*, Thomas M. Isenhart, John L. Kovar, Peter Moore, Suroso Rahutomo, Keith E. Schilling, Richard Schultz and Michael L. Thompson

1123 **Wheat Cover Crop Effects on Water and Physical Conditions of Piedmont Soil.** Wayne R Roper* III, Deanna L Osmond, Joshua L Heitman, Michael G Wagger and S Chris Reberg-Horton

1124 **Influence of Biochar and Manure on the Hydrological Properties of Eroded and Depositional Landscape Positions.** Saroop Sandhu*, Sandeep Kumar, Ekrem Ozlu, Colin Tobin and Abdullah Hoseyin Alhameid

1125 **Concentrating on Nutrient Loss Reduction: Analysis of the Manage Database Drainage Concentration Data.** Allan Hertzberger*, Laura Christianson and Daren Harmel

1126 **Impacts of Integrated Crop-Livestock System on Soil Health Parameters in North Dakota.** Hanxiao Feng*, Douglas Landblom, Songül Şentürklü, liming lai, Kris Ringwall and Sandeep Kumar

1127 **Can We Increase Yield with Adopting Tile Drainage in Fargo-Clay Soil?** Umesh Acharya*, Aaron Daigh and Amitava Chatterjee

1128 **Soil Nitrogen Dynamics As Affected By Biochars Co-Applied with Different Nitrogen Sources.** Maria Lucia A. Silveira, Yanyan Lu*, Amanda Baldo, George A. O'Connor, Joao M.B. Vendramini, John Erickson and Yuncong Li

1129 **Biochar Effects on Microbial Community Profiling of a Tropical Sandy Loam.** Emmanuel Amoakwah*, Kwame Agyei Frimpong, Emmanuel Arthur and Khandakar R. Islam

1130 **Prediction of Soil Wind Erosion Potential and Soil Compaction Under Different Residue Management Scenarios.** Manbir Kaur Rakkar*, Humberto Blanco-canqui and John Tatarko

1131 **Bell Pepper Plant Growth Responses and Soil Property Changes to Humic Substances and Deficit Irrigation in Controlled Environments.** Kuan Qin* and Daniel I. Leskovar

1132 **Decreasing Arsenic in Rice Grains with Alternate Wetting and Drying Irrigation.** Daniela Carrijo*, Nadeem Akbar, Chongyang Li, Peter G. Green, Sanjai J. Parikh and Bruce Linquist

1133 **Development of a Vegetative Based LID Suitability Index for Coastal Counties of South Carolina.** Dhanuska Wijesinghe*, Daniel R Hitchcock, David L White and Dara Park

1134 **Evaluating Non-Traditional Irrigation Water Sources for the Presence of Shiga Toxin-Producing Escherichia coli in the US Mid-Atlantic Region.** Joseph Haymaker*, Fawzy M. Hashem, Salina M Parveen, Eric B. May, Manan Sharma, Chanelle M White, Shirley Micallef and Amy R Sapkota

1135 **Investigating Microbial Urea Production in Agricultural Drainage Ditch Sediments.** Sabrina A. Klick*, Mason D. King, Joseph S. Pitula, Arthur L. Allen, Fawzy M. Hashem, Anthony R. Buda, Lou S. Saporito, Ray B. Bryant and Eric B. May

SESSION NO. 314—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Biology and Biochemistry Graduate Student Poster Competition

SSSA Division: Soil Biology and Biochemistry

1202 **Cover Crops Do Not Give Rise to Positive Net Ecosystem C Balance.** Anna Cates* and Randall Jackson

1203 **Effect of Long-Term Nitorgen Fertilizaiton on Composition and Carbon Utilization of Soil Microbial Communities in a Northern Grassland, China.** Yue Li*, Yinghui Liu, Shanmei Wu, Cheng Nie, Nicola Lorenz, Nathan R. Lee and Richard P. Dick

1204 **Linking Soil Biological Indicators for Different Soil Types in North Dakota.** Umesh Acharya* and Amitava Chatterjee

1205 **Microbial Dynamics in Recently Thawed High-Alpine Permafrost-Affected Soils.** Zoe Ash-Kropf*, Linda Van Diepen and Karen L. Vaughan

1206 **Microbial Response to Biosolids-Borne Ciprofloxacin (CIP) and Azithromycin (AZ).** Harmanpreet Singh Sidhu*, Andrew V. Ogram and George A. O'Connor

1207 **Evaluating the Effects of Biostimulants on Soil Microorganisms in Turfgrass.** Alexx A. Diera*, Mussie Y. Habteselassie, Paul L. Raymer and Miguel L. Cabrera

1208 **Impact of Fertilizer and Irrigation Treatments on the Rhizosphere Microbiome of Collard Green (Brassica oleracea L. var. acephala).** Niyi Sunday Omidire*, Raymon Shange, Ramble Ankumah and Desmond Mortley

1209 **Effect of Domestication on Plant Biomass and Induced Systemic Resistance in Tomato (Solanum lycopersicum L.).** Lisseth Zubieta* and Lori A. Hoagland

1210 **Soil Microbial Diversity across Maize Agroecosystems.** Ashley Stengel*, Rhae A. Drijber, Joshua R Herr and Sydney R Everhart

1211 **Increasing Plant Mycorrhizal Status and Improving Soil Properties with Cover Crops.** Bouzeriba Alsunuse*, Peter Stahl, Jay Norton and Urszula Norton

1212 **Evaluation of Pea (*Pisum sativum* L) Rhizosphere Bacteria As Biocontrol Agents of Aphanomyces Root Rot.** Ashebir T. Godebo*, James J. Germida and Fran L. Walley

1213 **Improved Management Practices in Grasslands Can Alter the Biogeochemical Processes and Carbon Storage in Spodosols.** Saroop Sandhu*, Kanika S. Inglett, Dipti Rai, Patrick W. Inglett, Maria Lucia A. Silveira and Stefan Gerber

1214 **Rhizosphere Carbon Dynamics in Soils Under Zero-Tannin and Tannin Containing Genotypes of Lentil (Lens culinaris) and Faba Bean (Vicia faba).** Fayruza Lalany*

1215 **Microbial Activity Spurred By Silicon Amendment Addition Alters the Biogeochemical Cycling of Arsenic in Flooded Rice Paddies.** Gretchen Dykes* and Angelia L. Seyfferth

1216 **Metagenomic Comparison of How Three Genotypes and Two Management Regimes Influence Carrot Endophyte Fungal Communities.** Sahar Abdelrazek*, Lori A. Hoagland, Jyothi Thimmapuram and Sulbha Choudhari

1217 **Characterizing Bloom Biosolids: Microbial Community and Plant Growth.** Eni Baballari* and Stephanie A. Yarwood

1218 **Rhizosphere Fungal Communities Under Conservation Tillage Shift in Response to Plant Growth.** Ziting Wang*

1219 **Evaluating Inter-Row Cover Crops to Enhance Rhizosphere Microbial Community and Reduce Grapevine Chlorosis.** Anjuman Ara Islam*

1220 **Microbial Enzyme Activity in Irrigated Canola Plots Receiving Different Nitrogen Applications.** Akeem T Shorunke*, Bobbi Helgason, Dale Tomasiewicz and Richard E Farrell

1221 **Effect of Soil Moisture on Soil Microbial Biomass in Loblolly Pine (Pinus taeda) Stand.** Shrijana Duwadi*, Emily A. Carter, Ryan Nadel, Yucheng Feng and Lori G. Eckhardt

1222 **Soil Organic Matter from Southern Pine Biofuel Feedstocks Under Different Soil Types and Management Systems.** Samantha Mosier*, Keith Paustian, M. Francesca Cotrufo and Christian Davies

1223 **Effect of Long-Term Cropping System Management on Crop Yield and Soybean Cyst Nematode.** Renee Adler* and Kelly A. Nelson

1224 **Temporal Dynamics of Microbial Communities during Natural Wetting and Drying Cycles of Select Reduced Tillage Systems.** Zachery Leitner*, Aaron L.M. Daigh, Caley Gasch, Jodi DeJong-Hughes and Abbey Foster Wick

1225 **Cover Crop Decomposition and Residue Nitrogen Release Dynamics.** Corey Lacey*, Clayton J. Nevins, Houston Miller and Shalamar D. Armstrong

1226 **Root Traits of Cover Crop Monocultures and Mixtures.** Joseph Pierre Amsili* and Jason P. Kaye

1227 **Biochar Decreases Straw-C Accumulation into Soil Organic Carbon Pools Under Field Condition.** Xinliang Dong, Yanfang Tian*, Guitong Li, Qimei Lin and Xiaorong Zhao

1228 **Soil Biochemical Responses of Cover Crops in a Winter Wheat-Summer Fallow System.** Binod Ghimire*, Rajan Ghimire and Abdel O. Mesbah

1229 **Temporal Changes in Soil Microbial Properties in Claypan Soils.** Che-Jen Hsiao*, Gretchen F. Sassenrath, Charles W. Rice and Lydia H. Zeglin

1230 **Impact of Integrated Application of Fertilizer and Compost on Soil Quality and Yield in Northern Ghana's Cropping Systems.** Edwin K. Akley*, Benjamin D. K. Ahiabor, Charles W. RICE, Jonathan K. Teye and P. V. Vara Prasad

1231 **Understanding the Expression Dynamics and Correlation of Rhizobial *Nif*h and Dry Bean NR and GS Genes at Different Growth Stages.** Debankur Sanyal*, Shyam Solanki, Robert Brueggeman and Amitava Chatterjee

1232 **An Integrated Plant Nutrition System (IPNS) for Corn-Soybean Rotations in the Mid-Atlantic USA.** Jose Franco Da Cunha Leme Filho* and Wade E. Thomason

1233 **Soil Redox Potential and Carbon Fractions in Manured and Cover-Cropped Soils Under Reduced Tillage.** Emily Ball*, Mary Ann V. Bruns, Heather D. Karsten and Curtis J. Dell

SESSION NO. 315—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Surface Residue Management and Impacts on Soil Biology and Soil Health Poster

SSSA Division: Soil Biology and Biochemistry

1136 **Grazing Lead to Lower Activities of Carbon-Transforming Enzymes in Soils.** Mengya Du*, Shiping Deng, Fangling Fan and Hailin Zhang

1137 **Negative Effect of Grazing on Activities of Nitrogen-Transforming Enzymes in Soils.** Mengya Du*, Shiping Deng, Fangling Fan and Hailin Zhang

1138 **Using Cereal Rye As a Catch Crop to Examine the Residual Effects of Anaerobic Soil Disinfestation and Other Biological Soil Management Practices Following Open-Field Tomato Production.** Bodh R Paudel*, Xin Zhao, Francesco Di Gioia, Monica Ozores-Hampton, Jason C Hong and Erin N Rosskopf

1139 **Bacterial and Archaeal Nitrifier Communities after Seven Years Surface Ground Cover and Nutrient Management in an Orchard Soil.** Mashael Albalawi* and Mary C Savin

1200 **Cropping Sequence, Cover Crops, and Poultry Litter Applications Impact Soil Microbial Community Structure.** Amanda J. Ashworth*, Jennifer M. DeBruyn, Fred L. Allen, Mark Radosevich and Phillip R. Owens

1201 **Building Organic Matter of Long-Term Sugarcane Soils in a Temperate Environment.** Paul M. White*

SESSION NO. 316—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Microbial Transformations of Minerals, Metals and Organic Matter: Impacts on Contaminant Dynamics and Carbon Storage Poster (includes student competition)

SSSA Division: Soil Chemistry

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

1238 **Effects of Clay Content and Plant Litter Quality on Methanogen Community Composition and Functional Gene Abundance in Natural and Restored Tidal Freshwater Wetland Soils.** Victoria Monsaint-Queeney*, Christine Prasse, Lindsay Wood, Andrew Baldwin and Stephanie A. Yarwood

1239 **Mercury in Soils of the Calhoun Critical Zone Observatory: Importance of Redox Features in Sequestration.** Justin B. Richardson* and Daniel deB. Richter

1240 **Plant Litter Quality Affects the Accumulation Rate, Composition, and Stability of Mineral-Associated Soil Organic Matter.** Silvia Carolina Córdova*, Michael J. Castellano, Ranae Dietzel, Dan Olk, Johan Six and Sotirios V. Archontoulis

1241 **Biotic and Abiotic Contributions to the Reduction of Fe-Oxides at Circumneutral pH.** Emma C Rieb*, Andrew Hays Whitaker and Owen W. Duckworth

1242 **Quantifying Reactive Trivalent Manganese in Mycogenic Oxides.** Joshua Henson*, Benjamin Uster, Jasquelin Pena and Owen W. Duckworth

1243 **Quantity and Quality of DOC within Agricultural Watersheds Using Absorbance and Fluorescence Spectroscopy.** Lili Lei* and Louis M. McDonald

1244 **Biodegradation of Ferrihydrite-Organic Carbon Coprecipitates.** Nadia Noor*, Chunmei Chen, Diego Barcellos and Aaron Thompson

SESSION NO. 317—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

The Role of Soils in Mitigating Environmental Contaminant Exposure Poster (includes student competition)

SSSA Division: Soil Chemistry

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

1234 **Elucidating the Role of Carbon Sources on Abiotic and Biotic Release of Arsenic into Cambodian Aquifers.** Markus Koeneke*, Matthew Polizzotto, Matthew Catesby Jones and Elizabeth Gillispie

1235 **Soil and Plant Based Treatment Option for Marginal Waters.** Mohammad Almutari*, Ganga M Hettiarachchi, Stacy L Hutchinson Sr., Mary B Kirkham Sr., Larry E Erickson Jr. and Erica L Schmitz Sr.

1236 **Evaluating Off-Site Migration of Arsenic from Msma into Sod Farm Pond Systems.** Sarah Dance*

1237 **Fate of Heavy Metals and Nutrients at the Catchment.** Keegan Smith*, Christopher J. Matocha, Brad D. Lee and Alan Fryar

SESSION NO. 318—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Managing, Manipulating, and Predicting Phosphorus Losses in Phosphorus Saturated Soils: Current State of the Science Poster (includes student competition)

SSSA Division: Soils and Environmental Quality

Moderator: Gurpal Toor, Andrew Sharpley

1341 **Using Stable Water Isotopes to Characterize Pathways of Subsurface P Loss in a Ditch-Drained Field.** Lauren Mosesso*, Amy L. Shober, Casey Kennedy, Anthony R. Buda, Amy S. Collick, Shawn Tingle and Kyle Elkin

1342 **An Environmental Phosphorus Monitoring Tool for Soils of the Eastern and Midwestern USA.** Biswanath Dari*, Vimala D. Nair, Andrew N. Sharpley, Dorcas Franklin, Peter J.A. Kleinman and Willie Harris

1343 **Poultry Litter Phosphorus in a Louisiana Pasture: Enrichment, Losses, Remediation and Attenuation.** Lewis Gaston*

1344 **Nitrogen, Phosphorus, and Trace Elements in Runoff Waters Following Application of Poultry Litters and Granulates.** Gurpal S Toor* and Brian Haggard

SESSION NO. 319—4:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soils and Environmental Quality General Poster

SSSA Division: Soils and Environmental Quality

Moderator: Kristin Trippe

1309 **Characterization of Soil Bacterial Isolates Capable of Degrading Biodegradable Plastic Mulch Films.** Jose Liquet y Gonzalez*, Xianfang Wen, Kyle Bonifer, Sreejata Bandopadhyay, Todd Reynolds and Jennifer M. DeBruyn

1310 **Microbial Communities Associated with Biodegradable Plastic Mulch Films in Two Agroecosystems.** Sreejata Bandopadhyay*, Jose Liquet y Gonzalez, Lydia Tymon, Debra Inglis, Douglas G Hayes and Jennifer M. DeBruyn

1311 **Phosphorus Dynamics of Soils and Subsoils Treated By Thermal Desorption.** Samantha Jo Croat*, Thomas M. DeSutter, Caley Gasch, Francis X.M. Casey and Peter O'Brien

1312 **Animal Grazing and Forage Effect on Soil CO2 Fluxes in a Semi-Arid Pastureland in Northern Nevada.** Christina T Igono*

1313 **Assessing the Effect of Polyhalite on Soil Environments.** Annette C Raffan, Paul D Hallett and Timothy D Lewis*

1314 **Onsite Wastewater System Nitrogen Treatment Efficiency in Response to Groundwater Fluctuations.** Charles P Humphrey* Jr., Guy Iverson and Michael O'Driscoll

1315 **Water Quality of Streams Draining Mixed-Used Agricultural Basins in Southwestern Puerto Rico.** David Sotomayor*, Gustavo Martinez, Paloma Rodriguez, Cristina López, Luis Pérez-Alegría, Juan Cruz and Dave Bachoon

1316 **Sugarcane Bagasse ASH Application in Chemical and Organic Soil Attributes.** Jose E. Cora* and Liliane Campos

1317 **Miscanthus Production on Minesoil and Its Impact on Soil Erosion and Water Quality.** Jose G. Guzman*, David A. Ussiri and Rattan Lal

1318 **Comparing Soil Quality between Conventional and Organic Farming System in Pepper and Cabbage Field.** Sung Chul Kim*, Won Suk Choi, Young Kyu Hong, Min Kyung Jun, Eui Yeong Kim, Dong Hyun Yoon and Jae E. Yang

1319 **Linkage between Soil Quality and Soil Value Based on Soil Functions.** Jae E. Yang*, Sung Chul Kim, Sang Phil Lee, Seung Min Oh, Kyoung Jae Lim and Jee Hee Oh

1320 **Corn Stover, Orange Peel, and Pistachio Shell Biochars As a Filter Media for Removing Lead and Arsenic in Water.** Jihoon Kang*, Sergio Mireles, Jason Parsons, Tarek Trad and Chu-Lin Cheng

1321 **Phosphorus Transformation in Biochar and Poultry Litter Amended Soils.** Thilini D. Ranatunga*

1322 **A Quantitative and Qualitative Molecular Analysis of High Organic Content Liquids Used in Agriculture.** Taha Rezai*, Charles Grove, Karen He and John L. Breen

1323 **Source and Presence of Urea in Maryland's Estuarine Waters.** Eric B. May*, Sabrina M Klick, Mason D. King, Arthur L. Allen, Fawzy M. Hashem, Joseph S Pitula, Anthony R. Buda, Lou S Saporito and Ray B. Bryant

1324 **Novel UHPLC Method to Analyze Insensitive Munitions in Various Soil Order Incubations.** Maria E Negrete*, Brooke Stevens and Mark Chappell

1325 **Depth Distribution of Glyphosate and AMPA Under Conventional and No Tillage System in Long-Term Experiments.** Jose Luis Costa* and Virginia Carolina Aparicio

1326 **Assessing Soil Quality of Rice Intensive Cultivation Area of Nigeria Using Relative Soil Quality Index.** Gabriel Oluwatosin*, Olateju D Adeyolanu, Kayode S Are and Olufunmilayo T Ande

1327 **Biosolids Land Application and Phosphorus: A Simple Runoff Study.** Kandis Bordi*, James A. Ippolito, Jacob P. McDaniel and Kenneth A. Barbarick

1328 **Plant Influence on Soil Phosphorus Storage Capacity in Soils Receiving Alternative Fertilizers.** Cheryl Mackowiak*, Biswanath Dari and Vimala D. Nair

1329 **Assessing the Spatial Variability of Soil Microbial Community Structure and Enzyme Activity in Pteris Vittata Planted Arsenic Contaminated Soil.** Osagie Idehen*, Ramble Ankumah, Raymon Shange, Anthony Kumi, Marceline Egnin, Conrad Bonsi, Gregory Bernard, Foaziatu Burkari, Margaret Oruwari and Niyi Sunday Omidire

1330 **Assessing Agronomic Nitrogen Management to Mitigate Environmental and Economic Losses in Western Canadian Prairies.** Symon Mezbahuddin*, David Spiess, David Hildebrand, Len Kryzanowski, Daniel Itenfisu and Robert Grant

1331 **Use of Activated Dolomite Phosphate Rock to Reduce Leaching of Phosphorus and Heavy Metals in Sandy Soils.** Xiaoli Wang*, Jibing xiong and Zhenli He

1332 **Identification of the Main Factors Influencing Spatial Distribution of Regional Soil Heavy Metals.** Jun Yang*, Mei Lei and Guozhen Liu

1333 **Influence of Temperature and Time on Pathogens Present in Biosolids Compost.** Marianne Fidalgo Faria*, Irae Amaral Guerrini, Roberto Lyra Villas Boas, Reinaldo José da Silva, Vera Lucia Mores Rall, Caroline Mateus and Rob Harrison

1334 **Long-Term Effects of Rainfall Manipulation on the Soil Microbial Community of a Native Tallgrass Prairie.** Tiffany Carter* and Charles W. Rice

1335 **Evaluation of Remediation of Coupled Electro Kinetic and Phytoremediation of Depleted Uranium Contaminated Soils.** Jiangxia Li*, Fengxiang Han, Jun Zhang, Linchun Wu and Zikri Arslan

1336 **Detecting Soil Microbial Diversity Changes in the Reclaimed Land for Soil Rehabilitation in Antaibao Opencast Coal Mine, China.** Yuanfang Huang*, Liping Zhang, Meng Cao, Hongyan Zhang and Shiwen Zhang

1337 **Management of South Florida Invasive Plants through Biochar Production.** Shagufta Gaffar*

1338 **Quantifying Nutrient Concentration and Masses in Residential Septage.** Guy Iverson*, Charles P Humphrey Jr., Michael O'Driscoll, Christa Sanderford and Jordan Jernigan

1339 **Laboratory Hood Culture of Terrestrial Plants for Investigations Involving Highly Toxic Materials.** Ronald T. Checkai*, Michael Simini and Mark V. Haley

1340 **Method for Screening Cu, Zn or Pb Phytotoxicity on Switchgrass and Reed Canarygrass.** Annie Claessens*, Francois Langevin, Isabelle Royer, Athyna N. Cambouris, Denis Angers and Noura Ziadi

SESSION NO. 320—4:30 PM–6:00 PM

Tampa Convention Center, Room 13, First Floor

Wetland Soils Mixer

SSSA Division: Wetland Soils

4:30 PM **Introductory Remarks**
4:30 PM **Mixer**
6:00 PM **Adjourn**

SESSION NO. 321—5:00 PM–6:00 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Physics and Hydrology Division Student Competition, Part 2 - Posters

SSSA Division: Soil Physics and Hydrology

1245 **Numerical Analysis of Soil Water Dynamics Under Subsurface Ring-Shaped Emitter Irrigation Using Hydrus.** Reskiana Saefuddin*, Hirotaka Saito and Jirka Šimůnek

1246 **Temporal Dynamics of Soil Water Among Delineated Management Zones.** Javier Reyes* and Ole Wendroth

1247 **Accounting for Stony Soil in Noah-MP Land Surface Model Simulations.** Kshitij Parajuli*, Scott B. Jones, LIn Zhao and David Tarboton

1248 **Comparison of Surface Energy Balance Components between a Tilled and an Un-Tilled Bare Soil.** Ohene Akuoko*, Dilia Kool, Thomas J. Sauer, Joshua L. Heitman and Robert Horton

1249 **Soil Thermal Property Values As a Function of Water Content and Bulk Density.** Bing Tong*, Dilia Kool, Ohene Akuoko, Joshua L. Heitman, Thomas J. Sauer and Robert Horton

1250 **Water Movement in T- and Y- Shaped Capillary Tubes Under Microgravity.** Yuichi Maruo*, Naoto Sato and Kosuke Noborio

1251 **Kinetics of Molybdenum Adsorption-Desorption in Soils.** Wenguang Sun* and Magdi Selim

1252 **Exchangeable Sodium Percentage and Salinity Impacts on Soil Atterberg Limits, Shrinkage, Strength and Water Retention.** Hans Klopp*, William Bleam, Ph.D. and Francisco Arriaga

1253 **Evaluation of Different Models for Estimating the Hydraulic Parameters and Thermal Conductivity of Pasture Unsaturated Soils.** Geeta Kharel*, Sanjit K Deb and Charles P West

1254 **In Situ Correction of Probe Deflection for a Thermo-TDR Sensor Provides Accurate Determination of Soil Water Content.** Minmin Wen*, Gang Liu and Robert Horton

1255 **Application of the Parswms Parallelized Code for Simulation of Three-Dimensional Water Flow and Solute Transport in Containerized Soilless Substrates.** Mohammad R Gohardoust*, Horst Hardelauf, Asher Bar-Tal, Hadar Heller, Michal Amichai and Markus Tuller

1300 **Relationships between Soil Cracks and Behaviors of CO2, CH4 and N2O Gases and Soil Water in Paddyfield Soil.** Toshihiro Doi* and Kosuke Noborio

1301 **Evaluating the 2-D Distribution of Volumetric Water Content and Electrical Conductivity with Cloud-Based Drip Fertigation System.** Shinsuke Aoki*, Yuki Ito, Sota Yaegashi, Ryuta Honda, Kiyoshi Ozawa, Hiroshi Takesako, Eiji Kita and Kosuke Noborio

1302 **Water Imbibition in Porous Media Under Simulated Microgravity Conditions.** Naoto Sato*, Yuichi Maruo and Kosuke Noborio

1303 **Effects of Wildfire on Soil Hydrophobicity Persistence in Humid Hardwood Forests.** Jingjing Chen* and Ryan Stewart

1304 **Measuring Soil Moisture in Skeletal Soils Using a Cosmos Rover.** Candice Medina*, Haly L. Neely, Darin Desilets, Binayak P. Mohanty and Georgianne W. Moore

1305 **Improving Irrigation Management By Understanding Rhizosphere Processes.** Luke Carter*, Thorsten Knappenberger, Joey N. Shaw, Charles Monks and Julie A. Howe

1306 **Towards Novel Techniques for Root Phenotyping Using GPR.** Catherine Kobylinski*, Haly L. Neely, Dirk Hays, Katie L. Lewis and Mark Everett

1307 **Biodegradable Plastic and Paper Mulch Effects on Soil Moisture Dynamics.** Henry Sintim*, Mustafa Saglam, Andy Bary and Markus Flury

1308 **Evaluation and Calibration of Empirical Methods to Estimate Reference Evapotranspiration in Northwest Texas.** Yassine Cherif*, Ripendra Awal and Ali Fares

SESSION NO. 322—5:00 PM–6:45 PM

Marriott Tampa Waterside, Room 8 and 9

Launch of the Sustainable Intensification Assessment Framework

Sponsored by SIIL (Sustainable Intensification Innovation Lab)

ASA Section: Environmental Quality

Section or Division Cosponsor: ASA Section: Global Agronomy

Moderator: Vara Prasad

5:00 PM **Introductory Remarks**
5:10 PM **History of the Sustainable Intensification Assessment Framework**
5:20 PM **Overview of the Sustainable Intensification Assessment Framework**
5:35 PM **Ceremonial Release of the SI Assessment Framework and Manual**
5:45 PM **Facilitated Panel**
6:15 PM **Open Panel**
6:45 PM **Adjourn**

SESSION NO. 323—5:15 PM–8:00 PM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Leo M. Walsh Soil Fertility Distinguished Lectureship

Sponsored by The Mosaic Company

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Carl Crozier, Gregory Schwab

	5:15 PM	**Introductory Remarks**
323-1	5:20 PM	**Soil Fertility Views from the Tropics.** Pedro A. Sanchez*
	6:15 PM	**Reception After Program**
	8:00 PM	**Adjourn**

SESSION NO. 324—5:30 PM–7:00 PM

Tampa Convention Center, Room 3, First Floor

Special Session--Elevator Speech Contest for Grad Students and Post-Docs

ACS238 Graduate Student Committee

SESSION NO. 325—6:00 PM–7:00 PM

Tampa Convention Center, Room 5, First Floor

SSSA Business Meeting--Soil Chemistry

SSSA Division: Soil Chemistry

SESSION NO. 326—6:10 PM–7:30 PM

Tampa Convention Center, Room 2

SSSA Business Meeting--Soil Mineralogy

SSSA Division: Soil Mineralogy

Moderator: Judith Turk

SESSION NO. 327—6:30 PM–7:15 PM

Tampa Convention Center, Room 6

SSSA Business Meeting--Soils and Environmental Quality

SSSA Division: Soils and Environmental Quality

SESSION NO. 328—7:00 PM–8:30 PM

Tampa Convention Center, Ballroom D

Screening of "Between Earth and Sky"

Special Sessions

Wednesday, Oct. 25

SESSION NO. 329—7:00 AM–9:00 AM

Marriott Tampa Waterside, Grand Ballroom E and F, Second Level

ASA Breakfast, Awards, and Plenary (E.T. & Vam York Distinguished ASA Lectureship)

Keynote/Plenary Sessions

Moderator: Jessica Davis, Steven Evett, Paul Fixen

	7:00 AM	**ASA Breakfast** (ticket required)
	7:40 AM	**Introductory Remarks**
	7:50 AM	**ASA Awards**
329-1	8:40 AM	**Plant Nutrients – The Disconnect Between Local Needs and Global Production** J. Scott Angle*
	9:00 AM	**Adjourn**

SESSION NO. 330—7:55 AM–9:15 AM

Tampa Convention Center, Room 20, First Floor

New Paradigms of Soil Organic Matter and Consequences for Forest Soils and Management Oral

SSSA Division: Forest, Range and Wildland Soils

Moderator: Adrian Gallo

	7:55 AM	**Introductory Remarks**
330-1	8:00 AM	**Soil Carbon Response to Thinning and Fertilization Treatments in a Coastal Pacific Northwest Forest.** Cole D. Gross*, Jason James, Eric C. Turnblom and Rob Harrison
330-2	8:15 AM	**Root Carbon Contributions Are Uniform across Intensive Biomass Removal Treatments in a Western Oregon Douglas-fir Forest.** Adrian C. Gallo*, Jeff Hatten and Scott M. Holub
330-3	8:30 AM	**Retention of Foliage and Root Derived Dissolved Organic Carbon in Soil: A Comparison between Aspen and Conifer.** Antra Boca*, Astrid R. Jacobson and Helga Van Miegroet
330-4	8:45 AM	**Isotopic and Spectroscopic Investigations into the Microbial Formation of Soil Organic Matter.** Courtney Creamer, Jack McFarland, Andrea Foster, Corey R. Lawrence and Mark P Waldrop*
330-5	9:00 AM	**Coupling Solid- and Liquid-Phase Soil Organic Matter Analyses to Understand the Consequences of Forest Conversion and Management on Brazilian Oxisols.** Jason Nathaniel James*, Cole D. Gross, Rob Harrison and David Butman
	9:15 AM	**Adjourn**

SESSION NO. 331—7:55 AM–9:45 AM

Marriott Tampa Waterside, Grand Ballroom I and J, Second Level

Soil Physics and Hydrology General Oral

SSSA Division: Soil Physics and Hydrology

Moderator: Yan Jin

	7:55 AM	**Introductory Remarks**
331-1	8:00 AM	**Canopy Tree Management and the Effect on Water Infiltration Rate.** Javier Q. Mollinedo*, Rosemary Gutierrez, Alyssa Cho and Mark G Wright
331-2	8:15 AM	**Design and Assessment of a Capillary Irrigation System for Fertilizer MICRO-Dosing in Vegetable Production.** Durodoluwa Joseph Oyedele*, Mary Kemi Idowu, Fatai Oladapo Tijani and Iyiola Egbebi
331-3	8:30 AM	**An Evaluation of Root Respiration and of Natural and Agricultural Processes of Soil Aeration.** Shmulik Friedman* and Ilan Ben-Noah
331-4	8:45 AM	**Coupled Changes in Soil Aggregate and Carbon Dynamics Due Drought Induced Desiccation.** Asmeret Asefaw Berhe*, Chelsea L Arnold and Teamrat Ghezzehei
331-5	9:00 AM	**Contributions of Nanoscale Roughness to Anomalous Colloid Retention and Stability Behavior.** Scott A. Bradford*, Hyunjung Kim, Chongyang Shen and Jianying Shang
331-6	9:15 AM	**Quantification and Characterization of Colloidal Organic Carbon Released Under Oscillating Water Content and Redox Conditions.** Yan Jin*, Mohammad Afsar and Jing Yan
331-7	9:30 AM	**Assessing Student Learning in Soil Physics and Hydrology Courses: Coaching for Problem Solving or Memorization?** Aaron L.M. Daigh*
	9:45 AM	**Adjourn**

SESSION NO. 332—7:55 AM–12:10 PM

Tampa Convention Center, Room 10, First Floor

Nitrogen Efficiency, Cycling and Environmental Impacts

SSSA Division: Nutrient Management and Soil and Plant Analysis

Moderator: Uttam Saha

	7:55 AM	**Introductory Remarks**
332-1	8:00 AM	**The Effect of Urease and Nitrification Inhibitors on Soil Microbial Communities.** Aineah Obed Luchibia*, Suter Helen, Shu Kee Lam and Ji-Zheng He
332-2	8:15 AM	**Assessing Microbial Nitrogen Removal in Advanced Soil Treatment Areas to Reduce Septic Tank Pollution in Cape Cod.** Sara Wigginton*, Elizabeth Q Brannon, Jose Adolfo Amador, George Loomis, Jonathan Ludovico, Alicia Boucher and George Heufelder
332-3	8:30 AM	**Resistance and Resilience of Soil Nitrogen Cycling to Environmental Stresses.** Xin Shu*, Bryan Griffiths, Paul Hallett, Elizabeth Baggs and Tim Daniell
332-4	8:45 AM	**Soil CH4 and N2O Fluxes in an Improved-Fallow Slash-and-Mulch Agroforestry System for One Year in Secondary Forest and One Year of Crop Cultivation in Eastern Amazonia of Brazil.** Aaron H. Joslin*, Lawrence A. Morris, Steel Vasconcelos, Osvaldo Kato, Francisco de Assis Oliveira and Daniel Markewitz
332-5	9:00 AM	**Linking Anthropogenic Reactive N Release to Localized Environmental Pollution: Reactive N Spatial Intensity.** Deli Chen*, Xia Liang, Shu Kee Lam, Baojing Gu, James Galloway and Alley Leach
332-6	9:15 AM	**Maleic-Itaconic Polymers As Urease Inhibitors.** Luca Mazzei, Valquiria Broll and Stefano Ciurli*
332-7	9:30 AM	**Understanding How Much Nitrogen Used By Pasture Comes from Soil or Applied Fertiliser to Improve the Long-Term Sustainability of Australian Dryland Dairy Pasture Systems.** Helen Suter*, Shu Kee Lam, Charles Walker and Deli Chen
332-8	9:45 AM	**Effect of Soil Moisture on the Efficiency of Pre-Flood N Applications in Rice.** Dustin L. Harrell*, Gregory J. Schwab, Manoch Kongchum and Nutifafa Adotey
	10:00 AM	**Break**
332-9	10:10 AM	**High Crop Nitrogen-Use Efficiency Does Not Translate into Low Environmental Losses in the Midwestern US.** Rafael A Martinez-Feria*, Michael J. Castellano, Matthew J Helmers, Matt Liebman, Ranae Dietzel, Isaiah Huber and Sotirios V Archontoulis
332-10	10:25 AM	**Agronomic, Environmental and Economic Benefits of Site Specific Nitrogen Management for Maize (Zea mays L.).** Aicam Laacouri*, David Mulla, Tyler John Nigon and Jeffrey A. Vetsch
332-11	10:40 AM	**Legacy Effects of Long-Term Nitrogen Fertilizer Rate on Nitrogen Use Efficiency in Continuous Corn.** Hanna Poffenbarger*, John E. Sawyer, Dan Olk, Johan Six and Michael J. Castellano
332-12	10:55 AM	**Nitrogen Budget Components for Continuous Corn in the Northern Corn Belt.** Jeffrey S. Strock* and Andry Ranaivoson
332-13	11:10 AM	**Site-Specific Nitrogen Response Functions for Maize in Argentina.** Laila Puntel*, Sotirios V Archontoulis and Agustin Pagani
332-14	11:25 AM	**Evaluating End of Season Nitrogen Status in Rice.** Kyle Hoegenauer*, Trenton L. Roberts, Richard J. Norman, Nathan A. Slaton and Jarrod T Hardke
332-15	11:40 AM	**Management Zone Based Variable Rate Nitrogen Management for Corn in Semi-Arid Western Nebraska.** Timothy M. Shaver*, Raj Khosla, D. Brian Arnall and Louis Lonchamps
332-16	11:55 AM	**N-Uptake and Yields in Spring Wheat Affected By Waterlogging at Different Growth Stages.** Majken Meldorf Deichmann*, Xiao Wang, Christen Duus Borgesen, Mathias Neumann Andersen and Ingrid Kaag Thomsen
	12:10 PM	**Adjourn**

SESSION NO. 333—8:00 AM–9:40 AM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Crop Breeding & Genetics Oral III: Focus on Phenotyping

C01 Crop Breeding and Genetics

Moderator: Seth Murray

	8:00 AM	**Introductory Remarks**
333-1	8:05 AM	**A High-Throughput Characterization of Freezing Tolerance in Vicia Villosa for Northern Adaptation.** Nicholas Wiering*, Garett Heineck, Claire Flavin, Craig C. Sheaffer and Nancy Jo Ehlke
333-2	8:20 AM	**Field Test Results of a New Device for Measuring Stalk Strength.** Daniel J Robertson*, Witold de la Chapelle, Douglas Cook and Hao Zhou
333-3	8:35 AM	**Analysis of Water Soluble Carbohydrates Accumulation in Wheat Stem Using NIR Spectroscopy.** Anju Giri*, Robert M. Aiken, Floyd Dowell, Krishna Jagadish SV, Allan Fritz and Jesse Poland
333-4	8:50 AM	**Are Physiology and Phenomics Going to be Phruitful for Breeding.** Scott C. Chapman*, David R. Jordan, Bangyou Zheng, Andries Potgieter, Graeme L. Hammer, Wei Guo, Tao Duan, Barbara George-Jaeggli, James Watson and Pengcheng Hu
333-5	9:05 AM	**Designing a High-Throughput Ground Based Sensing System for Plant Evaluation.** Jeremy Joshua Pittman*
333-6	9:20 AM	**Validation and Implementation of Unmanned Aerial Systems in the Sorghum Breeding Pipeline.** David W. Horne*
333-7	9:30 AM	**Prediction of Biomass Yield in Bioenergy Sorghum Using Unmanned Aerial Systems.** Nicholas Pugh*
	9:40 AM	**Adjourn**

SESSION NO. 334—8:00 AM–9:50 AM

Tampa Convention Center, Room 22

Surface Residue Management and Impacts on Soil Biology and Soil Health

SSSA Division: Soil Biology and Biochemistry

Moderator: Brice Cazenave

	8:00 AM	**Introductory Remarks**
334-1	8:05 AM	**Soil Properties' Response to Wheat Stubble and Corn Stubble Residue Management in Louisiana.** Autumn Acree*, Lisa M. Fultz, Josh Lofton, Beatrix Haggard and Kathleen Bridges
334-2	8:20 AM	**Soil Organic Carbon and Microbial Biomass in Surface and Subsurface Soil Under Emerging Soil Conservation Practices.** Anil Somenahally*, Prasanna H. Gowda, Jesse I. DuPont, Francis M. Rouquette Jr. and Brian K. Northup
334-3	8:35 AM	**Evaluating Anaerobic Soil Disinfestation and Other Biological Soil Management Methods for Open-Field Tomato Production in Florida.** Bodh R Paudel*, Xin Zhao, Francesco Di Gioia, Monica Ozores-Hampton, Jason C Hong, Nancy Kokalis-Burelle and Erin N Rosskopf
334-4	8:50 AM	**Effect of Cover Crop Species on Crop Yield and Soil Health in the Southeastern United States.** Sindhu Jagadamma*, Mingwei Chu, Forbes R. Walker, Michael Buschermohle and Lori Duncan
334-5	9:05 AM	**Potential Soil Carbon Mineralization and Mineralization Kinetics Under Diverse Cover Crop Residues.** Binod Ghimire*, Rajan Ghimire, Abdel O. Mesbah and Dawn VanLeeuwen
334-6	9:20 AM	**Using Landsat Archive for Retrospective Estimates of Conservation Tillage Practices.** Peter Beeson*, Steven Wallander and Craig S. T. Daughtry
334-7	9:35 AM	**Fertilizer and Residue Incorporation Effects on Pathogen Inhibitory Potential of Soil *Streptomyces*.** Miriam F. Gieske* and Linda Kinkel
	9:50 AM	**Adjourn**

SESSION NO. 335—8:00 AM–10:00 AM

Tampa Convention Center, Room 19, First Floor

Symposium--Building Soil Organic Matter and Improving Soil Function in Grazing Lands

Sponsored by Noble Research Institute

C06 Forage and Grazinglands

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

	8:00 AM	**Introductory Remarks**
335-1	8:05 AM	**Grazing Management Effect on Carbon and Nitrogen in Rangelands.** Martha Mamo*, Walter Schacht, Anita Wingeyer, Jerry Volesky, Haishun Yang, Jeffrey Bradshaw, Pamela J Sutton and John A. Guretzky
335-2	8:30 AM	**How Can We Manage North Central Grasslands to Build SOC?** Randall Jackson*, Gregg Sanford, Anna Cates, Lawrence Gary Oates, Greta Landis, Adam von Haden, Erica Diehl, Herika Kummel and Brian Spiesman
335-3	8:55 AM	**Can Grass-Endophyte Technology be Utilized to Build Soil Organic Matter and Improve Pasture Soil Function?** Rebecca L. McCulley*
335-4	9:20 AM	**Management Intensification Impacts on Soil Carbon Dynamics in Subtropical Grazing Lands.** Maria Lucia A. Silveira*, Lynn Sollenberger and Joao M.B. Vendramini
	9:45 AM	**Discussion**
	10:00 AM	**Adjourn**

SESSION NO. 336—8:00 AM–10:00 AM

Tampa Convention Center, Room 1, First Floor

Symposium--Phenotyping Plant Genetic Resources to Support Climate Smart Agriculture

C08 Plant Genetic Resources

Section or Division Cosponsor: C01 Crop Breeding and Genetics

	8:00 AM	**Introductory Remarks**
336-1	8:04 AM	**Towards High Throughput Stress Phenotyping in Soybeans Using Machine Learning.** Arti Singh*
	8:29 AM	**Discussion**
336-2	8:33 AM	**High-Throughput Phenotyping for Plant Characterization, Selection, and Breeding.** Arron Carter*, Jayfred Gaham Godoy, Stephanie Sjoberg and Kimberly A. Garland Campbell
	8:58 AM	**Discussion**
336-3	9:02 AM	**Estimating Height and Yield in Grain Sorghum Using Uav Systems and Their Application in Breeding.** William L. Rooney*, Nicholas Ace Pugh, David W. Horne, Murilo Maeda, Jinha Jung, Lonesome Malambo, J. Alex Thomasson and Sorin Popescu

	9:27 AM	**Discussion**
336-4	9:31 AM	**Genetic Dissection of Growth, Development, and Stress Response in Diverse Sorghum with High-Throughput Phenotyping.** Geoffrey Morris*
	9:56 AM	**Discussion**
	10:00 AM	**Adjourn**

SESSION NO. 337—8:00 AM–10:35 AM

Tampa Convention Center, Room 5, First Floor

Crop Physiology and Metabolism General Oral III

C02 Crop Physiology and Metabolism

Moderator: John Snider

	8:00 AM	**Introductory Remarks**
337-1	8:05 AM	**High Throughput Phenotyping of Biomass Sorghum Using Ground and Aerial Imaging.** Amir Sadeghpour*, Joseph Oakes, Sayantan Sarkar, Robert Pitman and Maria Balota
337-2	8:20 AM	**Cold Stress Resilience at Early Seedling in Sorghum Determined By Integrating Aerial Imagery and Destructive Phenotyping.** Anuj Chiluwal*, Raju Bheemanahalli Rangappa, Antonio Ray Asebedo, Nithin Shetty, Ramasamy Perumal, P. V. Vara Prasad and S.V. Krishna Jagadish
337-3	8:35 AM	**Examining Ground and Aerial Remote Sensing Measurements for NUE and Variety Selection in Wheat.** Joseph Oakes*, Maria Balota, Kyle Brasier, Amir Sadeghpour, Robert Pitman, Wade E. Thomason and Carl A. Griffey
337-4	8:50 AM	**Innovative Bvoc Technologies to Directly Fine Tune Crop Stress While Building System Resilience.** Diane L. Rowland*, Doug Britton, Wayne Daley, Olga Kemenova, Daniel Sabo, Judy Song, Barry L. Tillman, Yu-Chien Tseng and Brendan A Zurweller
337-5	9:05 AM	**Using Carbon Isotope Discrimination to Estimate WUE in Soybean and Its Relation with Physiological Traits.** Alvaro Sanz-Saez*, Hossein Zakeri, Andrew Scaboo and Felix B. Fritschi
	9:20 AM	**Break**
337-6	9:35 AM	**Evaluation of Physiological Traits Associated with Wheat Yield in the Southern High Plains.** Qingwu Xue*, Kirk E Jessup, Gautam Prasad Pradhan, Xiaobo Hou, Sarah Ajayi, Jackie C. Rudd, Shuyu Liu, Amir M.H. Ibrahim and Ravindra N. Devkota
337-7	9:50 AM	**Genotypic Variability in Symbiotic Nitrogen Fixation and Carbon Isotope Discrimination Among Peanut Genotypes Under Drought Stress.** Xu Wang*, Yucheng Feng, Charles Yiwu Chen, Phat Dang, Marshall Lamb, C. Corley Holbrook, Peggy Ozias-Akins, Ye Chu and Thomas George Isleib
337-8	10:05 AM	**Do Endophytes Improve Physiological Traits and Functions of Host Plants? a Meta-Analysis of Endosymbiosis Effects on Plant Physiology.** Hyungmin Tony Rho* and Soo-Hyung Kim
337-9	10:20 AM	**Seedling Vigor and Carbon Dynamics of the First True Leaf.** John Snider*, Yinglong Chen and Haimiao Wang
	10:35 AM	**Adjourn**

SESSION NO. 338—8:00 AM–10:45 AM

Tampa Convention Center, Room 31, Third Floor

Soil and Water Management and Conservation General Oral III

SSSA Division: Soil and Water Management and Conservation

Moderator: Maria Martinez, Andrea Basche

	8:00 AM	**Introductory Remarks**
338-1	8:05 AM	**Soil Quality Outcomes from Dryland Cropping Systems: Comparison of Conservation and Business As Usual Practices.** Mark A. Liebig*, Veronica Acosta-Martinez, David W. Archer, John Hendrickson, Scott L. Kronberg and Susan Samson-Liebig
338-2	8:20 AM	**How Does Agricultural Management for Soil Health in the Southern Plains Impact a Suite of Soil Health Indicators?** Caitlin Rottler*
338-3	8:35 AM	**Regression-Kriged Soil Organic Carbon Stock Changes in Manured Corn Silage-Alfalfa Production Systems.** Joshua D. Gamble*, Gary W. Feyereisen, Sharon K. Papiernik, Chris Wente and John Baker
338-4	8:50 AM	**An Artificial Neural Network Model for Predicting Particle Size Distribution (texture) of Eroded Soil.** Carlos A Bonilla* and María Paz Lagos-Avid
338-5	9:05 AM	**Impact of Polymers and Biochar on Hydro-Physical Properties of Sandy Soil.** Arafat Alkhasha, Abdrubalrasol Al-Omran* and Anwar aly
	9:20 AM	**Break**
338-6	9:30 AM	**Soil Health Evaluation of Flooded Rice Cultivation Compared to Other Agricultural Land-Use Practices.** Jehangir Bhadha*, Raju Khatiwada, Salvador Galindo and Jay Capasso
338-7	9:45 AM	**Using Designed Terraces Systems for Sustainable Management of Degraded Arid Loess Cultivated Lands. Attir Farm, Northern Negev, a Case Study.** Amir Mor-Mussery* Sr., Michael Ben-Eli and Stefan Leu
338-8	10:00 AM	**Comparing Variability of Soil Health Indicators to More Commonly-Measured Soil Nutrient Availability Tests.** Tunsisa T. Hurisso*, Steven W. Culman and Kaiguang Zhao
338-9	10:15 AM	**Elevated Rangeland Dust Emissions Threaten Ecosystem Services with Continued Grazing and Vehicle Disturbance and Increasing Drought.** Travis Nauman*, Michael Duniway and Jayne Belnap
338-10	10:30 AM	**Comparative Assessment of Physico-Chemical Characteristics and Selected Trace Metal Distribution in Soils from Three South African Tea Estates.** Funso Raphael Kutu*, Tanmoy Karak and Adeola M Ojo
	10:45 AM	**Adjourn**

SESSION NO. 339—8:00 AM–11:40 AM

Tampa Convention Center, Room 39, Third Floor

Soils and Environmental Quality General Oral II

SSSA Division: Soils and Environmental Quality

Moderator: T.Q. Zhang, Peter Vadas

8:00 AM **Introductory Remarks**

339-1 8:05 AM **The Effect of Climate Change Induced Flooding on Soil Biogeochemical Properties in a Coastal Ecosystem.** Rosemary Collins*, Rao S. Mylavarapu, Todd Z. Osborne and Mark W Clark

339-2 8:20 AM **Soil Surface Greenhuse Gases in an Integrated Crop-Livestock System in South Dakota, USA.** Liming Lai*, Sandeep Kumar and Peter J. Sexton

339-3 8:35 AM **Climate and Land Use Changes Impact on Nitrogen Concentrations and Nitrogen Loads in the Minnesota River.** Nathaniel Baeumler* and Satish Gupta

339-4 8:50 AM **The Influence of Agricultural Systems on Greenhouse Gas Emissions in the Eastern High Plains of Colombia.** Miguel Arango*, Nubia Rodriguez, Orlando Arguello, Jaime Bernal, Jose Baquero, Ngonidzashe Chirinda and Sandra Loaiza

339-5 9:05 AM **Greenhouse Gas Balances of Livestock Manure during Storage and Field Application with and without Anaerobic Digestion.** Khagendra Raj Baral*, Guillaume Jégo, Barbara Amon, Roland Bol, Martin Chantigney, Jørgen E Olesen and Søren O Petersen

339-6 9:20 AM **Using the Surface Energy Balance As an Indicator of Success in Soil Reclamation.** Peter O'Brien*, Thomas M. DeSutter, Nathan E. Derby, Francis X.M. Casey, Abbey Foster Wick and Eakalak Khan

9:35 AM **Break**

339-7 9:50 AM **The Interfacial Behavior between Biochar and Soil Minerals and Its Effect on the Char Stability.** Xinde Cao*, Xiaoyun Xu and Fan Yang

339-8 10:05 AM **Evaluating the Effect of Biochar on Soil Quality Improvement, While Sequestering Soil Carbon.** Mohammad H. Golabi* and Clancy Iyekar

339-9 10:20 AM **Arsenic Uptake in the Hyperaccumulating Fern *Pteris Vittata* from Soils Contaminated with Pyrite Cinders.** Sarick Matzen* and Céline Pallud

339-10 10:35 AM **Quantification of Carboxylic Acids and Phenols in High Organic Content Liquids with an Automated Potentiometric Titration Method.** Karen He*, Taha Rezai and John L. Breen

339-11 10:50 AM **Geomorphological Connections to Soil Available Water and Predicting the Environmental Persistence of Munition Constituents.** Brooke Stevens*, Haley M West, Mark Chappell, Maria E Negrete and Beth E. Porter

339-12 11:05 AM **A Detailed Molecular Characterization of High Organic Content Liquids Used in Agriculture.** Charles Grove*, Karen He, Taha Rezai and John L. Breen

339-13 11:20 AM **Potential of Spray Dry Absorber Calcium Sulfite By-Product As an Agricultural Amendment.** Nicholas Bero*, Francisco Arriaga and Richard Wolkowski

11:35 AM **Concluding Remarks**

11:40 AM **Adjourn**

SESSION NO. 340—8:00 AM–11:50 AM

Tampa Convention Center, Room 13, First Floor

Phosphorus, Potassium and Other Nutrients - Soil Fertility and Plant Nutrition

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Cristie Edwards

8:00 AM **Introductory Remarks**

340-1 8:05 AM **Phosphorus Management for No-till Winter Wheat in Oklahoma.** Patrick H. Watkins* and D. Brian Arnall

340-2 8:20 AM **Wheat Root Growth and Phosphorus Uptake Affected By Fertilizer Source and Rate.** Fernando Dubou Hansel* and Dorivar A. Ruiz Diaz

340-3 8:35 AM **What Root Traits Determine Grass Resistance to Phosphorus Deficiency in Production Grassland?** Mart B.H. Ros*, Gerlinde De Deyn, Gerwin F. Koopmans, Oene Oenema and Jan Willem van Groenigen

340-4 8:50 AM **Facilitated Phosphorus Acquisition of Maize Is Dependent on the Root Traits of Associated Faba Bean in Intercropping Systems.** Meijie Qiu and Long Li*

340-5 9:05 AM **Phosphorus Fertilizer Affected Yields and Tillering of Four Wheat Cultivars in the Northern Great Plains.** Jasper M Teboh*

340-6 9:20 AM **Nutrient Dynamics in a Highly-Weathered Soil Under Long-Term No-till System.** Joao Antonangelo, Hailin Zhang and Luis Reynaldo Ferracciu Alleoni

340-7 9:35 AM **Changes in Soil Nutrient and Physical Status Following Exposure to Elevated Temperatures.** Tony L. Provin*, Jake E. Mowrer, Vanessa Limon and Kimberlyn Pace

9:50 AM **Break**

340-8 10:05 AM **Observation Analysis of Soil Edaphic Factors on Corn Leaf Potassium in the Midwest.** Robert O. Miller* and Tim J Smith

340-9 10:20 AM **Availability of Potassium and Secondary Nutrients from Polyhalite and Their Significance for Crop Growth.** Robert Meakin, Kiran Pavuluri* and Timothy D Lewis

340-10 10:35 AM **Effect of Polyhalite and MOP As a K Source on the Yield and Nutrient Uptake of Maize in Sichuan, China.** Xiaohui Fan*, Robert Meakin, Kiran Pavuluri, Timothy D Lewis and Yusheng Qin

340-11 10:50 AM **Characteristic Features of POLY4 As a Multi-Nutrient Fertilizer.** Robert Meakin*, Timothy D Lewis, Ahmad Albadarin, Gavin Walker and Kiran Pavuluri

340-12 11:05 AM **Corn and Sorghum Yield Response to Chloride and Changes in Tissue Concentration in Different Plant Parts.** Dorivar A. Ruiz Diaz* and Fernando Dubou Hansel

340-13 11:20 AM **Sulfur Applications on No-till Cotton and Soil Sulfur Testing Method Comparison.** Xinhua Yin*, Tyson Brant Raper and Hubert J. Savoy Jr.

340-14 11:35 AM **Rice (Oryza sativa L.) Tolerance to Drought Can be Improved By Silicon Application.** Mostafa A. Ibrahim, Abdelrahman M Merwad, Elsayed A Elnaka and Elsayed A Abdelbary*

11:50 AM **Adjourn**

SESSION NO. 341—8:00 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom B

Special Session Symposium--Humic Products: Uses in Crop Production and Soil Improvement

Sponsored by Humic Products Trade Association

Special Sessions

Moderator: Daniel Olk, Rene Scoresby

	8:00 AM	**Introductory Remarks**
341-1	8:05 AM	**Overview of the Humic Products Industry and Humic Products Trade Association.** Russell D Taylor*
341-2	8:25 AM	**5 Year Case Study of Humic Products on 40,000 Acres of Potato / Corn Rotation.** Darryl W King*, Kenneth S Day and Rob Thornton
341-3	8:45 AM	**On-Farm Studies on the Physical, Chemical, and Biostimulant Influence of Humic Substances on Soil Health, Fertilizer and Water-Use Efficiency.** Mir M. Seyedbagheri*
341-4	9:05 AM	**Use of Humic Products for Production of Berry Crops.** David R. Bryla* and Lisa Wasko DeVetter
341-5	9:25 AM	**The Humate Acceptance Cycle or Why Humates Don't Always Work.** Robert H. Faust*
341-6	9:45 AM	**Effect of Humic Products on Crop Production in Western Kansas.** Anserd J. Foster* and Ivan B Cuvaca
	10:05 AM	**Break**
341-7	10:20 AM	**Fulvic Acid Sub-Fractions and Research Data.** Rita Abi-Ghanem*, David Bryla, Olga Walsh and Luisella Celi
341-8	10:40 AM	**Humic Manure Additive Reduced Odor from Pennsylvania Swine Finishing Operation.** Michael L. Hile*, Robin C. Brandt, Eileen E. Fabian and Robert E. Mikesell
341-9	11:00 AM	**Breakdown of Subsoil Fragipan By a Humic Product.** Lloyd Murdock*
341-10	11:20 AM	**Improved Soil Physical Properties with Long-Term Application of Humic Product in Corn-Soybean Rotations.** Daniel C. Olk*, Dana Dinnes, Rene Scoresby and Jerry Darlington
	11:40 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 342—8:00 AM–12:00 PM

Tampa Convention Center, Room 37

Soil Chemistry General Oral

SSSA Division: Soil Chemistry

Moderator: Dinesh Adhikari, Joseph Weeks, Diego Barcellos

	8:00 AM	**Introductory Remarks**
342-1	8:05 AM	**An in Situ ATR-FTIR Study of Sulfate / Phosphate, and Oxytetracycline Surface Complexation on Kaolinite in a Competitive Adsorption Scenario.** Sudipta Rakshit* and Manisha Dolui
342-2	8:20 AM	**The Role of Aluminum Substitution into Ferrihydrite Nanoparticles on Sulfate Adsorption.** Alireza Namayandeh* and Nadine J. Kabengi
342-3	8:35 AM	**Effects of Cations on Structural Transformation of Layered Manganese Oxides during Oxidation of Fulvic Acid.** Mengqiang Zhu* and Qian Wang
342-4	8:50 AM	**Competitive Adsorption of Arsenate in the Presence of Phosphate and Silicate on Gibbsite and Hematite.** Sabine Goldberg*
342-5	9:05 AM	**Effects of pH and Ion Exchange on Cesium Adsorption in Vermiculite Interlayers.** Daniel R Ferreira* and James Andrew Thornhill
342-6	9:20 AM	**Evaluation of Selenium Speciation and a Sequential Extraction Procedure Using X-Ray Absorption Spectroscopy.** Jessica Favorito*, Todd Peter Luxton, Paul R. Grossl and Matthew J. Eick
342-7	9:35 AM	**Phosphate Solubilization from Metal Hydroxide and Phosphate Materials in the Presence of Avail Polymers.** Sarah Doydora*, Margaret Thompson and Dean Hesterberg
	9:50 AM	**Break**
342-8	10:05 AM	**Adsorptive Fractionation of Water-Extractable Organic Matter on Iron (oxy)Hydroxide: A FT-ICR-MS Study.** Tsutomu Ohno*
342-9	10:10 AM	**Sorption Characteristics of Benzobicyclon Hydrolysate in Important Rice-Production Soils.** Cammy Drost Willett*, Kristofor R. Brye, Erin Grantz and Jessica Clarke
342-10	10:25 AM	**Field Measurements of Soil Iron and Carbon Cycling during Spring Warm-up in an Aggrading Pine Forest at the Calhoun CZO.** Diego Barcellos*, Caitlin Hodges, Daniel Markewitz, Emma Ardington and Aaron Thompson
342-11	10:40 AM	**Qualitative Elemental Composition of Select New York African Burial Ground Grave Soil Samples.** Candice Duncan*
342-12	10:55 AM	**Determination of Minerals and Heavy Metals Content of Agriculture Soils of the United Arab Emirates (UAE) By ICP-OES with GIS Mapping.** Rahaf Ajaj*, Suzan Marwan Shahin, Shyam Kurup Kurup, Abdul Cheruth and Mohammed Salem
342-13	11:10 AM	**Use of Portable XRF: Effect of Thickness and Antecedent Soil Moisture on Measured Concentration of Trace Elements.** Josh Padilla*, Josef Hormes and Magdi Selim
342-14	11:25 AM	**Background Total and Bioaccessible Concentrations of PAHs and Trace Metals in Two Florida Urban Soils.** Peng Gao*, Evandro Barbosa da Silva, Timothy G. Townsend and Lena Q. Ma
342-15	11:40 AM	**Arsenic Removal from As-Hyperaccumulator Pteris Vittata Biomass with Potential to Methane Production.** Evandro Barbosa da Silva*, Jason T. Lessl, Ann Christina Wilkie and Lena Q. Ma
	11:55 AM	**Concluding Remarks**
	12:00 PM	**Adjourn**

SESSION NO. 343—8:10 AM–9:15 AM

Marriott Tampa Waterside, Grand Ballroom D

The Future of Soil Horizon Research (includes student competition)

SSSA Division: Pedology

Moderator: Alfred Hartemink

	8:10 AM	**Introductory Remarks**
343-1	8:15 AM	**Soil Horizon Delineation in the Field and Lab.** Alfred E. Hartemink*, Jenna Grauer-Gray and Yakun Zhang

343-2	8:30 AM	**Taking the Biomantle Concept One Step Farther.** Vance Almquist* and Jay Stratton Noller
343-3	8:45 AM	**Do Genetic Soil Horizons Exist?** Daniel Hirmas* and James Schroeder
343-4	9:00 AM	**Mineralogical Investigation of Color Change Resistance in Hydric Soils Derived from Problematic Red Parent Materials.** Sara Mack*, Martin C. Rabenhorst and Jacob F. Berkowitz
	9:15 AM	**Adjourn**

SESSION NO. 344—8:15 AM–9:30 AM

Tampa Convention Center, Room 23

5 Minute Rapid--General Turf Topics and USGA-GCSAA Research

C05 Turfgrass Science

Moderator: Joseph Young

	8:15 AM	**Introductory Remarks**
344-1	8:25 AM	**Soil Salinity Reductions with Cultivation Practices and Products.** Joseph Ronald Young* and Li Li
344-2	8:30 AM	**Assessment of Topdressing Sands and Associated Cultural Practices Used to Manage Ultradwarf Bermudagrass Greens.** Manuel Roman Chavarria Sanchez*, Kevin J. McInnes and Benjamin Wherley
344-3	8:35 AM	**Development of Turf-Type Saltgrass.** Yaling Qian*, Tess Additon, Dana K. Christensen, Sarah Wilhelm, Mohamed Shahba and Anthony J. Koski
344-4	8:40 AM	**Evaluation of Warm-Season Genotypes at Putting Green Heights with Variable Photosynthetically Active Radiation.** Dustin Harris*, Justin Quetone Moss, Yanqi Wu and Dennis L. Martin
344-5	8:45 AM	**Inorganic N and P Exports from Overseeded and Non-Overseeded Turf.** Charles Henry Fontanier*, Hailin Zhang, Becky Cheary and Huanyun Daun
344-6	8:50 AM	***in Vitro* Variability of *Sclerotinia Homoeocarpa* Exposed to Ferrous Sulfate.** Camden D Shelton*, Shawn D. Askew, Erik H Ervin and David S. McCall
344-7	8:55 AM	**Utilizing Dazomet to Control Poa Annua in Fairway Renovations.** Jacob S. Bravo*, John N. Rogers III, James R Crum and Charles Silcox
344-8	9:00 AM	**Field and Laboratory Screening of Fine Fescues for Allelopathic Potential.** Jon M. Trappe*, Eric Watkins, Long Ma and Aaron J. Patton
344-9	9:05 AM	**Reducing Lawn Mowing Frequency with PGRs.** Aaron Hathaway*, Kevin W. Frank and Thomas A Nikolai
344-10	9:10 AM	**The Impact of End of Day Light Quality on Turfgrass Morphology.** Dominic Petrella*, Edward Nangle and Eric Watkins
	9:15 AM	**Question and Answer**
	9:30 AM	**Adjourn**

SESSION NO. 345—8:25 AM–11:35 AM

Tampa Convention Center, Room 36, Third Floor

Environmental Fate of Chemicals of Emerging Concern Oral (includes student competition)

SSSA Division: Soils and Environmental Quality

Section or Division Cosponsor: SSSA Division: Soil Chemistry

Moderator: Brett Sallach, Yakov Pachepsky

	8:25 AM	**Introductory Remarks**
345-1	8:30 AM	**Effect of Climate on the Mobility of the Human Drug Carbamazepine.** Clinton Williams*, Shad D. Nelson, John Watson and Jarai Mon
345-2	8:45 AM	**The Fate of Three Human Antibiotics in Agroecosystems Due to the Reuse of Wastewater Treatment Plant Effluent.** Alison Franklin*, Clinton Williams, Danielle M. Andrews, Emily E. Woodward and John Watson
345-3	9:00 AM	**Environmental Fate of Pirlimycin in Manure Subsurface Injected Soil-Effects of Fall and Spring Application.** Hanh Thi Van Le*, Partha Ray, Katharine Knowlton, Rory O. Maguire and Kang Xia
345-4	9:15 AM	**Retention/Release of Biosolids-Borne Ciprofloxacin (CIP) and Azithromycin (AZ).** Harmanpreet Singh Sidhu* and George A. O'Connor
345-5	9:30 AM	**Antibiotic Resistance Genes and Residual Antimicrobials in Cattle Feedlot Surface Soil.** David Bright, Daniel N. Miller*, Lisa Durso, Mindy Spiehs, Bryan L. Woodbury, Daniel D. Snow and George A. O'Connor
	9:45 AM	**Break**
345-6	10:00 AM	**Interactions of Tylosin with Smectite Clay.** Michael E. Essington*, Sudipta Rakshit and Jaime Call
345-7	10:15 AM	**Surface Complexation Theoretical Descriptions of the Sorption of Organic-Acid Munition Constituents on Variably Charged Surfaces: Preliminary Findings.** Mark A. Chappell*, Joshua J Lemonte, Brooke Stevens, Maria E Negrete and Beth E. Porter
345-8	10:30 AM	**Comparison of Perfluorooctanoic Acid Mobility in Soil with and without Alfalfa.** Francis X.M. Casey*, Sara Lupton and Heldur Hakk
345-9	10:45 AM	**Effects of Iron-Bearing Clay Minerals on the Degradation of Diethyl Phthalate By Phenols.** Juan Gao*, Ning Chen and Dong-Mei Zhou
345-10	11:00 AM	**Water Analysis Via Portable X-Ray Fluorescence (PXRF) Spectrometry.** Delaina Pearson*, David C. Weindorf, Somsubhra Chakraborty, Piet Van Deventer and Jaco Koch
345-11	11:15 AM	**Thermal Cycling Impacts on Contaminant Fate and Transport in Arctic Soils.** Joshua J. LeMonte*
	11:30 AM	**Concluding Remarks**
	11:35 AM	**Adjourn**

SESSION NO. 346—8:30 AM–12:00 PM

Tampa Convention Center, Room 38

The Role of Soils in Mitigating Environmental Contaminant Exposure Oral (includes student competition)

SSSA Division: Soil Chemistry

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

	8:30 AM	**Introductory Remarks**
346-1	8:35 AM	**Goethite Mediated Electron Transfer between Cr(VI) and AH2DS Under Anoxic Conditions.** Elizabeth Tomaszewski and Matthew A. Ginder-Vogel*
346-2	9:05 AM	**Relative Bioavailability of As, Pb and Cd in Contaminated Soils: Animal Models and Human Risks.** Lena Q. Ma*, Hongbo Li and Albert Juhasz
346-3	9:25 AM	**Predicting Chromate Adsorption on Iron Oxides: A Surface Complexation Modeling Study.** Nefeli Maria Bompoti*, Maria Chrysochoou and Mike Machesky
346-4	9:40 AM	**Sediment Manganese Oxide Content As an Indicator of Groundwater Arsenic Pollution Potential.** Matthew Polizzotto*, Elizabeth Gillispie, Matthew Catesby Jones, Erika Andujar, Lily Schacht, Markus Koeneke, Rebekah Middleton, Nuon Phen, Audrey Matteson and Owen Duckworth
	10:00 AM	**Break**
346-5	10:15 AM	**Effects of Extreme Events on Arsenic Cycling in Salt Marshes.** Kristy Northrup*, Frances Bothfeld and Angelia L. Seyfferth
346-6	10:35 AM	**Mn Oxide Transformation and Alteration in Contaminant Oxidation Rate in the Presence of Fe(II).** Samantha C Ying*, Rebecca Mock, Loryssa Lake, Amy Salvador and Michael V. Schaefer
346-7	10:50 AM	**Synthesis of Nanoparticles of Magnetic Iron Oxides Associated with Biochar and Bonechar and Its Effects on Lead Sorption.** Camila Javorski Ueno, Antonio C. S. Costa*, Ivan Granemann Souza Junior, Dimas A.M. Zaia and Carlos Roberto Appoloni
346-8	11:05 AM	**Modeling the Reactivity of Arsenate in Relation to Microscale Composition of a Soil Matrix.** Aakriti Sharma*, Dean Hesterberg, Amanda Muyskens, Matthew L. Polizotto, Joe Guinness, Yu-chen Karen Chen- Wiegart, Juergen Thieme, Garth Williams, Montserrat Fuentes and Ryan Tappero
346-9	11:25 AM	**Gastrointestinal Bioaccessibility of PAHs and PAH Derivatives Natively Present in Soot Particles Using an in Vitro Model: Effects of Soot Mixing with Soil.** Joseph J. Pignatello*, Yanyan Zhang and Shu Tao
346-10	11:40 AM	**Calcite As a Host for a Variety of Contaminant Oxyanions.** Nikolla P. Qafoku*, Amanda Lawter and Erin McElroy
	12:00 PM	**Adjourn**

SESSION NO. 347—9:00 AM–10:45 AM

Tampa Convention Center, Room 7, First Floor

Wetland Soils General Oral (includes student competition)

SSSA Division: Wetland Soils

Moderator: Patrick Inglett

	9:00 AM	**Introductory Remarks**
347-1	9:05 AM	**Determining Normal Rainfall--Comparison of the Two Different Methods Used By USDA.** Michael J. Vepraskas*, Steven E. Monteith and Jacob F. Berkowitz
347-2	9:20 AM	**Soil-Landscape Relationships in the Rhode River Bathyscape of Chesapeake Bay.** Barret M. Wessel* and Martin C. Rabenhorst
347-3	9:35 AM	**Oxide-Coated Films - an Improved IRIS Technology.** Martin C. Rabenhorst*
347-4	9:50 AM	**Pyrite Formation in the Coastal Everglades: Can a Fool's Gold Indicate Sea-Level Rise?** Paul Julian*, Alan L. Wright, Randy Chambers, John Kominoski, Tiffany Troxler and Todd Z. Osborne
347-5	10:05 AM	**The Interactive and Long-Term Effects of Ranching Practices on Soil Nutrient Dynamics in Sub-Tropical Wetlands.** Janet Ho*, Elizabeth Boughton, David G. Jenkins, Gregory Sonnier, Patrick J. Bohlen and Lisa G. Chambers
347-6	10:20 AM	**Effects of Compost Amendments on Soil Properties 14 Years after Application in a Virginia Coastal Plain Created Wetland.** Emily Ott*, John M. Galbraith and W Lee Daniels
347-7	10:35 AM	**Application of Alpha, Alpha-Dipyridyl Dye for Hydric Soil Identification.** Jacob F. Berkowitz*, Christine VanZomeren, Steven Currie and Lenore M. Vasilas
347-8	10:40 AM	**Comparing Performance of Mn-Coated and Fe-Coated IRIS Devices.** Martin C. Rabenhorst*, Patrick J. Drohan, John M. Galbraith, Brian A. Needelman, Lesley Spokas, Mark Stolt, James A. Thompson, Bruce L. Vasilas and Karen L. Vaughan
	10:45 AM	**Adjourn**

SESSION NO. 348—9:00 AM–10:55 AM

Tampa Convention Center, Room 9, First Floor

Symposium--Soil Health Management and Assessment

SSSA Division: Nutrient Management and Soil and Plant Analysis

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

Moderator: Diane Stott

	9:00 AM	**Introductory Remarks**
348-1	9:05 AM	**Strengthening the Science of Soil Health through Standardized Indicator Methods.** Diane E. Stott*, Jennifer Moore-Kucera, Brandon Smith, Bianca Moebius-Clune, Veronica Acosta-Martinez, Alan J. Franzluebbers and Skye A. Wills

348-2	9:20 AM	**Developing Usable and Useful in-Field Soil Health Assessements.** Dennis Chessman*, Brandon Smith, Jennifer Moore Kucera and Bianca Moebius-Clune
348-3	9:35 AM	**Quantifying Biochemical and Energetic Reservoirs in Soil Organic Matter Under Fertilization and Harvest Treatments.** Zachary Paul*, William C Hockaday, Caroline Masiello, G. Philip Robertson and Morgan Gallagher
348-4	9:50 AM	**Evaluating Root Biomass Effects on the CO2 Flush from Laboratory Dried and Rewetted Soils.** Audrey Laffley*, Susan Erich and Ellen Mallory
348-5	10:05 AM	**A New Method to Measure Particulate Organic Carbon, Nitrogen, Phosphorus, and Sulfur Pools As Early Indicators of Soil Quality.** Rafiq Islam*, Botir Khaitove, Natalia Didenko, Yogendra Raut, Vinayak S. Shedekar and Emmanuel Amoakwah
348-6	10:20 AM	**Modeling the Impact of Soil Management on Soil Functions - a Systemic Approach.** Hans-Joerg Vogel*, Ulrich Weller, Eva Rabot, Bastian Stößel, Birgit Lang, Livia Urbanski, Martin Wiesmeier and Ute Wollschläger
348-7	10:35 AM	**Len Smith Presentation.** Len S. Smith*
	10:50 AM	**Concluding Remarks**
	10:55 AM	**Adjourn**

SESSION NO. 349—9:15 AM–10:20 AM

Tampa Convention Center, Room 20, First Floor

Fire Effects on Soils Oral

SSSA Division: Forest, Range and Wildland Soils

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

Moderator: Lauren Matosziuk

	9:15 AM	**Introductory Remarks**
349-1	9:20 AM	**Season and Interval of Prescribed Burn Effects on Black Carbon in Eastern Oregon Soil.** Lauren Matosziuk* and Jeff A. Hatten
349-2	9:35 AM	**Are Post-Fire Soil Changes Responsible for Persistent, Non-Forested Scars in Colorado Forests?** Charles C. Rhoades*, Timothy S. Fegel II, Tahir Zaman and Paula Fornwalt
349-3	9:50 AM	**Road Repair to Deal with Accelerated Erosion of Argiboroll and Cryoborall Soils of the San Francisco Peaks, Arizona, after a 2010 Wildfire: Successes and Failures.** Daniel G. Neary*
349-4	10:05 AM	**Removal of Rhododendron Maximum Alters Microclimate and Nitrogen Cycling in Southern Appalachian Riparian Forests Affected By Eastern Hemlock Mortality.** Jennifer D. Knoepp*, Katherine J. Elliott and Chelcy F. Miniat
	10:20 AM	**Adjourn**

SESSION NO. 350—9:15 AM–10:45 AM

Marriott Tampa Waterside, Room 11, Third Level

CSSA Business Meeting--Crop Ecology, Management and Quality

C03 Crop Ecology, Management and Quality

SESSION NO. 351—9:15 AM–11:05 AM

Tampa Convention Center, Room 11, First Floor

Symposium--Soil and Fertilizer Management for Food Crops to Improve Human Mineral Nutrition

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

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

Moderator: Adam Heuberger

	9:15 AM	**Introductory Remarks**
351-1	9:20 AM	**Soil Chemistry and Agronomic Biofortification for Improved Human Health.** Gary M. Pierzynski*, Vara Prasad, Zach P. Stewart, Jessie L Vipham and B Jan Middendorf
351-2	9:40 AM	**Fighting Human Malnutrition with Plant Mineral Nutrition.** Ismail Cakmak*
351-3	10:00 AM	**4R Plant Nutrition for Human Nutrition.** Thomas W. Bruulsema*
351-4	10:20 AM	**Agronomic Biofortfication of Wheat with Zn Leads to Higher Levels of Zinc Absorption in-Vivo.** James Stangoulis*, Marija Knez, Elad Tako, Raymond P Glahn, Nikolai Kolba, Emma de Courcy-Ireland and I Ortiz-Monasterio
351-5	10:40 AM	**Genetic, Chemical, and Field Management Strategies for Reducing Accumulation of Arsenic in Rice Grains.** Shannon R. M. Pinson*, Deborah Jo Heuschele, Chris Isbell and Aaron P. Smith
	11:00 AM	**Concluding Remarks**
	11:05 AM	**Adjourn**

SESSION NO. 352—9:30 AM–10:20 AM

Marriott Tampa Waterside, Room 10, Third Level

Undergraduate Education General Oral Session

ASA Section: Education and Extension

	9:30 AM	**Introductory Remarks**
352-1	9:35 AM	**Using Collaboration and Competition to Help Students Learn to Identify Plants.** Barbara A. Darroch*
352-2	9:50 AM	**Factors That Influence Undergraduate Student Interest in Plant- and Crop-Science Related Careers.** Mary Brakke*
	10:05 AM	**Community Planning Session**
	10:20 AM	**Adjourn**

SESSION NO. 353—9:30 AM–10:55 AM

Tampa Convention Center, Ballroom A, First Floor

Special Session Symposium--Soil Organic Matter Management Alternatives in a Smallholder Context

Special Sessions

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

Moderator: Elizabeth Trybula

	9:30 AM	**Introductory Remarks**
353-1	9:35 AM	**Overarching Concepts of Soil Organic Management in the Tropics.** Pedro A. Sanchez*
353-2	9:50 AM	**Curbing Soil Organic Matter Reduction through Integrated Soil Fertility Management in Smallholder Farming Systems in Sub-Saharan Africa.** Generose Nziguheba*, Laurence Jassogne, Fred Kanampiu, Pieter Pypers and Bernard Vanlauwe
353-3	10:05 AM	**Organic Matter Management By Smallholders: Why Don't We See More of It?** Cheryl A. Palm*
	10:20 AM	**Panel Discussion (Includes Q&A)**
	10:50 AM	**Concluding Remarks**
	10:55 AM	**Adjourn**

SESSION NO. 354—9:30 AM–11:15 AM

Marriott Tampa Waterside, Florida Salon I-III, Second Level

Beyond RCBD:Experimental Design for Spatial Variability

ASA Section: Biometry and Statistical Computing

	9:30 AM	**Introductory Remarks**
354-1	9:35 AM	**Position-Balanced Designs Reduce Negative Effects of Randomization in Field Experiments.** Harold van Es*
354-2	10:00 AM	**Space-for-Time Substitution and Paired Plot Design: Alternatives to Convectional Experimental Design.** Bing Cheng Si* and Asim Biswas
354-3	10:25 AM	**New Paradigms for Environmental and Agronomic Research and Education.** Ole Wendroth*, Yang Yang, Javier Reyes and Xi Zhang
354-4	10:50 AM	**Design-Based Versus Model-Based Approaches to Account for Spatial Heterogeneity.** Peter Claussen*
	11:15 AM	**Adjourn**

SESSION NO. 355—9:30 AM–11:30 AM

Marriott Tampa Waterside, Room 2, Second Level

Symposium--Using Economic Analyses to Complement Agronomic Data

ASA Section: Agronomic Production Systems

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

Moderator: John Orlowski

	9:30 AM	**Introductory Remarks**
355-1	9:35 AM	**Production Functions in State-Space: An Economist's Lament.** Charles B. Moss*
355-2	10:00 AM	**Economic Benefits of Fungicide Use in Corn.** Michael Langemeier*, Yangxuan Liu and Kiersten Alane Wise
355-3	10:25 AM	**Evaluating Soybean Production Practice Economics: Best Management Practices Using Agronomic Data.** Gary D. Schnitkey*
355-4	10:50 AM	**Paul Mitchell Presentation.** Paul Mitchell*, Nicola Carey, Jaime Willbur and Damon L. Smith
	11:15 AM	**Discussion**
	11:30 AM	**Adjourn**

SESSION NO. 356—9:30 AM–11:35 AM

Marriott Tampa Waterside, Grand Ballroom G and H, Second Floor

Special Session Symposium--Organic Agriculture Soil Health Research

Special Sessions

Moderator: Diana Jerkins

	9:30 AM	**Introductory Remarks**
356-1	9:35 AM	**Setting and Exceeding Benchmarks for Soil Health on Diversified Organic Vegetable Farms.** John Franklin Egan*, Helen Kollar-McArthur, Dan Dalton, Kristy Borrelli and Charlie White
356-2	9:50 AM	**Comparison of Reduced Tillage Practices for Small-Scale Organic Vegetable Production.** Ryan Maher*, Anu Rangarajan, Mark Hutton, Brian Caldwell, Mark L. Hutchinson and Nicholas Rowley
356-3	10:05 AM	**Using Mycorrhizal Fungi to Improve Soil Health and Increase Yield in Organic Vegetable Farms.** Pushpa Soti* and Alexis Racelis
356-4	10:20 AM	**Effects of Soil Balancing Treatments on Soils, Crops and Pests in Organically Managed Farms.** Andrea Leiva Soto*, Steve Culman, Warren A Dick, Matthew Kleinhenz, Catherine Herms and Douglas Doohan
356-5	10:35 AM	**Organic Agriculture's Ongoing Contribution to Soil Health and the Oeconomy.** Michelle Wander*
356-6	10:50 AM	**Optimizing Nitrogen Management on Organic and Biologically-Intensive Farms.** Douglas P. Collins* and Andy Bary
356-7	11:05 AM	**Soil Health and Organic: Lessons Learned.** Ben Bowell* and Jennifer Kucera

356-8	11:20 AM	**Influence of Long-Term Organic Cropping Systems on Soil Microbial Population Size and Structure.** Lea Vereecke*, Erin Silva and Josephine Peigne
	11:35 AM	**Adjourn**

SESSION NO. 357—9:30 AM–11:35 AM

Marriott Tampa Waterside, Grand Ballroom C, Second Level

Education and Extension General Oral

ASA Section: Education and Extension

Moderator: Shaun Casteel

	9:30 AM	**Introductory Remarks**
357-1	9:35 AM	**Regional Services in a Research Context: USDA Climate Hubs in the Agricultural Research Service.** Emile Elias*, David P Brown, Steven Ostoja, Dennis Todey, Dannele Peck and Albert Rango
357-2	9:50 AM	**Everybody's Gotta Eat: Addressing the Misconceptions of Non-Biology Majors.** Stephanie A. Hansen*, Sharon A. Clay and David E. Clay
357-3	10:05 AM	**Extension Organizational Excellence - Refining the Model.** Larry A. Redmon* and David D. Baltensperger
357-4	10:20 AM	**Teaming up for Success: The WSU Extension Dryland Cropping Systems Team.** Drew J. Lyon* and Haiying Tao
357-5	10:35 AM	**Enhancing a Soybean Curriculum for Certified Crop Advisor Professionals.** Kenneth D. Smiciklas*, Aslihan Spaulding, Linda Kull and Daniel Davidson
357-6	10:50 AM	**Testing, Mapping, and Public Education on Uranium and Radon in Private Drinking Water Wells in Georgia.** Leticia S. Sonon*, Uttam K. Saha, Pamela Turner, Dana R Lynch and Gabrielle Dean
357-7	11:05 AM	**Better Soybean Variety Selection Using Relative Maturity Probabilities and Yield Potential.** David L. Holshouser* and Rasel Parvej
357-8	11:20 AM	**The California Farm Demonstration Network - Diverse Partners Working Together to Increase Adoption of Conservation Agriculture in California.** Jeffrey Mitchell*, Betsy Karle, Tony Rolfes, Zahangir Kabir, Marsha Campbell and Daniel Munk
357-9	11:25 AM	**First Steps: Creation of the Northeast Cover Crops Council and Initial Development of Outreach Products.** Victoria J. Ackroyd*, Steven B Mirsky and Katherine Tully
	11:30 AM	**Question and Answer**
	11:35 AM	**Adjourn**

SESSION NO. 358—9:30 AM–11:50 AM

Marriott Tampa Waterside, Florida Salon IV, Second Level

Symposium--Advances in Characterizing Agriculture's Role in the Nitrogen Cycle: Measurement Methods, Instruments, and Insights

Sponsored by Apogee Instruments

ASA Section: Climatology and Modeling

Section or Division Cosponsor: SSSA Division: Soil Physics and Hydrology

	9:30 AM	**Introductory Remarks**
358-1	9:35 AM	**Measuring the Enigma of Nitrogen Balances.** Eric A. Davidson* and Rebecca J. Fox
358-2	9:55 AM	**Modeling the Air-Vegetation-Soil Exchange of Reactive Nitrogen.** Jesse Bash*, John Walker, Ellen J Cooter and Quazi Z Rasool
358-3	10:10 AM	**Precision Agriculture Technologies for Nitrogen Fertilizer Management.** Steve Phillips*
358-4	10:25 AM	**Stable Spatial Patterns of Nitrate in Headwater Stream Networks Allow Identification and Mitigation of Critical Source Areas.** Benjamin Abbott*, Gérard Gruau, Jay P Zarnetske, Florentina Moatar and Ben Abbott
358-5	10:40 AM	**Fiber Laser: Detection of Trace Gases.** Gautam Das*
358-6	10:55 AM	**Low-Power Gradient Approach to Measure N2O Fluxes.** Ben Conrad*, Steve Sargent, Claudia Wagner-Riddle and Shannon Brown
358-7	11:05 AM	**Multi-Year N2O Flux Measurements with Multiple Methods: A Comparison.** Shannon Brown*, Pedro Vitor Ferrari Machado, Steve Sargent, Ben Conrad and Claudia Wagner-Riddle
358-8	11:15 AM	**Combining Lysimetric and Gaseous Nitrogen Loss Measurements for Assessment of Agroecosystem Sustainability.** Claudia Wagner-Riddle*
	11:35 AM	**Community Planning Session**
	11:50 AM	**Adjourn**

SESSION NO. 359—9:30 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom D

Agronomic Production Systems General Oral II

ASA Section: Agronomic Production Systems

Moderator: Newell Kitchen

	9:30 AM	**Introductory Remarks**
359-1	9:35 AM	**Malting Quality By Environment for Six Winter Malting Barley Varieties.** Angela Post*, Matthew Tilley and Megan Miller
359-2	9:50 AM	**Increasing Yields Near the Yield Potential: A Case Study of Rice Breeding in California.** Bruce Linquist* and Matthew Espe
359-3	10:05 AM	**Mapping Yield Gaps for Rice and Maize in Indonesia.** Fahmuddin Agus*, Nurwulan Agustiani, Syafruddin Syafruddin, Juan Ignacio Rattalino Edreira, Deng Nanyan and Patricio Grassini

359-4	10:20 AM	**Impact of Severe Freeze on Commercial Soft Red Winter Wheat Varieties in the Mid-Atlantic.** Angela Post, Andrew Baucom*, Megan Miller, Ryan Heiniger, Jessica Morgan, Jeremy Davis, Ian Fleming and Ezekial Overbaugh
	10:35 AM	**Break**
359-5	10:45 AM	**Wheat Freeze Damage Phenotypes and Associated Yield Losses.** Ryan Heiniger*, Angela Post and Megan Miller
359-6	11:00 AM	**Predicting Winter Wheat Heading Date with a Growing Degree Unit Model.** Megan Miller*, Angela Post and J. Paul Murphy
359-7	11:15 AM	**The Effect of Chlormequat Chloride and Trinexpac-Ethyl Mixtures on Spring Wheat, Barley, and Oat Cultivar Lodging and Height in Alberta, Canada.** Laurel Perrott*, Linda Hall and Sheri Strydhorst
359-8	11:30 AM	**Relay Cropping Practices That Improve Performance of Italian Ryegrass As a Cover Crop after Silage Corn.** Derek Hunt* and Shabtai Bittman
359-9	11:45 AM	**Plot Charges: Where Do They Begin and End.** Timothy M. Reinbott*
	12:00 PM	**Adjourn**

SESSION NO. 360—9:30 AM–12:00 PM

Marriott Tampa Waterside, Florida Salon V, Second Level

Climatology and Modeling Oral General II

ASA Section: Climatology and Modeling

	9:30 AM	**Introductory Remarks**
360-1	9:35 AM	**Evaluation of Soil Water Pedotransfer Functions for Use in the Apsim Biochar Model.** Deborah Aller*, Sotirios V. Archontoulis and David A. Laird
360-2	9:50 AM	**Improving SWAT Auto-Irrigation Functions for Simulating Irrigation Management Using Lysimeter Field Data.** Gary W. Marek*, Yong Chen, Thomas H. Marek, David K. Brauer and Raghavan Srinivasan
360-3	10:05 AM	**Gene-Based Modeling of Common Bean Flowering Time (Phaseolus vulgaris L.) with Non-Linear Response to Temperature and Day Length.** Christopher Hwang*, Daniel Wallch, Kenneth J. Boote, James W. Jones, Salvador Gezan, Mehul Bhakta, Carlos Vallejos, Gerrit Hoogenboom and Melanie J Correll
360-4	10:20 AM	**Identifying Optimum Nitrogen Fertilizer Rate for Rainfed Corn Under Variable Climate Using the STICS Crop Model: A Case Study in Eastern Canada.** Morteza Mesbah*, Elizabeth Pattey, Guillaume Jégo, Anne Didier, Fasheng Zhang, Nicolas Tremblay and Xiaoyuan Geng
360-5	10:35 AM	**Improving the Simulation of Soil Water and Nitrogen Dynamic in the Epic Model.** Luca Doro*, Jaehak Jeong, Max De Antoni Migliorati, Sandro Jose Giacomini, Benjamin Loubet, M. Norfleet and Jimmy R. Williams
	10:50 AM	**Break**
360-6	11:00 AM	**Use of Crop-Water Production Models in Bio-Economic Valuations of Agricultural and Environmental Water: The Case of the Salton Sea.** Lucia R Levers, Todd H. Skaggs* and Kurt A Schwabe
360-7	11:15 AM	**Measurement and Modeling of the Vertical Nitrous Oxide (N2O) Gradient and Flux in Dryland Agricultural Fields.** Eric Russell*, Sarah Waldo, Gaea Ridenhour, Patrick O'Keeffe, Shelley Pressley and Brian Lamb
360-8	11:30 AM	**Multimodal Ensemble Approach to Study Elevated CO2 Effects on Wheat Productivity.** Mukhtar Ahmed*, Claudio O. Stockle, Roger L Nelson and Stewart Higgins
360-9	11:45 AM	**Gene-Based Crop Modeling for Predicting Rice Phenological Variation across Multiple Environments.** Tao Li*, Yubin Yang, Salvador Gezan, Tanguy Lafarge, Lloyd T Wilson, Michael Dingkuhn, Jauhar Ali, James W. Jones, Xinyou Yin, Jing Wang, Kenneth J. Boote and Hei Leung
	12:00 PM	**Adjourn**

SESSION NO. 361—9:30 AM–12:00 PM

Marriott Tampa Waterside, Room 1, Second Level

Crop Water Management By Plant or Soil Water Sensors

ASA Section: Climatology and Modeling

Moderator: Susan O'Shaughnessy, Huihui Zhang

	9:30 AM	**Introductory Remarks**
361-1	9:35 AM	**Climate-Smart Agriculture: How Modified Crop/Water Management Under the System of Rice Intensification (SRI) Can Contribute to More Climate-Resilience and Higher Factor Productivity.** Amod Kumar Thakur and Norman Uphoff*
361-2	9:55 AM	**Fruit Load Effects on Water Status and Growth of Date Palms.** Jingbo Zhen*, Shaham Pevzner, Naftali Lazarovitch and Effi Tripler
	10:15 AM	**Break**
361-3	10:25 AM	**Arduino Based Gateway-Node System for Soil Water Measurement in on-Farm Research.** Harry H. Schomberg*, Alondra Thompson, Steven R. Evett and Daniel K. Fisher
361-4	10:45 AM	**Exploring the Use of Canopy Temperature Sensing for Irrigation Scheduling.** Brenda V. Ortiz*, Franciele Morlin and Christian Brodbeck
361-5	11:05 AM	**Soil Water and Plant Canopy Sensor Technologies to Optimize Water and Nutrient Use.** Colin S. Campbell*, Bryan Hopkins and Neil C. Hansen
361-6	11:25 AM	**Demonstrating and Evaluating Multiple Soil Sensor Technology for Irrigation Scheduling in Alabama.** Damianos Damianidis and Brenda V. Ortiz*
	11:45 AM	**Soil-Plant-Water Relations Community Planning Session**
	12:00 PM	**Adjourn**

SESSION NO. 362—9:30 AM–12:00 PM

Tampa Convention Center, Room 21, First Floor

Amending Degraded Soils with Biochar to Promote Revitalization: The Chemistry, Physics and Biology of Biochar Mediated Soil Revitalization

ASA Section: Environmental Quality

Moderator: Mark Johnson, Thomas Ducey

	9:30 AM	**Introductory Remarks**
362-1	9:35 AM	**Biochars Ability to Sequester Heavy Metals in a Mine Impacted Soil.** Jeffrey M. Novak*, Mark G. Johnson, James A. Ippolito, Thomas F. Ducey, Gilbert C. Sigua, Donald W. Watts and Kurt A. Spokas
362-2	9:50 AM	**The Addition of Locally Adapted Microbes Accelerates the Phytostabillization of Mine Soils Amended with a Mixture of Biochar and Biosolids.** Kristin Trippe*, Viola Manning, Catherine L. Reardon, Ann Klein, Thomas F. Ducey, Jeff Novak, Gilbert Sigua, Mark G. Johnson and Kurt A. Spokas
362-3	10:05 AM	**The Link Between Soil Chemical and Microbial Properties in Heavy Metal Contaminated Soils As Remediated with Biochar.** Yilu Xu*, Nanthi S Bolan, Balaji Seshadri and Mark Farrell
362-4	10:20 AM	**Biochar Derived from Anaerobic Digestion Effluents to Improve Aggregate Stability in Mexican Clayey Soils.** Shinjiro Sato*, Yoshiyuki Hirata, Germán Cuevas Rodríguez, Sergio Antonio Silva Munõz, Elcia Margareth Souza Brito and Arodí Bernal Martínez
362-5	10:35 AM	**Effect of Biochar and Manure on Soil Carbon Fractions and Microbial Activity of Eroded and Depositional Landscape Position.** Saroop Sandhu*, Sandeep Kumar, Nigel Hoilett, Ekrem Ozlu and Kopila Subedi Chalise
	10:50 AM	**Break**
362-6	11:00 AM	**A Three-Year Field Study to Assess the Impact of Biochars and Dairy Manure on Soil Nitrous Oxide Emissions.** Rajesh Chintala*, Sandeep Kumar, Thomas Schumacher, Saroop S Sandhu, Liming Lai, David E. Clay and Douglas D Malo
362-7	11:15 AM	**Salt or No Salt: Influencing Biochar's Capacity for Zinc.** Kathleen E. Hall*, Beatriz Gamiz, Kurt A. Spokas, William C. Koskinen, Mark G. Johnson and Jeff Novak
362-8	11:30 AM	**Biochar Magic: The Smoke and Mirrors behind Biochar Use for Improving Soils.** James A. Ippolito* and Kurt A. Spokas
362-9	11:45 AM	**Soil N2O Emission and the N-Cycling Microbial Communities Are Mediated By the Easily Mineralizable C of Pyrogenic C Under Contrasting Moisture Status and N Sources Applications.** Jianming Xu*, Zhongmin Dai and Philip Brookes
	12:00 PM	**Adjourn**

SESSION NO. 363—9:30 AM–12:00 PM

Tampa Convention Center, Room 18, First Floor

Economics of Cover Crops and Impact on Crop Productivity

ASA Section: Land Management and Conservation

Moderator: Clain Jones

	9:30 AM	**Introductory Remarks**
363-1	9:35 AM	**The Cover Crop Nitrogen Availability Calculator – Research and on-Farm Validation.** Julia W. Gaskin*, Miguel L. Cabrera, David E. Kissel, Leticia S. Sonon and Uttam K. Saha
363-2	9:50 AM	**Optimal Hairy Vetch Seeding Rates.** Steven B Mirsky*
363-3	10:05 AM	**Economic Viability of Cover Crops in Semi-Arid Rainfed Cotton Systems.** Paul B. DeLaune*, Seong Park and Partson Mubvumba
363-4	10:20 AM	**Integrating and Managing Oilseed Cash Cover Crops in a Corn and Soybean Rotation System.** Swetabh Patel*, Andrew W. Lenssen, Kenneth J. Moore, Marisol T. Berti, Russell W. Gesch and Heather L Dose
363-5	10:35 AM	**Oilseed Cash Cover Crops Enhancing Productivity and Profit in Corn-Soybean Rotations.** Cody Hoerning*, Donald L. Wyse, M. Scott Wells, Russell W. Gesch and Frank Forcella
363-6	10:50 AM	**A Cost Analysis Approach to Valuing Cover Crop Environmental and Nitrogen Cycling Benefits: A Central Illinois on Farm Case Study.** Richard T. Roth*, Shalamar D. Armstrong and Michael D. Ruffatti
	11:05 AM	**Break**
363-7	11:15 AM	**Improving the Productive Capacity of Claypan Soils By Targeting Soil Health.** Gretchen F. Sassenrath* and Jaymelynn Farney
363-8	11:30 AM	**Net Revenue of Pea Cover Crop – Wheat Compared to Fallow-, Pea Grain- and Wheat-Wheat Systems across Time and Space.** Perry R Miller*, Clain A. Jones and Anton Bekkerman
363-9	11:45 AM	**Short-Term Economics of Late-Seeded Cover Crops in a Semi-Arid Environment.** David W. Archer*, Mark A. Liebig, John Hendrickson, Donald Tanaka, Marty R. Schmer and Kristine A. Nichols
	12:00 PM	**Adjourn**

SESSION NO. 364—9:30 AM–12:15 PM

Tampa Convention Center, Room 14, First Floor

Soil Carbon and Greenhouse Gas Emissions General Oral II

ASA Section: Environmental Quality

Section or Division Cosponsor: ASA Section: Environmental Quality, ASA Section: Climatology and Modeling, SSSA Division: Soil and Water Management and Conservation

Moderator: Bijesh Maharjan

	9:30 AM	**Introductory Remarks**

364-1	9:35 AM	**Soil Tillage and N Fertilization: Key Practices for the Sustainability of Mediterranean Agroecosystems.** Daniel Plaza-Bonilla*, Jorge Alvaro-Fuentes, Jorge Lampurlanés, Jose Luis Arrúe, Evangelina Pareja Sanchez, Samuel Franco-Luesma and Carlos Cantero-Martinez
364-2	9:50 AM	**Changes in Soil Carbon in a Continuous Corn-Soybean Rotation in the Midwest, 2005 – 2016.** Christian Dold*, Thomas J. Sauer, Jerry L. Hatfield, John H. Prueger and Ken Wacha
364-3	10:05 AM	**Satellite Based Cropland Carbon Monitoring System.** Varaprasad Bandaru*
364-4	10:20 AM	**Management Options for Increasing Soil Organic Carbon in Corn-Alfalfa Rotations.** Curtis J. Dell*, Hero T. Gollany, Paul R. Adler, R. Howard Skinner and Robert Wayne Polumsky
364-5	10:35 AM	**Following the Carbon: Using Micrometeorology to Evaluate the Impact of Land Application of Industrial Co-Products.** Deb O'Dell*, Neal Samuel Eash, Joel Oetting, James Zahn, Bruce B. Hicks, Thomas J. Sauer, Dayton Lambert, Joanne Logan and John Goddard
	10:50 AM	**Break**
364-6	11:00 AM	**Partitioning NEE over Maize: Methods and Applications.** Joel Oetting*, Neal Samuel Eash, Bruce B. Hicks and Deb O'Dell
364-7	11:15 AM	**Aggregate Protected Carbon and Nitrogen Pools in Response to Different Tillage Systems.** Rafiq Islam*, Abouelnadr Reda, Botir Khaitove, Natalia Didenko, Yogendra Raut, Emmanuel Amoakwah and Vinayak S. Shedekar
364-8	11:30 AM	**Simulating Soil Carbon Responses to Cropping Intensity, Tillage, and Climate Change.** Hero T. Gollany* and Robert W. Polumsky
364-9	11:45 AM	**The Effects of Soil CO2 on the Metabolism and Growth of Corn Plants.** YouJin Kim*, WENMEI HE, Sin Yee Yoo, Daegeun Ko, Haegeun Chung and Gayoung Yoo
364-10	12:00 PM	**The Effect of Potential CO2 Leakage from Carbon Capture and Storage (CCS) Site on Soil N2O and CH4 Emissions.** WENMEI HE* and Gayoung Yoo
	12:15 PM	**Adjourn**

SESSION NO. 365—9:30 AM–4:15 PM

Tampa Convention Center, Room 12, First Floor

Nutrient Source Control at the Field, Farm and Watershed Scales (includes student competition)

ASA Section: Environmental Quality

Moderator: Samira Daroub, Jennifer Cooper

	9:30 AM	**Introductory Remarks**
365-1	9:35 AM	**Edge-of-Field Nitrogen and Phosphorus Export in Tile-Drained Fields Managed As Corn for Silage.** Eric O. Young*, Stephen Kramer, Laura B. Klaiber, Charles Hacker and Casey Corrigan
365-2	9:50 AM	**Improvements in Whole Farm Nitrogen and Phosphorus Balances on Dairy Farms in New York.** Quirine M. Ketterings*, Sebastian Cela, Karl J. Czymmek, Caroline Rasmussen and Melanie Soberon
365-3	10:05 AM	**Managing Surface Water Inputs to Reduce Phosphorus Loss from Cranberry Farms.** Casey Kennedy*, Peter J.A. Kleinman, Ray B. Bryant, Kyle Elkin, Anthony R. Buda and Carolyn DeMoranville
365-4	10:20 AM	**Trends in Phosphorus Source Pressure at Field to Watershed Scale- a Tale of Two Arable Watersheds.** Noeleen T McDonald*, David Wall, Cathal Buckley, Per-Erik Mellander, Mairead Shore, Ger Shortle and Philip Jordan
	10:35 AM	**Break**
365-5	10:45 AM	**Causes of Elevated River Phosphorus during Low-Flow Conditions: A Synoptic Survey Approach.** Sara E. Vero*, Maria Barrett, Vincent O'Flaherty, Per-Erik Mellander, Philip Jordan and Ger Shortle
365-6	11:00 AM	**Repeated Synoptic Sampling and Phosphorus Fractionation: A Strategy for Sourcing Phosphorus at the Watershed Scale.** Austin Pearce*, Josiah Johns and Neil C. Hansen
365-7	11:15 AM	**Long-Term Manure Applications Improve Soil Productivity and Sustain High Crop Yield for Acidic Red Soils.** Zejiang Cai*, Boren Wang, Lu Zhang, Minggang Xu, Shilin Wen, Huimin Zhang and Suduan Gao
365-8	11:30 AM	**Beef Cattle Effluent Treatment in a Denitrifying Bioreactor.** Bethani Chambers*
	11:45 AM	**Community Planning Session**
	12:00 PM	**Lunch Break**
365-9	1:30 PM	**Identifying Hot Spots for Nitrogen Loss from Corn Production Systems of Illinois.** Kamaljit Banger*, Juming Wang, Emerson D. Nafziger and Cameron M. Pittelkow
365-10	1:45 PM	**Impact of Length of Calibration Period on the Apex Model Output Simulation Performance.** Amanda M Nelson*, Daniel Moriasi, Mansour Talebizadeh, Jean L. Steiner, Rem Confesor Jr., Prasanna H. Gowda, Patrick Starks and Haile K. Tadesse
365-11	2:00 PM	**Environmental Benefits of Cover Crops in Dual Cropping Systems: A Modeling Approach.** Rebekah Carlson*, M. Scott Wells, Donald L. Wyse and Axel Garcia y Garcia
365-12	2:15 PM	**Comparison of Strategies to Monitor and Measure Nitrate Leaching Under Irrigated Potato Production Grown on Sandy Soils in North Central USA.** Brian J. Bohman*, Carl J. Rosen and David Mulla
365-13	2:30 PM	**A Paired Watershed Study on Stream Water Quality from a Corn/Soybean Rotation Plated with Winter Cover Crops.** Gurbir Singh*, Karl Williard, Jon Schoonover and Jackie Crim
	2:45 PM	**Break**
365-14	3:00 PM	**Nitrogen Management on the Far Side of Complexity: Using the N Balance Approach to Reduce NO3 Leaching.** Alison J Eagle* and Eileen L McLellan
365-15	3:15 PM	**Effect of Cover Crops and Nitrogen Application Timing on Nutrient Loading through Subsurface Drainage and Cash Crop Yield.** Michael D. Ruffatti*, Shalamar D. Armstrong, Richard Roth and Corey Lacey
365-16	3:30 PM	**Cover Crop Performance on a Watershed Scale: Potential Impacts on Water Quality.** Shalamar D. Armstrong*, Ben Bruening, Catherine O'Reilly, Michael D. Ruffatti and Richard Roth
365-17	3:45 PM	**Water Quality Tradeoffs When Adopting Conservation Practices.** Douglas R Smith*

365-18	4:00 PM	**The National Water Quality Initiative: Partnerships, Watershed Planning, and Measuring Success.** Erika Larsen*
	4:15 PM	**Adjourn**

SESSION NO. 366—9:40 AM–11:25 AM

Marriott Tampa Waterside, Room 3, Second Level

Evapotranspiration Measurement and Modeling Oral (includes student competition)

ASA Section: Climatology and Modeling

	9:40 AM	**Introductory Remarks**
366-1	9:45 AM	**Assessing the Efficacy of Unmanned Aerial Vehicles (UAVs) in Monitoring Crop Evapotranspiration within a Heterogeneous Soil.** Gregory S. Rouze*, Cristine L. S. Morgan, Haly L. Neely, William Kustas, Lynn McKee, John H. Prueger, Chenghai Yang, Dale Cope, J. Alex Thomasson and Jinha Jung
366-2	10:00 AM	**Modeling Evapotranspiration Using DSSAT and Eddy Covariance Measurements in Cotton and Corn.** Dorothy Menefee*, Nithya Rajan, Song Cui, Diana Zapata, Pramod Pokhrel and Miles Mikeska
366-3	10:15 AM	**Effect of Temporal Scales on Estimating Evapotranspiration with Apex.** Haile K. Tadesse*, Daniel Moriasi, Prasanna H. Gowda, Gary W. Marek, Jean L. Steiner, David K. Brauer, Mansour Talebizadeh, Amanda M Nelson and Patrick Starks
366-4	10:30 AM	**Probabilistic Forecasts of Daily Reference Evapotranspiration for the Continental U.S. Based on Numerical Weather Predictions.** Hanoi Medina* and Di Tian
366-5	10:45 AM	**Implication of Varying Parameter Sensitivities and Temporal Aggregation on Estimating Evapotranspiration in the Semi-Arid Conditions.** Mansour Talebizadeh*, Daniel Moriasi, Prasanna H. Gowda, Gary W. Marek, Jean L. Steiner, David K. Brauer, Haile K. Tadesse, Amanda M Nelson and Patrick Starks
	11:00 AM	**Discussion**
	11:10 AM	**Community Planning Session**
	11:25 AM	**Adjourn**

SESSION NO. 367—9:50 AM–12:00 PM

Tampa Convention Center, Room 23

CSSA Business Meeting--Turf Science

C05 Turfgrass Science

9:50 AM	**Introductory Remarks**
9:55 AM	**Division Business Meeting**
11:55 AM	**Concluding Remarks**
12:00 PM	**Adjourn**

SESSION NO. 368—9:55 AM–12:00 PM

Marriott Tampa Waterside, Grand Ballroom I and J, Second Level

Symposium--Proximal and Remote Sensing Techniques in Soil Physics and Hydrology

SSSA Division: Soil Physics and Hydrology

Moderator: Morteza Sadeghi, Markus Tuller

	9:55 AM	**Introductory Remarks**
368-1	10:00 AM	**Remote Sensing of Soil Moisture: State-of-the-Science.** Binayak P. Mohanty*, Michael H. Cosh, Venkat Lakshmi and Carsten Montzka
368-2	10:20 AM	**State-of-the-Art and Future Directions in P-Band Radar Remote Sensing of Soil Moisture.** Mahta Moghaddam*
368-3	10:40 AM	**Advances in Proximal Sensing of Soil Condition.** David A Robinson*
368-4	11:00 AM	**Recent Advances in the Cosmic-Ray Neutron Probe Method: Estimating Soil Water Content across Spatiotemporal Scales.** Trenton Franz*
368-5	11:20 AM	**The Marena, Oklahoma, in Situ Sensor Testbed (MOISST): Highlights from Eight Years of Soil Moisture Sensing.** Tyson E. Ochsner* and Michael H. Cosh
368-6	11:40 AM	**Making Soil Transparent – Recent Developments in x-Ray Tomography.** Hans-Joerg Vogel* and Steffen Schlüter
	12:00 PM	**Adjourn**

SESSION NO. 369—10:00 AM–10:55 AM

Marriott Tampa Waterside, Florida Salon VI, Second Level

Advancing Pedology in the 21st Century

SSSA Division: Pedology

Moderator: John Galbraith

	10:00 AM	**Introductory Remarks**
369-1	10:05 AM	**Pedology of the Cryosphere: Opportunities for the 21st Century.** James G. Bockheim*
	10:50 AM	**Concluding Remarks**
	10:55 AM	**Adjourn**

SESSION NO. 370—10:00 AM–11:25 AM

Tampa Convention Center, Room 8

Nutrient Management: Science, Laws and Regulations

ASA Section: Environmental Quality

Moderator: Leif Fixen

	10:00 AM	**Introductory Remarks**
370-1	10:05 AM	**Water Quality Trading in Jordan Lake Watershed, NC: A Cautionary Tale.** Deanna L. Osmond*, Daniel Line, Marzieh Motallebi and Dana Hoag
370-2	10:20 AM	**How State-Mandated Nutrient Management Education Is Improving Crop Yields and Water Quality in Delaware.** Amy L. Shober*, Sydney Riggi and Terra Eby

370-3	10:35 AM	**Nutrient Management: Science, Laws and Regulations Panel Discussion.** Leif Fixen*
	11:00 AM	**Discussion**
	11:20 AM	**Concluding Remarks**
	11:25 AM	**Adjourn**

SESSION NO. 371—10:00 AM–11:35 AM

Tampa Convention Center, Room 33, Third Floor

Agroforestry for Soil Health and Water Quality Benefits

SSSA Division: Soil and Water Management and Conservation

Moderator: Ranjith Udawatta

	10:00 AM	**Introductory Remarks**
371-1	10:05 AM	**Groundwater Nitrogen and Phosphorus Dynamics Under Grazed Pasture: Landscape and Management Effects.** Niranga Wickramarathne*, Ranjith P. Udawatta, Robert Lerch and Fengjing Liu
371-2	10:20 AM	**Agroforestry Buffers for Non Point Source Pollution Reductions from Agricultural Watersheds.** Ranjith P. Udawatta* and Shibu Jose
371-3	10:35 AM	**Use of Agroforestry in Biodiversity Conservation.** Lalith M. Rankoth*, Ranjith P. Udawatta and Shibu Jose
371-4	10:50 AM	**Contribution of Tree Windbreaks to Soil Organic Matter Content in the U.S. Great Plains.** Ala Khaleel*, Thomas J. Sauer and John Tyndall
371-5	11:05 AM	**Carbon Dioxide Fluxes and Carbon Storage of a Tree Windbreak and Adjacent Field.** Thomas J. Sauer*, Christian Dold, David Wedin and Andrew E. Suyker
371-6	11:20 AM	**Soil Carbon Storage in Shaded Perennial Agroforestry Systems in Relation to Overstory Tree Cover.** Nilovna Chatterjee*, Ramachandran P.K. Nair, Vimala D. Nair and Syam Viswanath
	11:35 AM	**Adjourn**

SESSION NO. 372—10:00 AM–11:35 AM

Tampa Convention Center, Room 32

Soil Health Assessment and Tools

SSSA Division: Soil and Water Management and Conservation

Moderator: Rafiq Islam

	10:00 AM	**Introductory Remarks**
372-1	10:05 AM	**Mitigation of Salt Buildup in High Tunnel Soils.** Anthony Silvernail*
372-2	10:20 AM	**Soil Health Under Annual Vs. Perennial Crops in Central Iowa.** Mostafa A. Ibrahim and Michael L Thompson*
372-3	10:35 AM	**Assessing Effectiveness of Commercial Soil Health Tests for Conservation Cropping Systems in Indiana.** Stacy M. Zuber* and Eileen J. Kladivko
372-4	10:50 AM	**Screening Soil Health Methods and Their Interpretation across Management Practices in North Dakota.** Caley Gasch* and Abbey Foster Wick
372-5	11:05 AM	**Cornell Soil Health Assessment (CSHA) and Haney Soil Health Test (HSHT) in a Medium-Term Cover Crop Experiment.** Inderjot Chahal*
372-6	11:20 AM	**Soil Health Analysis, Interpretation and Recommendations.** Rafiq Islam*
	11:35 AM	**Adjourn**

SESSION NO. 373—10:00 AM–11:40 AM

Tampa Convention Center, Room 3, First Floor

Tropical Legumes General Oral (includes student competition)

ASA Section: Global Agronomy

	10:00 AM	**Introductory Remarks**
373-1	10:05 AM	**Rhizosphere Microbial Community Structure of Promiscuous Soybean Cultivars in the Guinea Savanna Zone of Ghana.** Edwin K. Akley*, Charles W. RICE, Benjamin D. K. Ahiabor and Vara Prasad
373-2	10:20 AM	**Multiple Benefits of Intercropping Cowpea in the Solar Corridor Cropping System.** Robert J. Kremer*, Charles LeRoy Deichman and Timothy M. Reinbott
373-3	10:35 AM	**Tropical Legumes Assessed for Soil Improvement in Southern Africa.** Timothy Motis*, Joy Longfellow, Arun Jani, Christopher D'Aiuto and Brandon Lingbeek
373-4	10:50 AM	**Optimizing Fertilizer Use for Tropical Food Legumes in Sole Crop and Intercrop.** Alimata A Bandaogo* and Charles Wortmann
373-5	11:05 AM	**Exploring Options for Enhancing Multi-Purpose Legumes Contribution to Smallholder Farmer Livelihood in Eastern and Central Africa.** Generose Nziguheba*, Tadesse Birhanu Atomsa, Isaac Balume, Alan J. Duncan, Mulu London, Ingrid Oborn, Irene Okeyo, Maurice Shiluli, Tamene Temesgen, Jean Walangululu and Bernard Vanlauwe
	11:20 AM	**Concluding Remarks**
	11:25 AM	**Division Business Meeting**
	11:40 AM	**Adjourn**

SESSION NO. 374—10:10 AM–12:10 PM

Tampa Convention Center, Room 19, First Floor

Symposium--Giants of Agricultural Progress and Impacts from Public Agricultural Research

C01 Crop Breeding and Genetics

Section or Division Cosponsor: C01 Crop Breeding and Genetics, C07 Genomics, Molecular Genetics and Biotechnology, C08 Plant Genetic Resources, C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants, C06 Forage and Grazinglands, ASA Section: Land Management and Conservation

Moderator: Seth Murray

	10:10 AM	**Introductory Remarks**
374-1	10:15 AM	**Glenn Burton: Grass Breeder, Innovator, and Public Servant.** Joseph W. Burton*
374-2	10:30 AM	**The Modern Legacy of a Very Old Maize Population and a Generation of Corn Breeders.** Jode W. Edwards*
374-3	10:45 AM	**Ken Frey: Breeding with Wild Species to Increase Heritable Variation for Oat Nutritional Value.** Ann Marie Thro*

374-4	11:00 AM	**The Global Impacts of CGIAR Wheat Improvement Research.** Hans J. Braun and Matthew P. Reynolds*
374-5	11:15 AM	**Lowell Moser: A Gentleman Giant in Agricultural Research.** Robert B. Mitchell* and Daren D. Redfearn
374-6	11:30 AM	**Triumph of a Career Gone South: Trajectory and Legacy of Lynn E. Sollenberger.** Carlos G. S. Pedreira* and Joao M.B. Vendramini
374-7	11:45 AM	**Dr. Kenneth Sudduth: A Giant Pioneering Precision Agriculture.** Newell R Kitchen*, Kristen Sloan Veum and E. John Sadler
	12:00 PM	**Discussion**
	12:10 PM	**Adjourn**

SESSION NO. 375—10:10 AM–12:10 PM

Tampa Convention Center, Room 1, First Floor

Symposium--the Role of Seeds in Conservation of Genetic Resources and Landscapes

C04 Seed Physiology, Production and Technology

Section or Division Cosponsor: C08 Plant Genetic Resources

	10:10 AM	**Introductory Remarks**
375-1	10:20 AM	**Sow What!?! Why Wild Plant Seed Research Matters.** Héctor Pérez*
375-2	10:45 AM	**Germination Syndromes and Native Species Conservation in Highly Disturbed Rangeland Ecosystems of the Intermountain Western US.** Stuart Hardegree*, Corey Moffet, Christina Walters and Roger Sheley
375-3	11:10 AM	**Overcoming Challenges of Conserving Seeds of Rare and Endangered Plants of North America.** Joyce Maschinski*
375-4	11:35 AM	**Why Is Seed Dormancy Important to Conservation?** Carol Baskin*
	12:00 PM	**Concluding Remarks**
	12:10 PM	**Adjourn**

SESSION NO. 376—10:20 AM–10:55 AM

Tampa Convention Center, Room 20, First Floor

Sergei A. Wilde Early Career Achievement Award Lectureship

SSSA Division: Forest, Range and Wildland Soils

	10:20 AM	**Introductory Remarks**
376-1	10:25 AM	**Aridity and Plant Uptake Interact to Make Dryland Soils Hotspots for Nitric Oxide (NO) Emissions.** Peter M. Homyak*
	10:55 AM	**Adjourn**

SESSION NO. 377—10:30 AM–12:00 PM

Marriott Tampa Waterside, Room 10, Third Level

Symposium--"Hot" Tools and Technologies from Public- and Private-Sector Agronomy Programs

ASA Section: Education and Extension

Moderator: Brian Olson

	10:30 AM	**Introductory Remarks**
377-1	10:35 AM	**New Smartfield Sentinel System for Crop Production Management.** Mario A Carrillo*
377-2	10:42 AM	**From Monsanto Company's Pipeline.** Brian L. Olson* and Andrew W Knepp
377-3	10:49 AM	**Determining Plant Count, Location, and Spacing Using Commercial Unmanned Aerial Vehicle and Sensor Hardware Combined with Advanced Data Analysis and Visualization Tools.** Mitch Tuinstra*, Christopher Boomsma, Javier Ribera, Yuhao Chen, Fangning He, Ayman Habib, Edward Delp, Michael Leasure and Melba Crawford
377-4	10:56 AM	**Plot Size - Is Bigger Better?** Catherine White*
377-5	11:03 AM	**The Pioneer Growingpoint Agronomy App.** Mark Jeschke*
377-6	11:10 AM	**A.R.M Software - Reviewing Data Quality.** Steven Gylling*
	11:17 AM	**Discussion**
	11:45 AM	**Community Planning Session**
	12:00 PM	**Adjourn**

SESSION NO. 378—10:30 AM–12:00 PM

Tampa Convention Center, Room 22

Francis E. Clark Distinguished Lectureship on Soil Biology

SSSA Division: Soil Biology and Biochemistry

Moderator: Thomas Ducey

	10:30 AM	**Introductory Remarks**
378-1	10:35 AM	**Net Carbon Sequestration in Soils: Let's Be Realistic About the Potentials.** William H. Schlesinger*
	11:35 AM	**Discussion**
	12:00 PM	**Adjourn**

SESSION NO. 379—10:40 AM–11:40 AM

Tampa Convention Center, Room 5, First Floor

CSSA Business Meeting--Crop Physiology and Metabolism

C02 Crop Physiology and Metabolism

SESSION NO. 380—10:55 AM–11:55 AM

Marriott Tampa Waterside, Florida Salon VI, Second Level

SSSA Business Meeting--Pedology

SSSA Division: Pedology

SESSION NO. 381—10:55 AM–12:00 PM

Marriott Tampa Waterside, Room 11, Third Level

Crop Ecology, Management and Quality General Oral III

C03 Crop Ecology, Management and Quality

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

Moderator: Curtis Adams

	10:55 AM	**Introductory Remarks**
381-1	11:00 AM	**Going Beyond the Plot: Developing a Tool for Technology Extrapolation in Agriculture.** Patricio Grassini*, Juan Ignacio Rattalino Edreira, Kenneth G Cassman, Hugo L.E. de Groot, Karen Chapman, John McGuire and Geoffrey Ecker
381-2	11:15 AM	**Guar Genotype Performance Under Varying Irrigation Regimes in Southern New Mexico.** Kulbhushan K. Grover*, Alonso Garcia, Brian J. Schutte, Blair Stringam and Dawn VanLeeuwen
381-3	11:30 AM	**Targeted Deficit Irrigation in Cotton to Promote Efficient Use of Soil Moisture and High Yield.** Curtis Adams* and Santanu Bikram Thapa
381-4	11:45 AM	**Crop Water-Use Efficiency Under Strategic Deficit Irrigation.** Louise H. Comas*, Thomas J. Trout, Kendall DeJonge, Huihui Zhang and Sean Gleason
	12:00 PM	**Adjourn**

SESSION NO. 382—11:00 AM–12:00 PM

Tampa Convention Center, Room 20, First Floor

Sergei A. Wilde Distinguished Lectureship on Forest Soils

SSSA Division: Forest, Range and Wildland Soils

Moderator: Brian Strahm

	11:00 AM	**Introductory Remarks**
382-1	11:05 AM	**20th Anniversary of the Wilde Lecture: Revisiting the Underground Forest.** Rob Harrison*
	12:00 PM	**Adjourn**

SESSION NO. 383—11:00 AM–12:20 PM

Tampa Convention Center, Ballroom A, First Floor

Symposium--Soil Organic Matter Management Alternatives for Smallholders

ASA Section: Global Agronomy

Section or Division Cosponsor: ASA Section: Global Agronomy, SSSA Division: Soil and Water Management and Conservation

	11:00 AM	**Introductory Remarks**
383-1	11:05 AM	**Variation of Surface and Subsurface Soil Organic Carbon within the Haiti Cul-De-Sac Pilot Area.** Charles E. Kome*, Paul F. Reich, Zamir Libohova, Tom D'Avello, Paul Finell, Tony Rolfes, Manuel Matos, Steven E. Monteith, Michael P. Robotham, Pierre Oge and Karly Jean-Jeune
383-2	11:15 AM	**Soil Organic Matter and Soil Water Interactivity in the Semi-Arid Tropics of West Africa.** Aisha Abdulkadir* and Charles Wortmann
383-3	11:25 AM	**Soil Organic Matter Changes Under Conservation Agriculture in the Mt Elgon Highlands of Kenya and Uganda.** Jay Norton*, Urszula Norton and Dennis S. Ashilenje
383-4	11:35 AM	**Cover Crop Termination Times for Building Soil Carbon in South Florida Soils.** Ariel Freidenreich*, Mary Lee Tiedeman, Krishnaswamy N. Jayachandran and Pushpa Soti
383-5	11:45 AM	**Keeping Organic Matter in the Field through Improved Mechanization.** Kerry M. Clark* and Kristin Bilyeu
383-6	11:55 AM	**Manure and Soil Organic C Effects on Yield and Response to Fertilizer in Tropical Africa.** Garba Maman*, Idriss Serme, Nouri K Maman, Korodjouma Ouattara, Gonda Abdou and Charles Wortmann
	12:05 PM	**Community Planning Session**
	12:20 PM	**Adjourn**

SESSION NO. 384—11:15 AM–12:00 PM

Marriott Tampa Waterside, Florida Salon I-III, Second Level

Bayesian Based Agronomic Decision Systems

ASA Section: Biometry and Statistical Computing

	11:15 AM	**Introductory Remarks**
384-1	11:18 AM	**Hierarchical Models and Bayesian Analysis for Field Experiments.** Peter M. Kyveryga*
384-2	11:32 AM	**Where Should We Apply Biochar? Application of Bayesian Networks.** Hamze Dokoohaki* and Fernando Miguez
384-3	11:46 AM	**Bayesian Multi-Trait Methods for Genetic Experiments with Complex Replication.** Anthony Greenberg*, Susan R. McCouch and Jean-Luc Jannink
	12:00 PM	**Adjourn**

SESSION NO. 385—11:30 AM–1:00 PM

Tampa Convention Center, Room 25, First Floor

Special Session--Science and Future of Sustainable Biotechnology-A Think Tank Session

ACS238 Graduate Student Committee

SESSION NO. 386—12:00 PM–1:00 PM

TCC, Ballroom D

SSSA Business Meeting--Soil Biology and Biochemistry

SSSA Division: Soil Biology and Biochemistry

12:00 PM **Introductory Remarks**
12:05 PM **Division Business Meeting**
12:35 PM **Discussion**
1:00 PM **Adjourn**

SESSION NO. 387—12:00 PM–1:30 PM

Marriott Tampa Waterside, Grand Ballroom F, Second Level

SSSA Business Meeting-- Soil Physics and Hydrology

Sponsored by Campbell Scientific

SSSA Division: Soil Physics and Hydrology

SESSION NO. 388—1:00 PM–1:45 PM

Tampa Convention Center, Room 9, First Floor

5 Minute Rapid: Crop Breeding & Genetics Oral IV

C01 Crop Breeding and Genetics

Moderator: David Bubeck

1:00 PM **Introductory Remarks**

388-1 1:05 PM **Genome-Wide Association Mapping for Seed Composition Provides Insights into Soybean Nutrient Improvement and the Impacts of Domestication and Breeding.** Jiaoping Zhang*, Xianzhi Wang, Yaming Lu, Siddhi J. Bhusal, Qijian Song, Perry B. Cregan, Yang Yen, Michael Brown and Guo-liang Jiang

388-2 1:10 PM **Genome-Wide Association Study (GWAS) in Cowpea.** Ainong Shi*, Jun Qin, Yuejin Weng, Beiquan Mou, Senyu Chen, Waltram Ravelombola, Dennis Motes, Haizheng Xiong, Lingdi Dong, Wei Yang and Gehendra Bhattarai

388-3 1:15 PM **Genotype and Environment Interactions for Seed Characteristics, and Milling Quality Traits in Lentil (Lens culinaris M.).** Maya Subedi*, Albert Vandenberg and Kristin E. Bett

388-4 1:20 PM **Identifying Complimentary Mechanisms of Heat Tolerance in Wheat.** Neeraj Kumar*

388-5 1:25 PM **Genetic Diversity and Genome-Wide Association Study in Grain Minerals of Synthetic Hexaploid Wheat for Genetic Biofortificaiton.** Madhav Bhatta*, P. Stephen Baenziger, Alexey Morgounov, Vikas Belamkar, Brian M. Waters and Jesse Poland

388-6 1:30 PM **A Genome Wide Association Study for Fusarium Head Blight Resistance in Southern Soft Red Winter Wheat.** Amanda Holder*, Richard Esten Mason, David Moon, Andrea Acuna, Dennis Nicuh Lozada, Habibullah Hayat and Gina L Brown-Guedira

388-7 1:35 PM **Evaluating a Chemical Male Gametocide Under Field Conditions in Grain Sorghum.** Nicholas Boerman*

1:40 PM **Discussion**
1:45 PM **Adjourn**

SESSION NO. 389—1:00 PM–2:30 PM

Tampa Convention Center, Room 8

ASA Business Meeting--Environmental Quality

ASA Section: Environmental Quality

1:00 PM **Introductory Remarks**
1:05 PM **Division Business Meeting**
1:30 PM **Community reports/updates for members**
2:05 PM **Community awards**
2:25 PM **Concluding Remarks**
2:30 PM **Adjourn**

SESSION NO. 390—1:20 PM–2:30 PM

Tampa Convention Center, Room 1, First Floor

Land Management and Conservation General Oral

ASA Section: Land Management and Conservation

Moderator: Kipling Balkcom

1:20 PM **Introductory Remarks**

390-1 1:25 PM **Utilization of Satellite Imagery and Geo-Information System for Land Use Assessment in Prachinburi Province, Thailand 2016.** Totsanat Rattanakaew*

390-2 1:40 PM **Texas A&M University and Iresa Tunisie: International Partnership for Sustainable Soil Management.** Jason E. Mowrer*, Amir M.H. Ibrahim, Qingwu Xue, Anil Somenahally, Thouraya Souissi and Issam Nouri

390-3 1:55 PM **Local and Global Implications of Ecosystem Restoration in Degraded Arid Farmland.** Amir Mor-Mussery* Sr., Michael Ben-Eli and Stefan Leu

390-4 2:10 PM **USDA-NRCS Integrated Erosion Modelling Tool (IET) – a Web Served, Geospatial, Farm Field-Level Natural Resource Management Alternatives Analysis Tool for Estimating Wind and Water Erosion, Soil and Air Quality Trends and Energy Use.** Timothy J. Carney* and Justin Mount

390-5 2:25 PM **Monitoring Sustainable Land Use: From Land Management Practices to Sustainable Land Use Indicators.** Generose Nziguheba*, Cargele Masso, Nsharwasi Leon Nabahungu, Pieter Pypers, Godfrey Taulya and Bernard Vanlauwe

2:30 PM **Adjourn**

SESSION NO. 391—1:30 PM–2:25 PM

Tampa Convention Center, Room 31, Third Floor

Poster and 5 Minute Rapid--Crop Ecology, Management and Quality

C03 Crop Ecology, Management and Quality

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

Moderator: R. Scott Tubbs

1:30 PM **Introductory Remarks**

391-1 1:35 PM **Planting Date, Fertilization, and Termination Method of a Rye Cover Crop Preceding Peanut.** R. Scott Tubbs* and W. Scott Monfort

391-2 1:40 PM **Identifying the Utility of 20 Rye (Secale cereale L) Varieties for Upper Midwestern Agricultural Systems.** Alexander Hard*, M. Scott Wells, Axel Garcia y Garcia, Rubi Raymundo and Jochum J. Wiersma

391-3 1:45 PM **Soil CO2 Efflux from Elephantgrass (Pennisetum purpureum L.) Under Different Nutrient Management Regimes.** Chaein Na*, Joel Reyes-Cabrera, John Erickson, Maninder Pal Singh and Maria Lucia A. Silveira

391-4 1:50 PM **Potential of Chitosan Supplementation for Remediation of Iron Deficiency Chlorosis in Soybean (Glycine max).** Marta R. M. Lima*, Marta W. Vasconcelos and Michael A. Grusak

391-5 1:55 PM **Understanding Gene Flow between Cultivated Sorghum (Sorghum bicolor) and Johnsongrass (Sorghum halepense).** Muthukumar Bagavathiannan*, Sara Ohadi, George Hodnett and William L. Rooney

391-6 2:00 PM **An Evaluation of Organic Transition Approaches for the Northern Great Plains.** Jose G. Franco*, David W. Archer, Jonathan J. Halvorson, John Hendrickson, Scott L. Kronberg and Mark A. Liebig

391-7 2:05 PM **Developing Dryland Corn Production Systems in West Texas.** Ronnie W. Schnell*, Calvin L. Trostle, Jourdan M. Bell, Sadie Church and Jonathan Moreno

391-8 2:10 PM **Corn Yield-Trends from 1987 through 2015 By Yield Environments.** Yared Assefa*, Paul R. Carter, Mark Hinds, Gaurav Bhalla, Mark Jeschke and Ignacio Ciampitti

2:15 PM **Question/Answer and Discussion**

2:25 PM **Adjourn**

SESSION NO. 392—1:30 PM–2:25 PM

Tampa Convention Center, Room 11, First Floor

Biomedical, Health-Beneficial and Nutritionally Enhanced Plants General Oral

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

Moderator: Davina Rhodes

1:30 PM **Introductory Remarks**

392-1 1:35 PM **How Genetics and Environment Influence Food Chemistry: A Meta-Analysis of Cereal and Vegetable Crop Metabolomics and Implications to Human Nutrition and Health.** Adam L. Heuberger*, Michael Bartolo, Jacqueline M Chaparro, Scott D. Haley, David Holm, Jessica E. Prenni and Marie Turner

392-2 1:50 PM **Genome-Wide Association Mapping of Rice Ionome Suggests a Role for NAS3 in Endosperm Zn Accumulation.** Nicholas I. Warnock*, Diane Wang, Susan R. McCouch, Michael Dingkuhn and James Stangoulis

392-3 2:05 PM **Cadmium Partitioning in Hard Winter Wheat.** Renuka Sankaran* and Mary Guttieri

2:20 PM **Concluding Remarks**

2:25 PM **Adjourn**

SESSION NO. 393—1:30 PM–2:30 PM

Tampa Convention Center, Room 5, First Floor

ASA Business Meeting-- Agronomic Production Systems

Sponsored by Agrisoma

ASA Section: Agronomic Production Systems

SESSION NO. 394—1:30 PM–2:30 PM

Tampa Convention Center, Room 37

Biometry and Statistical Computing General Oral

ASA Section: Biometry and Statistical Computing

1:30 PM **Introductory Remarks**

394-1 1:34 PM **Development and Utilization of the Alfalfa Breeder's Toolbox (ABT) for Practical Plant Breeding Applications.** Maria J. Monteros*, Chunlin He, Jaeyoung Choi, Xinbin Dai, Patrick X. Zhao, Junil Chang, Nick D. Krom, Nadim Tayeh, Perdeep Mehta, Michael A. Trammell and Christy M. Motes

394-2 1:48 PM **Application of R and Bioinformatics Tools for Analyses of Genetic Diversity and Population Stratification in Synthetic Hexaploid Wheat.** Madhav Bhatta*, Vikas Belamkar, P. Stephen Baenziger and Alexey Morgounov

394-3 2:02 PM **Spatial Variability of Soil Texture, Organic Matter and Microbial Activity Under Faidherbia Albida System on a Tropical Soil in Zambia.** Elijah Phiri* and Patience Chanda

394-4 2:16 PM **Data Mining-Based Agricultural Typologies to Support Public Decision-Making: Investigating Methodological Issues on the Case Study of Pesticide Reliance of Oilseed Rape Crop.** Rémy Ballot*, Laurence Guichard, Catherine Mignolet, Raymond Reau, Marion Soulié and Marie-Hélène Jeuffroy

2:30 PM **Adjourn**

SESSION NO. 395—1:30 PM–2:30 PM

Tampa Convention Center, Room 13, First Floor

ASA Business Meeting--Education and Extension

ASA Section: Education and Extension

SESSION NO. 396—1:30 PM–2:30 PM

Tampa Convention Center, Room 3, First Floor

National and International Policy and Incentives for Soil Health

ASA Section: Land Management and Conservation

Moderator: Shannan Sweet

	1:30 PM	**Introductory Remarks**
396-1	1:35 PM	**Leveraging Soil Health Research and Policy: How Many Sustainable Development Goals Could We Achieve through a Healthy Soils Based Farm Bill?** Marcia DeLonge*, Albie Miles, Liz Carlisle and Andrea Diane Basche
396-2	1:50 PM	**Facts, Data and People's Beliefs - an Integral Model to Address Soil Health and Security.** Sabine Grunwald*, R K Kastner-Wilcox, C Gavilan, K Mizuta and C M Clingensmith
396-3	2:05 PM	**Organic Agricultural Research in the Farm Bill.** Michael Stein*
	2:20 PM	**Discussion**
	2:30 PM	**Adjourn**

SESSION NO. 397—1:30 PM–2:30 PM

Tampa Convention Center, Room 19, First Floor

CSSA Business Meeting--Forage and Grazinglands

C06 Forage and Grazinglands

SESSION NO. 398—1:30 PM–2:30 PM

Tampa Convention Center, Room 33, Third Floor

SSSA Business Meeting--Soil and Water Management and Conservation

SSSA Division: Soil and Water Management and Conservation

SESSION NO. 399—1:30 PM–2:50 PM

Tampa Convention Center, Room 39, Third Floor

Micronutrients - Soil Fertility and Plant Nutrition

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Fien Degryse

	1:30 PM	**Introductory Remarks**
399-1	1:35 PM	**Diagnosing Plant Nutrient Status Under Different Irrigation Levels in Southwest KS.** Anserd J. Foster*, Isaya Kisekka and Bill Golden
399-2	1:50 PM	**Barrier Coatings to Improve Water Soluble Zn in Ammoniated Phosphate Fertilizers.** Roslyn Baird*, Fien Degryse, Rodrigo Coqui da Silva, Samuel Stacey, L. Alan Peacock and Michael McLaughlin
399-3	2:05 PM	**Solid-Phase Speciation and Water Solubility Relationships of Zn in Zn-Enriched Ammoniated Phosphates.** Rodrigo Coqui da Silva*, Fien Degryse, Roslyn Baird, Samuel Stacey, Babasola Ajiboye and Michael McLaughlin
399-4	2:20 PM	**The Response of Wheat, Field Pea, and Canola Growth to Varying Forms and Application Method of Copper, Zinc, and Boron Fertilizers in a Range of Canadian Prairie Soils.** Ryan D. Hangs* and Jeff J. Schoenau
399-5	2:35 PM	**Micro-Nutrient Fertilization of Dry Pea: Effects on Grain Yield.** Yesuf Assen Mohammed* and Chengci Chen
	2:50 PM	**Adjourn**

SESSION NO. 400—1:30 PM–3:00 PM

Tampa Convention Center, Room 38

SSSA Business Meeting--Forest, Range and Wildland Soils

SSSA Division: Forest, Range and Wildland Soils

SESSION NO. 401—1:30 PM–3:05 PM

Marriott Tampa Waterside, Grand Ballroom I and J, Second Level

Proximal and Remote Sensing Techniques in Soil Physics and Hydrology

SSSA Division: Soil Physics and Hydrology

Moderator: Markus Tuller, Morteza Sadeghi

	1:30 PM	**Introductory Remarks**
401-1	1:35 PM	**Combining High-Resolution Proximal and Remote Sensing to Evaluate Intrafield Water Use in Irrigated Crop Rotations.** Mallika Nocco*, Samuel C. Zipper, Eric Booth, Matthew D. Ruark, Steven Loheide and Christopher Kucharik
401-2	1:50 PM	**Science at 400 Feet - Tapping into the Value of Weather, Imagery, Soil & Local Field Information to Create Value for Growers.** Michael Gall* and Samantha Knoll
401-3	2:05 PM	**Primary Drivers of Meso-Scale Soil Moisture Variability: A Cosmic-Ray Neutron Rover Study.** Jingnuo Dong* and Tyson E. Ochsner
401-4	2:20 PM	**Measuring Multiple Soil Properties Simultaneously Using Proximal Soil Sensor Data Fusion.** Wenjun Ji, Asim Biswas* and Viacheslav Adamchuk
401-5	2:35 PM	**Multi-Response Modeling for Soil Visible-Near Infrared Reflectance Pattern Prediction.** SETYONO ADI*, Sabine Grunwald, Willie Harris and David Brenton Myers

401-6	2:50 PM	**Using Digital Image Analysis to Compare Soil Moisture Estimation Models.** Cheng-Ying Chuang*, Hong-Ru Lin, Yong-Lin Chen, Shao Yang Huang and Jet-Chau Wen
	3:05 PM	**Adjourn**

SESSION NO. 402—1:30 PM–3:20 PM

Tampa Convention Center, Room 18, First Floor

Symposium--Next Generation Soil Health Assessment

ASA Section: Land Management and Conservation

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

Moderator: Kristen Veum

	1:30 PM	**Introductory Remarks**
402-1	1:35 PM	**Integrated Soil Biology Management: Using Next-Gen Sequencing to Monitor Soil Biology Taxonomy and Function Monitoring in.** Daniel K. Manter*
402-2	1:50 PM	**Quantitative PCR Pipelines: Linking Agricultural Management to Microbial Ecosystem Processes.** Lori Phillips*
402-3	2:05 PM	**Soil Metagenomics: A Prescription for Soil Health?** David D. Myrold*
402-4	2:20 PM	**Exploring Variations in Key Soil Properties for Soil Health Assessment.** Alan J. Franzluebbers*
402-5	2:35 PM	**Proximal Soil Sensing and Sensor Fusion for Soil Health Assessment.** Kenneth A Sudduth*, Kristen Sloan Veum and Newell R Kitchen
402-6	2:50 PM	**Studying the Whole Soil.** Alfred E. Hartemink*
	3:05 PM	**Community Planning Session**
	3:20 PM	**Adjourn**

SESSION NO. 403—1:30 PM–3:20 PM

Tampa Convention Center, Room 36, Third Floor

Managing Nutrients for Vegetable, Fruit and Specialty Crops

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor: SSSA Division: Nutrient Management and Soil and Plant Analysis, ASA Section: Agronomic Production Systems

Moderator: Bhupinder Farmaha

	1:30 PM	**Introductory Remarks**
403-1	1:35 PM	**Fertigation Significantly Increasing Yield of Overhead Irrigated Potato in Florida.** Xiangju Fu*, Guodong Liu, Lincoln Zotarelli and Steven Sargent
403-2	1:50 PM	**Response of Potato and Sugarcane to Premium Phosphate and Potassium Fertilizers.** Kirandeep Mann*, Curt Woolfolk, Kyle Freeman and Ross R Bender
403-3	2:05 PM	**Diagnosing Nutrient Deficiency Symptoms in Citrus with Artificial Neural Networks.** Arnold Schumann* and Laura Waldo
403-4	2:20 PM	**Effect of Cu Application Rate on Citrus Trees Roots and Shoots Development.** Said A. Hamido*, Kelly T. Morgan and Robert C Ebel
403-5	2:35 PM	**Understanding Differences in Silicon Uptake between High and Low Foliar Accumulators: Concentration May Not Predict Protection.** Wendy L. Zellner*
403-6	2:50 PM	**Influence of Nutrient Sources on Growth Performances and Insect PEST Population of Watermelon (Citrullus Lanatus) (Thunb) in South WEST Nigeria.** Jacobs Mobolade Adesina, Tom Inomisan Ofuya, Babatunde Sunday Ewulo, Yallapa Rajashaker, Kehinde Oseni Sanni and Kolawole Gbemavo Godonu*
403-7	3:05 PM	**Uptake of Gentamicin, Tylosin and Oxytetracycline By Lettuce and Radish Plants.** Isam Bashour* and Sandra Adnan Youssef
	3:20 PM	**Adjourn**

SESSION NO. 404—1:30 PM–3:20 PM

Tampa Convention Center, Room 14, First Floor

Spatial Relationships, Data Analysis, and Bioenergy Crops - Soil Fertility and Plant Nutrition

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Matt Yost

	1:30 PM	**Introductory Remarks**
404-1	1:35 PM	**Soil Chemical Properties Associated with Stand-Establishment of Bioenergy Grass Freedom Giant Miscanthus.** Michael Felton*, Kenneyon Webb, Margeria Smith, Ananda Nanjundaswamy, Keerthi mandyam and Victor Njiti
404-2	1:50 PM	**Potential of Growing Sorghum As Bioenergy Feedstock on Lands Economically Unfit for Maize Production.** Bhupinder Singh Farmaha*, Jeffrey J. Volenec and Sylvie M. Brouder
404-3	2:05 PM	**Quadrant Count Method to Quantify within Field Variability of Corn Silage on Three New York Farms.** Tulsi Prasad Kharel*, Emmaline Anne Long, Stephen D. DeGloria and Quirine M. Ketterings
404-4	2:20 PM	**Improved Data Analysis for Evaluating Effects of Integrated Nutrient Management Programs.** Rodrigo A Ortega* and María M. Martínez
404-5	2:35 PM	**Determining Relationships and Patterns in the Nutrisolutions® Plant Tissue Database Using Multivariate Analytics.** Stephanie Wedryk*, Sebastien Preys, Jon Zuk, Catherine White, Mark Don Heineman and Randall E. Brown
404-6	2:50 PM	**Summary of Grid Soil Sample Results from the Southern Great Plains.** D. Brian Arnall*, Joy Abit, Edmond Bryan Rutter and Phillip Alderman
404-7	3:05 PM	**Precision Farming in 4 Year No-till Dryland Rotations: Hopes and Possibilities.** Merle F. Vigil*, Francisco J. Calderon, David J. Poss, David C. Nielsen and Maysoon M. Mikha
	3:20 PM	**Adjourn**

SESSION NO. 405—1:30 PM–3:30 PM

Tampa Convention Center, Room 25, First Floor

Special Session--Grant Application Navigation and Resources for Expanding Early Career Opportunities

ACS530 Early Career Members

Moderator: Nithya Rajan

SESSION NO. 406—1:30 PM–3:35 PM

Tampa Convention Center, Room 22

Soil Biology and Biochemistry Session on Nitrogen Dynamics

SSSA Division: Soil Biology and Biochemistry

Moderator: Jennifer Moore-Kucera, Mussie Habteselassie

	1:30 PM	**Introductory Remarks**
406-1	1:35 PM	**Investigation into Soil Microbiome and Nitrogen Cycling Patterns in Warm and Cool Season Turfgrass Systems.** Qing Xia*, Huaihai Chen, Tianyou Yang, Grady L. Miller and Wei Shi
406-2	1:50 PM	**Effects of the Nitrification Inhibitor Acetylene on Nitrous Oxide Emissions and Ammonia-Oxidizing Microorganisms of Different Agricultural Soils Under Laboratory Incubation Conditions.** Rui Liu*, Helen Hayden, Hangwei Hu, Helen Suter, Jizheng He and Deli Chen
406-3	2:05 PM	**Constraints to Improving Nitrogen Fixation in Chickpea in the Central Dry Zone of Myanmar.** Matthew Denton*
406-4	2:20 PM	**Assessing the Abundance and Diversity of Nitrite Ammonifiers in Manures.** Arnab Bhowmik*, Mary Ann V. Bruns and Terrence Bell
406-5	2:35 PM	**Soil Ammonia Oxidizing Bacteria (AOB) and Ammonia Oxidizing Archaea (AOA) Responses to Management Intensity and Season.** Di Liang* and G. Philip Robertson
406-6	2:50 PM	**Functional Diversity of Plants and Soil Fauna As an Important Control of N_2O Emissions.** Jan Willem van Groenigen*, Diego Abalos, Ingrid Lubbers and Gerlinde De Deyn
406-7	3:05 PM	**Response of Soil Carbon Fractions and Microbial Activities to Different Rates of Manure and Inorganic Fertilizer Applications Under Soybean Production.** Ekrem Ozlu*, Sandeep Kumar, Francisco Arriaga, Abdullah Hoseyin Alhameid, Nigel Hoilett and Saroop S Sandhu
406-8	3:20 PM	**Microbially Mediated Nitrogen Loss and Retention in Australian Rice Paddies.** Arjun Pandey*, Helen Suter, Hangwei Hu, Jizheng He and Deli Chen
	3:35 PM	**Adjourn**

SESSION NO. 407—1:30 PM–4:05 PM

Tampa Convention Center, Room 20, First Floor

General Organic Management Systems Oral II

ASA Section: Agronomic Production Systems

	1:30 PM	**Introductory Remarks**
407-1	1:35 PM	**Transitioning Organic Grain and Soybean Cropping Systems in Texas: Challenges and Benefits.** Nithya Rajan*, Ronnie W. Schnell, Muthu Bagavathiannan, Shyam Nair, Douglas Constance, Kenneth D. Casey, Diana Zapata, Jonathan Moreno and Spencer Samuelson
407-2	1:50 PM	**Effect of Field History and Tillage on Crop Productivity and Soil Quality in Organic No-till Soybean Systems.** Kathleen Delate* and Cynthia A. Cambardella
407-3	2:05 PM	**Influence of Organic Manures on Growth and Yield of Soyabean and on Soil Quality.** Yoganada Shivalli Boregowda*, Devkumar N N, Thimmegowda Puttavenkategowda Gowda and Shruthi Goravale Kempegowda
407-4	2:20 PM	**The Effect on Soil Health Indicators By Organic Grain Cropping Systems.** Alan P. Sundermeier* and Vinayak S. Shedekar
407-5	2:35 PM	**Farmer-Initiated Soil Testing in an Organic Farm Marketing Cooperative.** Mark J. Kopecky*, Erin Silva and Logan Peterman
	2:50 PM	**Break**
407-6	3:05 PM	**Cover Crops for Integrated Fertility Management in Organic Strawberry/Vegetable Production Systems.** Graeme Baird*, Joji Muramoto, Margherita Zavatta and Carol Shennan
407-7	3:20 PM	**Optimizing the Use of Organic Amendments and Cover Crops in Certified Organic Vegetable Production Systems of the Pacific Northwest.** Gabriel Maltais-Landry* and Sean M Smukler
407-8	3:35 PM	**Developing Nitrogen Best Management Practices to Reduce Risk to Water Quality in Organic Carrot in Florida.** Danielle D Treadwell*, Robert C Hochmuth, Ludovica Zampieri and Jose Perez
407-9	3:50 PM	**Effect of Rapeseed and Cereal Rye Used As Cover Crops on Soil Health in Organic Sweet Potato Production.** Waana Kaluwasha*, Mengshi Lin, Jeanne Mihail, Robert J. Kremer, Zelalem Mersha and Xi Xiong
	4:05 PM	**Adjourn**

SESSION NO. 408—1:45 PM–2:30 PM

Tampa Convention Center, Room 9, First Floor

CSSA Business Meeting-- Joint Division C01 and C07

C01 Crop Breeding and Genetics

Section or Division Cosponsor: C07 Genomics, Molecular Genetics and Biotechnology

SESSION NO. 409—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Agronomic Production Systems General Poster

ASA Section: Agronomic Production Systems

1122	**Within-Plot and within-Plant Variability and Senescence Patterns of Maize Under Contrasting Tillage Systems, Stubble and Fertilizer Nitrogen.** Onesmus Musembi Kitonyo*, Yi Zhou, Victor Sadras and Matthew Denton

1123 **Effect of Nearby Weeds on Various Corn Varieties.** Mark Fletcher*

1124 **Analysis of Maize Row Spacing and Plant Population Trials in Iowa.** Emily E. Wright* and Mark A. Licht

1125 **Row and Forage Crop Rotation Effects on Maize Mineral Nutrition and Yield.** Walter E. Riedell and Shannon L. Osborne*

1126 **Yield Loss of Corn to Incremental Defoliation during the Reproductive Stages of Development.** Michael Shannon* and Daniel D. Fromme

1127 **Corn and Soybean Yields As Affected By Residue Management and Tillage in the Mississippi Delta.** M. Wayne Ebelhar* and Normie W. Buehring

1128 **Effect of Plant Spacing and Emergence Variability on Corn Yield.** Justin Dufour* and Daniel D. Fromme

1129 **Cover Crop and Planting Date Effects on Corn Yield and Soil Fertility.** Caitlin Woodard* and Daniel D. Fromme

1130 **Implementing Best Management Practices (BMPs) in Corn Production to Protect Water Quality.** Patrick Troy*

1131 **Nucleus O-Phos™ 8-24-0-.10 Fe for in-Furrow Applications As Starter Fertilizer in Corn.** Paul Kent Kennedy*, Gary Schmunk, Aaron Hert and Michael Cox

1132 **HM 9754 (a Humic Based Product) Impact on Maize Yield When Applied with Nitrogen.** Gregory L. Willoughby* and Michael Powell

1133 **Grain Yield in Corn Hybrids Exposed to Water Stress at Different Growth Stages and the Use Thermal Imaging.** Celsa Balbi, Jose Daniel Kappes* Sr. and Javier Antonio Fernández Sr.

1134 **Yield Monitor Data Cleaning Effect on Corn Grain and Silage Yield Determination.** Tulsi Prasad Kharel*, Sheryl Swink, Angel Maresma Galindo, Connor Youngerman, Karl J. Czymmek and Quirine M. Ketterings

1135 **Applying Functional Niche Framework to Agroecosystems.** Dane Hunter* and Michelle Wander

1136 **Farmers Business Network: Bringing the Power of Big Data to Agriculture.** Matthew Meisner and Yaodong Hu*

1137 **Building a Cropping System Typology from Plot Survey: Scaling-up from Crop Management Plan Information to Cropping System Scale.** Rémy Ballot*, Laurence Guichard, Catherine Mignolet, Elise Pelzer, Thomas Puech, Céline Schott and Marion Soulié

1138 **Soil Water Content Changes with Cover Crops between No-till Wheat and Grain Sorghum.** Matti Kuykendall, David Abel, Kraig L. Roozeboom*, Gerard J. Kluitenberg and Nathan O. Nelson

1139 **Intensifying a No-till Wheat-Sorghum-Soybean Rotation with Double and Cover Crops.** Kraig L. Roozeboom, Peter J. Tomlinson*, Giovani Preza Fontes, Johanna Dille, Dorivar A. Ruiz Diaz and Kevin Arnet

1200 **Effects of Crop Rotation on Soil Chemical Properties in the Mid-South US.** Gurpreet Kaur*, J. M. Orlowski, Bobby R. Golden, William Jeremy Ross, Gene Stevens, Trent Irby, Josh Copes, Clark B. Neely, Matthew Rhine, Daniel L. Hathcoat and Ronnie W. Schnell

1201 **Long-Term Tillage and N Management for Corn, Wheat, and Double-Crop Soybean Grown in Rotation on a Claypan Soil.** Daniel W. Sweeney*

1202 **Enabling Wheat and Soybean Double Cropping Systems in Pennsylvania.** Giovani Stefani Fae*, Gregory W. Roth, Armen R. Kemanian and David L. Holshouser

1203 **Yield Benefits from Combined Applications of Foliar Fungicides and Insecticides on Soybean.** Anthony Martin*, Peter M. Kyveryga and Brett McArtor

1204 **Does Soybean Benefit from Starter Nitrogen Fertilizer in Manitoba?** Navneet Brar* and Yvonne Lawley

1205 **Genetic and Environmental Contributions to Cotton Yield and Fiber Quality in the Midsouth.** Tyson Brant Raper*, Darrin M. Dodds, Andrea Jones, Bill Robertson, Daniel D. Fromme, Tyler Sandlin, Trey Cutts and Ryan Blair

1206 **Updating Recommendations for Cotton Planting Density in the Texas Rolling Plains.** Santanu Bikram Thapa*, Emi Kimura and Curtis Adams

1207 **Vigor Components of Cotton.** Seth Byrd*, Robert Wright, Amee Bumguardner and John Snider

1208 **Amino Acid and Carbohydrate Distribution in Cotton Plant Biomass Products and Byproducts.** Zhongqi He*, Dan Olk, Hailin Zhang, Haile Tewolde and Mark W. Shankle

1209 **Productivity of Drought-Tolerant Alternative Crops Subjected to Water-Limiting Conditions in West Texas.** Irish Lorraine Pabuayon, Sukhbir Singh* and Glen Lorin Ritchie

1210 **Effect of Flood Timing on Rice Grain Yield in a Drill-Seeded, Delayed-Flood Rice Production System.** Manoch Kongchum*, Dustin L. Harrell and Nutifafa Adotey

1211 **Impact of Low-Temperature, Overcast and Rainy Weather during the Reproductive Growth Stage on Lodging Resistance of Rice.** Fei Weng*, Wujun Zhang, Xiaoran Wu, Xia Xu, Yanfeng Ding, Ganghua Li Sr., Zhenghui Liu and Shaohua Wang

1212 **Effect of Cultivars, Fertilizers, and Plant Hormones on Chalkiness in Rice Grain.** William Stevens*, Matthew Rhine, Johanna Nelson and Josh Harrington

1213 **A Significant Effect of the Interactions between Fertilisation Regime and Crnf Types on Rice Yield and N Use Efficiency.** Jian Ke, Rongchuan He, Chao Ding, Yanfeng Ding, Shaohua Wang, Zhenghui Liu, She Tang, Lin Chen, Chengqiang Ding and Ganghua Li* Sr.

1214 **Investigation of Benefits from Organic Management Alternatives Using DNDC Model Simulations for Developing Sustainable Practices in Texas Rice Production.** Aditi Pandey*

1215 **Evaluation of Germinability in Rice Germplasm Under Low Temperature and Anaerobic Conditions.** Do Yoon Hyun*, Muhammad Rauf, Yu-Mi Choi, Sukyeung Lee, Myung-Chul Lee and Sejong Oh

1216 **Customizing Nitrogen Fertilizer and Seeding Rates in Soft White Winter Wheat.** Kurtis L. Schroeder*, Cole Senefsky and Christopher W. Rogers

1217 **Alkaline Biochar Amendment Increased Soil pH, Carbon, and Wheat-Pea Yields.** Stephen Machado*, Karl Rhinhart, Larry Pritchett and Rakesh Awale

1218 **Deficit Irrigation Affects Wheat Yield and End-Use Quality.** Rui Yang*, Xi Liang, Katherine O'Brien, Olga Walsh and Jessica A Torrion

1219 **Tropical Legume for Turmeric (Curcuma longa L) Cultivation in Okinawan Red Soil, Japan.** Md. Sagirul Islam Majumder*

1220 **Evaluation of Organic Spring Cover Crop Termination Practices to Enhance Rolling/Crimping.** Andrew Price*, Leah M. Duzy, J. Scott McElroy and Steve Xi

1221 **Soil Analyses after Growth of Six Winter Cover Crops.** Oliver Ward Freeman II, Mary Beth Kirkham*, Kraig L. Roozeboom, Alan J. Schlegel, Jason S. Bergtold and Scott A. Staggenborg

1222 **Variation in Growth, Physiology, and Yield of Six Sugarcane Cultivars from across the Globe in Florida.** Maninder Pal Singh*, Duli Zhao, James M. Shine Jr., Abraham Singels and Kristen Polacik

1223 **Sugar Beet Yield and Quality Response to Irrigation Management.** Reza Keshavarz Afshar*, Chengci Chen, William B. Stevens and William M. Iversen

1224 **Potato Nitrogen Fertility and the Potential for Groundwater Contamination.** Brian H. Marsh*

1225 **Ideal Rate and Timing of Nitrogen Fertilizer in Grain Sorghum Based on Starter Fertilizers.** Sadie Church*, Ronnie W. Schnell, Jake E. Mowrer, J. Alex Thomasson and Tony L. Provin

1226 **Productivity, Nutritional Quality and Phenotypical Stability of Varieties and Hybrids of Silage Sorghum in UberlÂNdia, MG - Brazil.** Carlos Juliano Brant Albuquerque* Sr.

1227 **Investigating in-Vitro and in-Situ Rooting of Stevia rebaudiana Bertoni for Intercropping.** Ankush Sangra*, Nabin P Sedhain and Bipul Biswas

1228 **Using Ground Penetrating Radar to Detect Fine Roots of Agricultural Crops in the Field.** Xiuwei Liu*, Xuejun Dong, Qingwu Xue, Daniel I. Leskovar, John Jifon and John Butnor

1229 **Potentials of the Fababean As Dual-Purpose Cash/Cover Crop in Northern California.** Erik Spitzer*, Jidao Du, Garrett C. Liles and Hossein Zakeri

1230 **Irrigation Water Amount and Delivery Method Effect on Garden Bean Production Under Conventional and Strip Tillage Systems.** Olga Walsh*, Don Morishita, Andi Woolf-Weibey, Jordan McClintick-Chess and Steven Blanscet

1231 **The Influence of Seeding Date and Sowing Method on Camelina Seed and Biomass Production in Nevada.** Dhurba Neupane*, Juan K. Q. Solomon and Jason Davison

1232 **Characterization of Molecular Markers Linked to White Rust Resistance and Quality Traits QTL in Indian Mustard (Brassica juncea) for Marker-Assisted Selection.** Sumandeep Bazzer*, Satinder Singh, Mohini Prabha Singh, Gurpreet Kaur and Avjinder Singh Kaler

1233 **De Novo Assembly and Characterization of Transcriptome of Red Maple (Acer rubrum) Genotypes Resistant to Nickel Toxicity.** Kabwe K. Nkongolo*, Gabriel Theriault and Paul Michael

1234 **Expression of Genes Associated with Nickel Resistance in Red Oak (Quercus rubra).** Charnelle Djeukam, Paul Michael and Kabwe K. Nkongolo*

SESSION NO. 410—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

General Bioenergy Systems Poster

ASA Section: Agronomic Production Systems

1235 **Nitrogen Fertilization Response in FIVE Bioenergy CROP Systems in the North-Central United States.** Sichao Wang*

1236 **Interaction Among Genotypes of Maize Hybrids, Locations and Water Optimization Furthered By Soil Water Retention Technology (SWRT).** Pavani G. Tumbalam*, Kurt D. Thelen, Brian C. Levene and Alvin J.M. Smucker

1237 **Intensifying the Corn-Soybean Rotation with the Use of Winter Rye Grown for Biomass Energy Production in Eastern South Dakota.** David Karki*, Peter J. Sexton and Lon Hall

1238 **Life Cycle Greenhouse Gas Emissions from Miscanthus Production at Farm Scale.** Paul R. Adler*

1239 **Biogas Production from Livestock Waste Anaerobic Digesters: Evaluation and Optimization.** Nanh C. Lovanh*, john loughrin, Graciela Ruiz-Aguilar and maciej ryzs

1240 **Developing High Biomass Napiergrass (Pennisetum purpureum) Hybrids with Enhanced Biosafety.** Baskaran Kannan*, Marco Sinche, Carlos E Corsato and Fredy Altpeter

1241 **Effect of the Sugarcane Ripener Glyphosate (Roundup PowerMAX® II) on Agronomic and Biomass Characteristics of Energy Cane.** Collins A. Kimbeng*, Srinivasa Pinnamaneni, Everton Barreto, Kaitlin Barrios, Ana Oliveira, Albert Orgeron, Michael Pontif, John Jifon and Anna Hale

1242 **In Planta Produced Hyperthermostable GH10 Xylanase Xyl10B Improves Hydrolysis of Sugarcane Xylan to Fermentable Sugars for Biofuel Production.** Jae Yoon Kim*, Chang-Ho Kim, Kyung-Hee Kim, Maria Gallo, James Preston and Fredy Altpeter

1243 **A Device for Phenotyping Stalk Strength of Bioenergy Crops.** Witold de la Chapelle, Daniel Robertson, Hao Zhou and Douglas Cook*

1244 **Bioenergy Alley Cropping System: Establishment on Marginal Fallowland in the Missouri River Floodplain.** Sougata Bardhan*, Shibu Jose, Priyanka Sharma and Janith Chandrasoma

1245 **Productivity, Fossil Fuel Replacement Potentiality and GHG Emission Reduction Ability from Lignocellulosic Bioenergy Crops Grown on Marginal Land.** Hari Pratap Singh* and Badri Khanal

SESSION NO. 411—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Biometry and Statistical Computing General Poster

ASA Section: Biometry and Statistical Computing

1246 **Liebig's Law of the Minima: Interpreting Nutrient Response in 2 Dimensions.** Brian Davis*, Steven B Mirsky, John Spargo, Hanna Poffenbarger, Michel A. Cavigelli and Brian A. Needelman

1247 **Evaluation of Genomic Prediction Models for Different Heritable Traits in Soybean.** Avjinder Singh Kaler* and Larry C. Purcell

SESSION NO. 412—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Climatology and Modeling General Poster

ASA Section: Climatology and Modeling

1248 **Climate-Risk Assessment for Crop Production: A Case-Study for Winter Wheat in the U.S. Southern Great Plains.** Guilherme Passerini Bavia* and Romulo Pisa Lollato

1249 **Decision-Support Maps for Corn Planting Date and Crop Maturity in Mississippi.** Patrick J. English* and Sherri L. DeFauw

1250 **Application of a New Method for Crop Yield Forecasting in Tanzania.** Lin Liu* and Bruno Basso

1251 **Variation and Uncertainty in the Potential Yield of Korean Soybean Under Multi-Model Ensemble Climate Change Scenarios.** Uran Chung*, Yean-Uk Kim, Beom-Seok Seo and Myung-Chul Seo

1252 **Management Adaptation and Practice Changes Using Current Available Technology Mitigate CO2 Emissions from Agricultural Soil in US Corn Belt Under Climate Change.** Yao Zhang*, Keith Paustian, Ernest S. Marx, Stephen Williams, Ram Gurung, Stephen Ogle, Radley Horton and Dan Bader

1253 **Evaluation of the Maizsim Model Under Irrigated and Dryland Conditions.** Marite Navarro-Bejarano, Dennis Timlin*, David H. Fleisher, Soo-Hyung Kim, Vangimalla R. Reddy, Chris Pachta, Dwain M. Rule and Johanna Dille

1254 **Agricultural Practices Using Agrometeorological Information As an Adaptative Countermeasure to Climate Change -an Example of Volunteer Potatoes Management in Northern Japan.** Tomotsugu Yazaki*, Tomoyoshi Hirota, Yukiyoshi Iwata and Satoshi Inoue

1255 **Modeling Water Potential of Rye Cover Crop Residue on the Soil Surface.** Miguel L. Cabrera*, Julia W. Gaskin, David E. Kissel, Kate Cassity-Duffey, Carson Dann and John Rema

1300 **Constructing Gridded Daily Oklahoma Mesonet DATA for AGRO-Hydrological Applications.** Vijaya Gopal Kakani* and Kundan Dhakal

1301 **Weather Variability Impacting the Productivity of RICE, Wheat and Sugarcane in North WEST India.** Sangharsh Kumar Tripathi*

SESSION NO. 413—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Education and Extension General Poster

ASA Section: Education and Extension

1302 **Promoting Undergraduate Research in Agriculture: Opportunities for Experiential Learning and a Pathway to Graduate Studies.** John T. Bushoven*, Dave Goorahoo, Balaji Sethuramasamyraja, Florence Cassel and Anil Shrestha

1303 **Winter Canola Response to in-Furrow Starter Fertilizer Application As Affected By Soil pH and Soil Test Phosphorus.** Joy Abit*, Josh Lofton and D. Brian Arnall

1304 **Online Professional Certificate in Plant Breeding and Genetics.** Leah Sandall*

1305 **Healthy Soil Healthy Environment – an Ohio State University Extension Signature Program.** Vinayak S. Shedekar*, Alan P. Sundermeier, Steven W. Culman, Sarah Strausbaugh and Khandakar R. Islam

1306 **Corn Yield App, an on-Farm Tool for Estimating Corn Yields.** Ignacio A. Ciampitti* and Osler Ortez

1307 **The Lone Star Healthy Streams Program: Reducing Bacterial Runoff Associated with Horses.** Matthew W. Brown*

1308 **On-Farm Cover Crop Research: How Not to Measure Soil Moisture.** DeAnn R. Presley*

SESSION NO. 414—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Extension and Education in Agronomy Poster

ASA Section: Education and Extension

1309 **Episodes of an American Agronomist in Ukraine.** Harold D. Watters*

1310 **Using Controversy in Food and Agriculture to Gain Skill in Civil Discourse.** Mary Brakke* and Mary Raeth

1311 **Transformational Education: The Emotional/Economic Tag.** David W. Franzen*

1312 **Extending Greenseeker Technology to Bermudagrass Pasture Land.** Alexandre C. Rocateli* and D. Brian Arnall

1313 **Characterizing Sustainability of Kansas Dryland Wheat Production Using Fieldprint Calculator.** Brett Lynn*, Peter J. Tomlinson and Romulo Pisa Lollato

1314 **Determining the Irrigation Requirements of Select Native American Indigenous Legume Crop Varieties for Oklahoma.** Justin Quetone Moss*, Joshua Ringer, Lynn Brandenberger and Lynda Carrier

1315 **Management Practices to Increase Irrigated Mid-South Corn Yields.** Jason Kelley*, Tyler Keene and Scott Hayes

1316 **Developing Resources to Address Measured Gaps in Basic Agriculture Research Interpretation in the North Central Region, 2017.** Sara Berg*, Joshua Coltrain, Lizabeth Stahl and John Thomas

1317 **Alabama Ecology of Grazing Lands Short Course: An Interagency Training Effort on Improved Forage Management Practices.** Mary Kimberly Mullenix*, Joshua Elmore, Kent Stanford, Jonathan Gladney, Gerald Thompson and Shannon Weaver

1318 **Environmental Quality Outreach Using Simulation Gaming.** W. Ashley Hammac* and Tim McGraw

1319 **Building Nutrient and Water Quality Knowledge through Fertilizer Applicator Certification Training in Ohio.** Gregory A. LaBarge*, Harold D. Watters and Elizabeth M. Hawkins

SESSION NO. 415—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Extension Materials on Display Poster I

ASA Section: Education and Extension

1320 **Digital Books for Weed Science Education.** Bruce A Ackley*

SESSION NO. 416—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Beef and Dairy Systems: Economics and Environmental Footprint Poster (includes student competition)

ASA Section: Environmental Quality

1321 **Characterization of N Dynamics and Soil Microbial Communities As a Result of Biological Nitrification Inhibition By Brachiaria Grasses from Bovine Urine Patches.** Johanie Rivera Zayas* and Charles W. Rice

1322 **Life Cycle Analysis of Beef Cattle Production in the Southern Great Plains.** Narayanan Kannan*, Ali Saleh, Edward Osei, Rewati Niraula, Andy Cole, Richard Todd, Heidi Waldrip and Hugh Aljoe

1323 **Estimating Biological Capacity for Grass-Based Ruminant Meat Production in New England and New York.** Alexandra M. Thorn* and Christian J. Peters

1324 **Environmental and Economic Implications of Long-Term Drought for Beef Grazing Systems.** Ali Saleh*, Edward Osei, Oscar Gallego, Hugh Aljoe, Narayanan Kannan, Rewati Niraula and Bijay Pokhrel

1325 **Developing Renovation Strategies for Toxic Tall Fescue That Best Manages for Profitability, Animal Performance and Soil Health of the Production System.** Sam Ingram*

1326 **Herd-Scale Enteric Methane Emission from Cattle Measured Using CH4:CO2 Ratio Method.** Richard W. Todd*, Kenneth Turner, James Neel and Jean L. Steiner

SESSION NO. 417—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Nutrient Dynamics and Management in Dairy and Beef Cattle Production Systems Poster (includes student competition)

ASA Section: Environmental Quality

1327 **Effect of Winter Cover Crop Grazing on Animal Performance and Antibiotic Resistance during Pre-Weaning Period in Beef Cattle.** Getahun E Agga*, Hunter O Galloway, Terry M Arthur, John W Schmidt and Annesly Netthisinghe

1328 **Dairy Manure Application Frequency and Crop Rotations Influence Off-Farm Fertilizer Needs and Soil Fertility Balance.** Apurba K Sutradhar*, Heather D. Karsten, Douglas B. Beegle, Glenna M. Malcolm and Emad Jahanzad

1329 **Dairy Production Systems in the United States: Nutrient Budgets and Environmental Impacts.** Ray B. Bryant*, C. Alan Rotz, Peter J.A. Kleinman, Dave Bjorneberg, Michael Holly, John Baker, Gary W. Feyereisen, April B. Leytem, Heidi M. Waldrip, Peter A. Vadas and Mark Boggess

1330 **Setting Targets for the Phosphorus Index Using Whole-Farm Phosphorus Balances.** Mart B.H. Ros*, Stephen J. Crittenden, Sebastian Cela, Karl J. Czymmek and Quirine M. Ketterings

1331 **The Use of Hyperspectral Proximal Sensing to Determine Moisture and Nutrient Content of Dung Pats in the Field.** Amanda Shine Sanford*

1332 **Nutrient and Heavy Metal Levels in Dairy Processing Organic Residues for Potential Recycling to Agricultural Land.** S M Ashekuzzaman, Patrick J Forrestal, Karl G Richards and Owen Fenton*

SESSION NO. 418—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Nutrient Management and Environmental Quality General Poster (includes student competition)

ASA Section: Environmental Quality

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

1333 **The Effect of Closed Depressions on Dissolved Reactive Phosphorus Losses in Tile-Drained Fields.** Luis Andino*, Jennifer Fraterrigo, Lowell E. Gentry and Yuji Arai

1334 **Phosphorus Recovery from Anaerobic Swine Lagoon Sludge Using the Quick Wash Process.** Ariel A. Szogi*, Matias B. Vanotti and Paul D. Shumaker

1335 **Effect of Mandatory Nutrient Management Planning on Soil Phosphorus Status.** Emileigh Lucas*, Joshua M. McGrath, Frank Coale, Nicole M Fiorellino, Patricia M. Steinhilber and Robert Kratochvil

1336 **No-till Effects on the Loss of Different Forms of Phosphorus from Agricultural Landscapes: A Meta-Analysis.** Stefani Daryanto, Lixin Wang and Pierre-Andre Jacinthe*

1337 **An Analysis of BMPs and Their Combined Effectiveness at Reducing Phosphorus, Nitrogen, and Sediment Export from the Black Hawk Lake Watershed, Iowa.** Katherine G Van der Woude*, Michelle L Soupir, Leigh-Ann M. Long, Charles D Ikenberry, Matthew J Helmers and Amy L Kaletia-Forbes

1338 **Manure Management Strategy to Reduce Phosphorus and Salts.** Caswell Mathebula and Matshwene Moshia*

1339 **Effects of Additives Applied with Urea on Nitrate Leaching and Potato Tuber Yield and N Uptake.** Emerson de Freitas Cordova de Souza*, Rodney T. Venterea, Carl J. Rosen and Nils Berger

1340 **The Fate of Nitrogen Affected By Biochar and Fertilizer Source.** Yinghua Duan* and Suduan Gao

1341 **Early-Sown Winter Cereals As Substitute for Nitrate Catch Crop.** Elly M. Hansen*, Ingrid Kaag Thomsen and Rodrigo Labouriau

1342 **Catch Crops in Spring Barley on Sandy Soils: Nitrate Leaching and Residual Value.** Ingrid Kaag Thomsen* and Elly M. Hansen

1343 **Within-Field Drainage Flow and Nitrogen Loading Variability Following Tile Drainage Installation.** Giovani Preza Fontes*, Laura Christianson and Cameron M. Pittelkow

1344 **Enhancing Water and Nitrogen Use Efficiency in Soybean-Corn Rotations with Winter Cover Crops.** Alexander Hummel* Jr., Jeffrey A. Coulter and Axel Garcia y Garcia

1345 **Organic Carbon and Nutrients Dynamics in Saline Soils Under Switchgrass Irrigated with Treated Municipal Wastewater.** Girisha Keshavamurthy Ganjegunte*, April L. Ulery, Genhua Niu and Yanqi Wu

1346 **Cover Crop Strategies to Balance Corn Production and Environmental Stewardship.** Hannah Rusch*, Jeffrey A. Coulter and Axel Garcia y Garcia

1347 **Cover Crop Impacts on Runoff Hydrographs and Edge-of-Field Surface Water Quality.** Nathan O. Nelson*, Elliott Carver, Kraig L. Roozeboom, Gerard J. Kluitenberg, Peter J. Tomlinson and Jeffery R. Williams

1348 **Development, Implementation, and Evaluation of a Watershed Plan for the Silver Creek in Southwestern Illinois.** John J. Sloan*, Janet Buchanan, Miles Corcoran and Rachael Murtaugh

1349 **Groundwater Nitrogen and Phosphorus Dynamics in a Claypan Watershed Under Crop Management.** Niranga Wickramarathne*, Robert Lerch, Ranjith P. Udawatta and Fengjing Liu

1350 **Design Approach to Extend Longevity of Woodchip Denitrification Bioreactors Treating Wastewater.** Christine Lepine*, Laura Christianson and Steven Summerfelt

1351 **The Manage Database Drainage Nutrient Concentration Table: An Analysis of Uncontrollable Factors Affecting Water Quality.** Allan Hertzberger*, Laura Christianson and Daren Harmel

SESSION NO. 419—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Carbon and Greenhouse Gas Emissions General Poster I

ASA Section: Environmental Quality

Section or Division Cosponsor: ASA Section: Environmental Quality, ASA Section: Climatology and Modeling, SSSA Division: Soil and Water Management and Conservation

1352 **Evaluating Qcl-Based Absorption Spectroscopy Technology for Chamber-Based Flux Measurements of Nitrous Oxide in Agricultural Landscapes.** Kevin Kahmark*, Kathryn R. Glanville, Sven Bohm and G. Philip Robertson

1353 **Effects of Fertilizer Level on Nitrous Oxide Emission from Upland Soil in South Korea Under Climate Change Scenario (RCP-8.5): High-Resolution Modeling Approach.** Hwang Won Jae*, Hyungi Min, Minseok Park and Seunghun Hyun

1354 **Network and Modeling Activities within the GRA Croplands Research Group: MAGGnet and GRAMP.** Mark A. Liebig* and Jagadeesh Yeluripati

1355 **Greenhouse Gas Emissions in Continuous Corn As Affected By Soil Tillage and Irrigation Systems.** Samuel Franco-Luesma, Elena Paracuellos, Daniel Plaza-Bonilla, Jose Luis Arrúe, Carlos Cantero Martinez, Evangelina Pareja Sanchez*, Jose Cavero and Jorge Alvaro-Fuentes

1400 **Soil Direct N2O Emissions Due to Bovine Excreta Deposition in Native Grassland at Southern Brazil: Effect of Different Year's Seasons.** Diego Fernandes de Bastos*, Janquieli Schirmann, Rafael Stefanhak Barok, Henrique dos Santos Dalanhol, Paulo De Faccio Carvalho and Cimélio Bayer

1401 **Response of Greenhouse Gas Emissions to Varying Compost Rates and Soil Moisture Under Laboratory Conditions.** Mavis Brempong*, Urszula Norton and Jay Norton

1402 **Net Ecosystem Exchange of Carbon Dioxide of an Apple Orchard in South Korea.** Kyo-Moon Shim*, Sung-Hyun Min, Yong-Seok Kim, Myung-Pyo Jung, In-Tae Choi and Kee-Kyung Kang

1403 **Effects of Crop Rotation and Grazing in an Iclss on Greenhouse Gas Emissions in Northern Great Plains.** Liming Lai*, Navdeep Singh, Hanxiao Feng, Douglas Landblom, Songül Şentürklü, Kris Ringwall and Sandeep Kumar

SESSION NO. 420—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Global Agronomy General Poster

ASA Section: Global Agronomy

1404 **The Impact of Metam Sodium on Nutsedge Control Provided By Dimethyl Disulfide.** Mary C. Stevens, Joshua H. Freeman, Catherine Fleming-Wimer* and Ralph Allen

1405 **Closing the Wheat Yield Gap: Case Study in Middle and Low Reaches of the Yangtze River.** Dong Jiang*, Xiao Wang, Jian Cai and Qin Zhou

1406 **Waterlogging Priming Improves Tolerance to Waterlogging Stress in Wheat.** Xiao Wang*, Dong Jiang, Qin Zhou and Jian Cai

1407 **Participatory Approach in Soil Testing and Nutrient Management in Smallholder Farms of Nepal.** Rajan Ghimire*, Tiare Silvasy, Sameer Magar, Nirajan Bhattarai, Rajendra Regmi and Jhalendra P Rijal

1408 **Maize Hybrids Response to High Plant Density in the Guinea Savanna of Nigeria.** Alpha Y. Kamara*, Aisha Wada Abubakar, Abdullahi Tofa, Temitope Ademulegun and Lucky Omoigui

1409 **Vegetative Characterization of Upland Rice Genotypes from Vale Do Ribeira, Sao Paulo State, Brazil.** Samuel Ferrari*, Pablo Forlan Vargas, Melina Rodrigues Alves Carnietto, Gustavo Bispo Marchesin, Enes Furlani Junior, Joao Vitor Ferrari, Ocimar Jose Baptista Bim and Heitor Petinari Ferrari

1410 **Macronutrients Foliar Contents and Cotton Yield As Function of the Glyphosate Low Doses and Growth Regulator Application System.** João Vitor Ferrari*, Enes Furlani Junior, Samuel Ferrari, Adriana Souza Colombo and Edy Carlos Santos de Lima

1411 **Assessment of the Biological IMPACT of Introducing Mustard into a Typical CROP Rotation on the Northwestern Plains of NSW.** Makhdum Azam Ashrafi*

1412 **Evaluation of Polyhalite for Its Nutrient Availability and Accumulation in Rice, Sesame, Peanut and Sugarcane.** Vijay Krishna Kumar K, Kiran Pavuluri*, Naga Madhuri K, Kishore Varma P, Raja Kumar N and Jaya Chandra K

1413 **Response of Tobacco to New Fertilizer Blends Containing Polyhalite in Comparison to Conventional Blends in Tanzania.** Jacob Lisuma, Kiran Pavuluri*, Deusdedit Mlay, Robert Meakin and Nicholous Kuboja

1414 **Global Agriculture Systems Reflect in a Develop Country.** Rogerio Carlos Traballi*, Amanda Gaspar Monteiro Traballi, Fabio Cesar Prosdocimi, Claudio Ditticio and Alexandre Cavalcante De Queiroz

SESSION NO. 421—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Land Management and Conservation General Poster

ASA Section: Land Management and Conservation

1415 **Application of a Soil Sensor System to Monitor Forest & Military Machine Trafficking.** Emily A. Carter*, Heidi R. Howard and Brian K Via

1416 **Effect of Fall Cover Crops Under Different Tillage Systems on Soil Moisture, Soybean Growth and Grain Yields.** Hari Bohara* and Syam K. Dodla

1417 **Soil Organic Carbon Storage Is Distinguished from Semiarid and Humid Climates Under Grain Cereals Cultivation.** Paulina Beatriz Ramírez*, Javier I. Rivera and Carlos A. Bonilla

1418 **Phosphorus Stratification Caused By Long-Term Tillage and P Fertilisation in Corn -Soybean Rotation in Eastern Canada.** Noura Ziadi* and Christian Morel

1419 **Growth, Biomass, and Seed Yields of the Perennial Oilseed Crop Silphium (*Silphium integrifolium*) in Variable Nitrogen Rates.** Sydney Schiffner*, Nicole Tautges and Craig C. Sheaffer

1420 **Spatial Response of Near-Surface Soil Water Contents to Newly Imposed Soil Management.** Aaron L.M. Daigh*, Jodi DeJong-Hughes, Abbey Foster Wick and Robert Horton

SESSION NO. 422—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Physiology and Metabolism Poster II

C02 Crop Physiology and Metabolism

100 **A Controlled Gravimetric Phenotyping Approach Reveals Variation in Transpiration Responses to Evaporative Demand across Maize NAM Parents.** Bishal Gole Tamang* and Walid Sadok

101 **Evidence for Significant, Genotype-Dependent Nocturnal Transpiration across Maize NAM Parents.** Bishal Gole Tamang* and Walid Sadok

102 **Leaf Gas Exchange As a Factor in the Differential Ozone Sensitivity of Two Soybean Genotypes.** Amanda Roth* and Kent O. Burkey

103 **Effects of Soil and Row-Spacing on Seed Chemical Composition and Mineral Nutrition in Soybean in the Midsouth USA.** Nacer Bellaloui*

104 **Expression of Detoxification Proteins and Tissue-Specific Transcriptome Profiling in Etiolated Coleoptiles of Grain Sorghum Following Safener and Oxylipin Treatments.** You Soon Baek*, Rong Ma, Anatoli V Lygin, Mayandi Sivaguru, Edward H Ross, Stephen P Moose, Patrick J. Brown and Dean E Riechers

105 **The Concentration of Nutrient-Uptake Proteins in Plant Tissue Can be Used to Identify Genotypes with Desirable Nutrient-Relations Traits.** Scott A Heckathorn*, Sasmita Mishra, Dileepa Jayawardena, Jennifer K Boldt and Charles R Krause

106 **Biomass Yield and Composition of 9 Switchgrass Cultivars in Eastern Canada.** Annie Claessens*, Marianne Crepeau, Gilles Bélanger, Olivier Lalonde, Julie Lajeunesse, Philippe Seguin, Guy Allard, Huguette Martel and Roger Samson

107 **Revisiting Low-Tech in High Throughput Phenotyping.** Glen Lorin Ritchie*

108 **Optimal Drying Conditions of Leaves and Variation of Caffeine Content in Guayusa in the Ecuadorian Amazonia.** Mayra Rocha*

109 **Assessing Physiological Contributions of the First True Leaf to Seedling Vigor for Cotton Under Field Conditions.** John Snider*, Gurpreet Virk, Cristiane Pilon and Mario A Scolari

110 **Increased Partitioning to Reproductive Organs with Early Maturities in Double Crop Soybean.** Maria Morrogh-Bernard* and Montserrat Salmeron Cortasa

111 **Understanding Perennial Grain Thinopyrum Intermedium (Kernza®) Response to Vernalization and Photoperiod.** Kathryn Ivancic* and Valentin Picasso

112 **Sugar Composition and Concentrations in Sugarcane Juice As Affected By Sampling Date and Internode Position.** Duli Zhao*, Maninder Pal Singh and Shahid Ali

113 **Characterization of a Soybean Germplasm for Root Traits.** Harrison Fried*, Sruthi Narayanan and Ben Fallen

114 **Consequences of a Late Spring Frost on Maize Grain Yield and Plant-to-Plant Variability.** Elizabeth A. Lee* and Chutinan Jaroenchai

115 **Characterizing the Soybean Nested Association Mapping Population (SoyNAM) Parental Lines for Physiological Traits Associated with Yield.** Akshita Mishra*, Larry C. Purcell, Andy Andy King and Marilynn Kay Davies

116 **Late-Season Photosynthetic Rate and Senescence Were Associated with Grain Yield in Winter Wheat of Diverse Origins.** Xi Liang*, Yuxiu Liu, Jianli Chen and Curtis Adams

117 **Role of Cotyledon and Early Leaf Photosynthesis in Early Seedling Development of Cotton.** Shengjun Liu*, Melissa Remley, Robert L. Nichols and Felix B. Fritschi

118 **Effect of Planting Date on Seedling Vigor of Peanut Cultivars.** Cristiane Pilon*, Gurpreet Virk, John Snider, R. Scott Tubbs and Mario Scolari

119 **Top-Soil Root Architecture Characteristics of Obsolete and Modern Soybean Cultivars and Shoot and Seed Nutrient Contents.** Hussien Almtarfi* and Felix B. Fritschi

200 **Achieving High Yield and Meeting Protein Requirement in Spring Wheat.** Breno Bicego Vieitez de Almeida*, Anish Sapkota, Robert N Stougaard, Luther Talbert and Jessica A Torrion

201 **Assessing Specific Leaf Area of Maize Canopy Under Carbon Limitation.** Kyungdahm Yun*, Sarah Dixon, Felix B. Fritschi and Soo-Hyung Kim

202 **The Impact of Irrigation and Nitrogen Rate on Yield and Fiber Quality of Determinate and Indeterminate Cotton Cultivars.** Avat Shekoofa*, Tyson Brant Raper and David Verbree

203 **Soybean Nitrogen Limitation in High-Yield Production Environments.** Nicolas Cafaro La Menza*, John L. Lindquist, Timothy Arkebauer, George Graef, James Specht and Patricio Grassini

204 **Model Enhanced Phenotyping: Understanding N Impacts on Photosynthetic Traits in Brassica Rapa.** Jonathan Pleban*, D. Scott Mackay, Brent E Ewers, Timothy Aston and Cynthia Weinig

205 **Contemporary Biological N Fixation (BNF) for Soybean Genotypes during the Seed-Filling Period Under Different N Rates.** Santiago Tamagno*, Osler Ortez, Eric A. Adee and Ignacio A. Ciampitti

206 **Morphological and Physiological Responses of Cotton to Combined Effect of Elevated Ultraviolet-B Radiation and Boron Deficiency.** Ali Zohaib, Tahira Tabassum, Abdul R. Mohammed* and Lee Tarpley

207 **First Evidence of Leaf Architecture Change Driven By Elevated CO_2 Plus Chronic Warming.** Dileepa M Jayawardena*, Scott A Heckathorn, Deepesh R Bista, Jennifer K Boldt and Charles R Krause

208 **Response of Some UAE Native Plants to Elevated Level CO2, UVB and Their Combined Effect in Open Top Chambers.** Mohammed Salem*

209 **From Gaming to High Throughput Phenotyping: Use of an X-Box Camera to Model Soybean 3D Structure and Morphological Traits.** Hua Bai, Alvaro Sanz-Saez*, Tushar Kanta Das Nakini, Guilherme DeSouza and Felix B. Fritschi

210 **Effect of Elevated Level CO2, UVB and Their Combined Effect on Date Palm.** Mohammed Salem*

211 **Improvements in Parameter Estimates in the LI-6800.** Aaron Saathoff*

SESSION NO. 423—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Crop Ecology, Management and Quality General Poster III

C03 Crop Ecology, Management and Quality

212 **Planting Date, Fertilization, and Termination Method of a Rye Cover Crop Preceding Peanut.** R. Scott Tubbs* and W. Scott Monfort

213 **Corn Yield-Trends from 1987 through 2015 By Yield Environments.** Yared Assefa*, Paul R. Carter, Mark Hinds, Gaurav Bhalla, Mark Jeschke and Ignacio Ciampitti

214 **An Evaluation of Organic Transition Approaches for the Northern Great Plains.** Jose G. Franco*, David W. Archer, Jonathan J. Halvorson, John Hendrickson, Scott L. Kronberg and Mark A. Liebig

215 **Developing Dryland Corn Production Systems in West Texas.** Ronnie W. Schnell*, Calvin L. Trostle, Jourdan M. Bell, Sadie Church and Jonathan Moreno

216 **Identifying the Utility of 20 Rye (Secale cereale L) Varieties for Upper Midwestern Agricultural Systems.** Alexander Hard*, M. Scott Wells, Axel Garcia y Garcia, Rubi Raymundo and Jochum J. Wiersma

217 **Soil CO2 Efflux from Elephantgrass (Pennisetum purpureum L.) Under Different Nutrient Management Regimes.** Chaein Na*, Joel Reyes-Cabrera, John Erickson, Maninder Pal Singh and Maria Lucia A. Silveira

218 **Potential of Chitosan Supplementation for Remediation of Iron Deficiency Chlorosis in Soybean (Glycine max).** Marta R. M. Lima*, Marta W. Vasconcelos and Michael A. Grusak

219 **Understanding Gene Flow between Cultivated Sorghum (Sorghum bicolor) and Johnsongrass (Sorghum halepense).** Muthukumar Bagavathiannan*, Sara Ohadi, George Hodnett and William L. Rooney

300 **Identifying Adapted Lines and Favorable Environments for Malt Barley Production in Texas.** Lauren Woloohojian, Kacie Wynne*, Clark B. Neely, Amir M.H. Ibrahim, Daniel Hathcoat, Calvin L. Trostle, Russell L. Sutton, Patrick M. Hayes and Kevin Smith

301 **NSF REU - Interdisciplinary Approach for Biobased Products and Energy.** Vijaya Gopal Kakani*

302 **Field Screen for Identification of Resistance to Mite-Transmitted Viruses in Winter Wheat.** Lindsay Overmyer, Elliot Knoell, A. Justin McMechan and Gary L. Hein*

303 **Reduction of Fusarium Head Blight in Wheat: Impact of Crop Management.** Denis Pageau*, Sylvie Rioux, Anne Vanasse and Barbara Blackwell

304 **Fungicide + Insecticide Applications for Increasing Winter Wheat Grain Yield in Oklahoma.** Branden Watson*, Robert M. Hunger, Tom A. Royer and David A. Marburger

305 **Impacts of Agronomic Practices on High-Yielding Wheat Fields in Kansas.** Romulo Pisa Lollato*, Allan Fritz, Erick DeWolf, Dorivar A. Ruiz Diaz, Dallas E. Peterson and Mary Knapp

306 **Predicting the Protein Content of Winter Wheat Using Hyper-Spectral Images.** Kei Yoshikawa*

307 **Finding Better Tools to Assess Spring Stand Quality in Wheat: Making Tiller Counts a Thing of the Past.** Allen Goodwin*, Laura Lindsey, Steven Kent Harrison and Pierce Paul

308 **Using the HVI to Characterize within Sample Variation in Cotton Fiber Length.** Brendan Kelly* and Eric F Hequet

309 **Crimson Clover Cover Crop Effect on Cotton.** Philip J. Bauer* and Thomas F. Ducey

310 **Industrial Hemp Stand Establishment in North Dakota.** Burton L. Johnson*, Bryan K. Hanson, Venkat Chapara, Travis Hahanson, Lawrence Henry, Marisol T. Berti and Paula J Petersen

311 **Response of Potato to Simulated Hail Damage in the Field.** Samuel Y.C. Essah* and Mark E. Zarnstorff

312 **Do Canola Hybrids and Open-Pollinated Varieties Require Different Seeding Rates?** Allison Aubert, Baylee Showalter, Kraig L. Roozeboom*, Michael J. Stamm and Gary Cramer

313 **Automated Minirhizotron for Non-Destructive Continuous Phenotyping of Root Systems.** Parthasarathi Theivasigamani*, Danie van Ophem, Naftali Lazarovitch, Menachem Moshelion and Jhonathan E. Ephrath

SESSION NO. 424—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Forages in Florida and the Tropics Poster

C06 Forage and Grazinglands

314 **Nitrogen Use Efficiency and Biomass Yield in Paspalum Interspecific Hybrids in Response to Nitrogen Fertilization.** Eder Alexandre Alexandre da Motta*, Miguel Dall'agnol, Cleber Henrique Lopes de Souza, Larissa Arnhold Graminho, Lisiane da Silveira Garcia, Augusto Faraco Correa and Esteban F. Rios

315 **New Panicum Maximum Cultivars for Intensive Milk Production.** Carlos Augusto Gomide*, Cassia Aparecida Soares, Priscila Dornellas Valote, Domingos Sávio Campos Paciullo Sr. and Mirton Frota Morenz

316 **Herbage Accumulation and Nutritive Value of 'Mavuno' Brachiariagrass in Florida.** Joao M.B. Vendramini*, Hiran M.S. Silva, Fabio Cortez Leite de Oliveira, Cecílio Viega Soares Filho, James K. Yarborough, Caio Carnelos, Nayara M. Alencar and Joao M.D. Sanchez

317 **Herbage Accumulation and N Fixation of Sunnhemp in South Florida.** Joao M.B. Vendramini*, Jose Carlos Batista Dubeux Jr., Maria Lucia A. Silveira, James K. Yarborough, Cecílio Viega Soares Filho, Fabio Cortez Leite de Oliveira, Caio Carnelos, Hiran M.S. Silva, Joao M.D. Sanchez and Nayara M. Alencar

318 **In Situ Disappearance Parameters of Ecoturf and 'Florigraze' Perennial Peanuts.** Joao M.D. Sanchez*, Joao M.B. Vendramini, Maria Lucia A. Silveira, Philipe Moriel, Lynn E. Sollenberger, Jose Carlos Batista Dubeux Jr., James K. Yarborough, Fabio Cortez Leite de Oliveira, Ulysses Cecato, Frank Kuwahara and Cecilio Viega Soares Filho

319 **Comparison of Belowground Responses of Rhizoma Peanut-Bahiagrass Mixtures with Their Monocultures.** Erick Rodrigo da Silva Santos*, Jose Carlos Batista Dubeux Jr., Cheryl Mackowiak, Ann Blount, Lynn E. Sollenberger, Nicolas DiLorenzo, David Jaramillo, Liza Garcia and Jennifer Shirley

400 **Belowground Responses from Mixing Annual and Perennial Peanuts Mixed with 'Pensacola' Bahiagrass in North Florida.** David Jaramillo*, Jose Carlos Batista Dubeux Jr., Diane L. Rowland, Ann Blount, Cheryl Mackowiak, Lynn E. Sollenberger, Erick Rodrigo da Silva Santos, Liza Garcia and Martin Ruiz-Moreno

401 **Forage Yield and Accumulation of Fertilized Marandu Grass, Intercropped with Forage Peanut or Not Fertilized Under Rotational Grazing.** Andressa Scholz Berça*, Abmael da Silva Cardoso, Vanessa Zirondi Longhini, Felipe da Cruz Pizarro, Willian de Melo Magnabosco, Ricardo Andrade Andrade Reis, Robert Boddey and Ana Claudia Ruggieri

402 **Herbage Accumulation and Nutritive Value of Legume- or Grass-Based Forage Systems Defoliated By Grazing or Clipping.** Liliane Severino da Silva*, Mary Kimberly Mullenix, Lynn Sollenberger, Marta Moura Kohmann, Erin Stenklyft, Parmeshwor Aryal, Katie D. Cooley, Jose Carlos Batista Dubeux Jr. and Joao M.B. Vendramini

403 **Effect of Forage Peanut Inclusion in a Marandu Grass Pasture on Forage Disappearance Compared to Marandu Grass Fertilized.** Andressa Scholz Berça*, Abmael da Silva Cardoso, Vanessa Zirondi Longhini, Paula Junqueira Franco Toledo, Victor Maronezi Novaes, Ricardo Andrade Andrade Reis, Robert Boddey and Ana Claudia Ruggieri

404 **Nutrient Cycling through Livestock Excreta in N-Fertilized or Grass-Legume Pastures.** Liza Garcia*, Jose Carlos Batista Dubeux Jr., Lynn E. Sollenberger, Joao M.B. Vendramini, Nicolas DiLorenzo, Erick Rodrigo da Silva Santos, David Jaramillo, Luana Dantas Queiroz and Martin Ruiz-Moreno

405 **Leaf Number and Specific Leaf Area of Grazed Mulato II Brachiariagrass Pastures in Response to Canopy Height and Nitrogen Rates.** Valdson Jose Da Silva*, Carlos G. S. Pedreira, Junior Yssamu Yassuoka and Liliane Severino da Silva

406 **Grazing Efficiency on Mulato II Brachiariagrass Under Continuous and Rotational Stocking.** Gabriel Baracat Pedroso, Junior Issamu Yasuoka, Otávio Goulart Almeida, Patricia Luizão Barbosa, Solange Garcia Holschuch, Carlos Henrique Franco Silva, Isabela Silva de Souza, Marina Miquilini, Pedro Moreira Xavier, Valdson Jose Da Silva and Carlos G. S. Pedreira*

407 **Rotational Grazing Systems Using Phenological Stage in Kikuyu Grass (*Kikuyuocloa clandestina*).** Luis Villalobos* and Susana A Cascante

408 **Fibrolytic Enzymes May Improve in Vitro Degradability of Tropical Forages.** Gabriel Z. Sakita, Thiago F.V. Bompadre, Dinesh K. Dhanasekaran, Paulo M.T. Lima, Adibe L. Abdalla Filho, Tania S. Campioni, Pedro Oliva Neto, Hermann Bremer Neto, Helder Louvandini and Adibe Luiz Abdalla*

409 **Adoption of Alfalfa in Florida: Effects of Stubble Height and Cultivar on Yield and Persistence.** Yolanda Lopez*, Braulio Moraes, Luis Inosroza, Kenneth H. Quesenberry, Patricio R. Munoz and Esteban F. Rios

410 **Adapting Functional Trait-Based Mechanistic Model for Subtropical Climates.** Marcelo Wallau*, Olivier Bonnet, Juliette Bloor, Raphaël Martin, Anderson Bolzan, Catarine Basso, Julio Azambuja, Paulo De Faccio Carvalho and Emilio Laca

411 **Changes in Nutritive Values of Grazing Grass at Annual Ryegrass-Brachiariagrass Rotation Pasture in South-West Japan.** Makoto Kaneko*, Ryoji Kobayashi and Yoshi-nori Nakamura

412 **Mineral Uptake and Foliar Senescence in Italian Ryegrass (*Lolium multiflorum*) Seedlings in Response to Sewage Sludge Extracts.** Jober Condé Evangelista Freitas, Jemima Gonçalves Pinto da Fonseca, Ângela Maria Ferreira de Oliveira Lourdes, Lucas P. Eiterer, Andrea Mittelmann, Paola R.C. Reis, Julio Cesar José da Silva and Leônidas P. Passos*

SESSION NO. 425—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Forages in Northern Areas Poster

C06 Forage and Grazinglands

413 **Quantifying Morphological Development and Forage Nutritive Value of Stem and Leaf Fractions for Reduced Lignin and Reference Alfalfa Varieties.** Amanda M. Grev*, M. Scott Wells, Devan N. Catalano, Krishona L. Martinson and Craig C. Sheaffer

414 **Alternatives to Timothy Grown in Mixture with Alfalfa in Quebec.** Florence Pomerleau-Lacasse, Philippe Seguin, Gaëtan F. Tremblay, Gilles Bélanger*, Julie Lajeunesse and Édith Charbonneau

415 **Intensive Cutting Management of Alfalfa-Based Mixtures.** Gilles Bélanger, Gaëtan F. Tremblay, Philippe Seguin*, Julie Lajeunesse, Shabtai Bittman and Derek Hunt

416 **Predictive Equations of Forage Nutritive Value for Use Under Quebec's Environmental Conditions.** Philippe Seguin*, Shane Wood, Gaëtan F. Tremblay, Gilles Bélanger, Julie Lajeunesse, Huguette Martel, Robert Berthiaume and Annie Claessens

417 **Using Cutting Management and Alfalfa-Based Mixtures As Strategies to Increase Readily-Available Energy to Protein Ratio in Forages.** Marie-Noëlle Thivierge*, Gaëtan F. Tremblay, Gilles Bélanger, Annick Bertrand, Julie Lajeunesse, Philippe Seguin and Annie Claessens

418 **Variances in Nutrient Content and Yield of Alfalfa Protein Concentrate Processed with Five Methods.** Jessica Coburn*, M. Scott Wells and Debby Samac

419 **Effect of Sulfate Application on Alfalfa Productivity in Northern Quebec.** Julie Lajeunesse*

500 **Evaluation of Seed Coating Products on Alfalfa.** Glenn E. Shewmaker*

501 **Alfalfa and Timothy Nutritive Value in Contrasted Climatic Regions.** Gaetan F. Tremblay*, Julie Lauzon, Gilles Bélanger, Philippe Seguin, Julie Lajeunesse and Rachel Gervais

502 **Potential of Alternative Legumes in Michigan Forage and Cover Crop Systems.** Kimberly Cassida*

503 **Productivity and Nutritive Quality of Three Brassica Varieties for Use in Pasture-Based Systems.** Sandra Leanne Dillard* and Kathy Soder

504 **Optimal Harvest Stage for Spring-Grown Oat Forage.** Jeremie Favre*, Kenneth A. Albrecht, Lucia Gutierrez and Valentin Picasso

505 **Potassium and Manganese Fertilizer in Millet Production: Effect on Grain Yield and Quality and Forage Potential of Residual Stalks.** Maru K. Kering* and Vitalis Wilbald Temu

506 **Differential Species Response of Native Warm-Season Grasses to Defoliation Intensity in Pure Stands and Binary Mixtures.** Vitalis Wilbald Temu*, Christopher Copeland, Ariel Coleman and Maru K. Kering

SESSION NO. 426—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Fire Effects on Soil Posters

SSSA Division: Forest, Range and Wildland Soils

Section or Division Cosponsor: SSSA Division: Soil Biology and Biochemistry

Moderator: Lauren Matosziuk

507 **Prescribed Burning Effects on Jack Pine Seeds from High and Low Serotiny Regions: Microbial Interactions and Soil Properties.** Christina Kranz* and Thea Whitman

508 **Thinning and Prescribed Burn Seasonality and Return Interval Effects on Soil Properties in a Mixed Red Pine Stand in Northern Wisconsin.** Lucas C Joers, Jacob Reed Prater* and Ronald E Masters

SESSION NO. 427—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

New Paradigms of Soil Organic Matter and Consequences for Forest Soils and Management Poster

SSSA Division: Forest, Range and Wildland Soils

Moderator: Adrian Gallo

509 **Impact of Different Forest Management System on Phosphomonoesterases Activity in Forested Utilsol Soil.** Osagie Idehen*, Anthony Kumi, D. Andrew Scott, Ramble Ankumah, Ron Smith and Donovan Stone

510 **Soil Carbon Stock in Thinned and Un-Thinned Pine and Oak Stands.** Seongjun Kim*, Seung Hyun Han, Guanlin Li, Hanna Chang and Yowhan Son

511 **Loblolly Pine (Pinus taeda) Coarse Root Contribution to Carbon Sequestration.** William Wedge*, Kenneth W. Farrish, Jason Grogan and Brian Oswald

512 **A Continental-Scale Investigation of Factors Affecting Soil Organic Matter Vulnerability to Decomposition.** Tyler Weiglein*, Brian Strahm, Michael SanClements, Adrian C. Gallo, Jeff Hatten, Katherine Heckman and Lucas E. Nave

513 **Carbon and Nitrogen Dynamics Following American Chestnut Restoration in Mixed Hardwood Forests.** Geoffrey Schwaner* and Charlene N. Kelly

514 **Carryover Effects of Fertilization and Weed Control Treatments on Soil Respiration and Organic Matter Decomposition in a Second Rotation Pinus Taeda (L.) Stand Growing on a Florida Spodosol.** Praveen Subedi*, Eric Jokela and Jason Vogel

SESSION NO. 428—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Coevolution of Soils and Landscapes Poster (includes student competition)

SSSA Division: Pedology

Moderator: Craig Rasmussen, Vance Almquist

515 **Soil Erosion Processes in Sloping Vineyards. a Comparison between Two Study Cases of German and Spanish Vineyards.** Jesus Rodrigo-Comino*, José María Senciales Gónzález, Eric C. Brevik, José Damián Ruiz-Sinoga and Johannes B. Ries

516 **Evaluating the Potential of Ground Penetrating RADAR to Model Soil Restrictive Layers.** Lauren F. Vitko, Patrick J. Drohan*, Anthony R. Buda and Peter J.A. Kleinman

SESSION NO. 429—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

New Ideas and Instruments in Pedology Poster (includes student competition)

SSSA Division: Pedology

Moderator: Alfred Hartemink

517 **Advancements in Field Portable Elemental Analysis for Soil Chemistry Evaluation.** Kimberley Russell*

518 **Mid-Infrared Spectroscopy Method for Soil Survey Field Offices.** Cathy A. Seybold*, Rich Ferguson, Scarlett Bailey and Patty Jones

SESSION NO. 430—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Managing Soils and Crops with Cover Crops Poster

SSSA Division: Soil and Water Management and Conservation

519 **Flooded Fallow and Rice Effects on Histosol Organic Matter and Fertility.** Timothy Lang*, Jennifer Cooper and Samira H. Daroub

600 **The Impact of Planting Date and Seeding Rate on Forage Radish Productivity in Vermont.** Heather M. Darby*

601 **Cereal Rye Decomposition Dynamics on Topographically Varied Terrain Under a Corn/Soybean Rotation.** Jessica E Fry*, Jordan Beehler, Alexandra Kravchenko and Andrey K. Guber

602 **Improving Soil Water Availability through the Use of Cover Crops in Agriculture: Modelling Soil Moisture on Cover Crops.** Manuel Camacho*, Chris Reberg-Horton, Steven B Mirsky and Harry H. Schomberg

603 **Sustainability and Profitability of Residue Removal for Biofuel Use in a Water-Limited Region.** DeAnn R. Presley* and Yuxin He

604 **Crop and Soil Effects from Stover Harvest, Cover Crops, and Tillage over 10 Years in Central Iowa.** John F Obrycki*, Douglas L. Karlen, Stuart J. Birrell, Cynthia A. Cambardella, Thomas C. Kaspar and John L. Kovar

605 **Water Use and Yield Potential of Winter and Summer Alternate/Cover Crops.** Murali Darapuneni*, Ashley Cunningham and Leonard M. Lauriault

606 **Impact of Conservation Tillage, Cover Crops, and Irrigation Timing on Cotton Production.** Charles Coufal*, Paul B. DeLaune, Partson Mubvumba and Katie L. Lewis

607 **Long-Term Interactive Impact of Cover Crop and No-Tillage on Soil Hydro-Physical Quality, N-Fertilizer Demand and Rainfed Cotton Yield.** Jaehoon Lee, Amin Nouri Gharahassanlou*, Xinhua (Frank) Yin, Donald D. Tyler, Hubert J. Savoy Jr. and Neal Samuel Eash

608 **Evaluation of Cover Crop Species and Nitrogen Uptake.** Indi S. Braden*

609 **Soil C and N Cycling Under Reduced-Tillage and Cover Crops in the Southern High Plains Agroecosystems.** Rajan Ghimire*, Binod Ghimire, Vesh B. Thapa and Abdel O. Mesbah

610 **Can We Manage Indigenous Arbuscular Mycorrhizal Fungi to Benefit Field Crops in Sustainable Production Systems?** Michael J. Goss*, Mario Carvalho, Isabel Brito, Clarisse Brígido, Diederik Van Tuinen and Luis Alho

611 **Effects of Winter Cover Crops on Nitrogen Use and Performance of Soybean and Corn.** Ronghao Liu*, Alexander Hummel Jr. and Axel Garcia y Garcia

612 **Cover Crop Termination Date Effects on Greenhouse Gas Fluxes in Rainfed and Irrigated No-till Corn.** Sabrina Ruis*, Humberto Blanco-Canqui, Paul Jasa and Richard B Ferguson

613 **Understanding Time and System Dependent Dynamics of Soil Health.** Ayush Joshi Gyawali* and Ryan Stewart

614 **Cover Crop Impact on Soil and Water Properties Under Cotton Systems.** Partson Mubvumba*, Paul B. DeLaune, Charles Coufal and Anthony Pennartz

SESSION NO. 431—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil and Water Management and Conservation General Poster III

SSSA Division: Soil and Water Management and Conservation

615 **Subsurface Poultry Litter Application: Experiences and Advances in Maryland and Pennsylvania.** Arthur L. Allen*, Nancy Chepketer, Amy S. Collick, Ray B. Bryant, Peter J.A. Kleinman, Fawzy M. Hashem, Lou S. Saporito and Eric B. May

616 **Corn Response to Drainage Water Recycling in a Blackoar Silt Loam.** Kelly A. Nelson* and Maximain Polycarpe Mungyeko Mayola

617 **Apex Model to Assess Conservation Efforts of Mrbi Farm Sites in Missouri.** G. M. M M. Anomaa Senaviratne, Ranjith P. Udawatta* and Shibu Jose

618 **Influence of Foliar Cu Application Rate on Citrus Trees Water Dynamics.** Said A. Hamido*, Kelly T. Morgan and Robert C Ebel

619 **Runoff Amount and Quality As Influenced By Tillage and Fertilizer Management Choices in a Cecil Soil.** Dinku Endale*, Harry H. Schomberg, Clinton C. Truman, Dorcas Franklin and Michael B. Jenkins

700 **Effect of Calcareous Concretion on Soil Water Retention Curve and Available Water Content in Calcic Vertisol.** Feng Gu, Baoguo Li*, Tusheng Ren and Lujiu Li

701 **Effects of Management Practices on Soil Hydraulic Properties for Claypan Landscapes.** Salah Mahdi Alagele*, Stephen H. Anderson and Ranjith P. Udawatta

702 **Spatial Variability of SEBAL Estimated Root-Zone Soil Moisture across Scales.** Sung-ho Hong*, Jan Hendrickx, Brian Borchers, Kathryn Lenth and Robert Aumer

703 **Precipitation and Management Effects on Wind Erodibility of Organic Dominated Soils.** John Tatarko*, Alan L. Wright and James R Crum

704 **Assessment of Sediment Delivery and Nutrient Export As Indicators of Soil Sustainability.** Matthew T. Streeter*, Keith E. Schilling and Calvin Wolter

705 **Soil Carbon Response to Projected Climate Change in the U.S. Western Corn Belt.** Brian J. Wienhold*, Virginia L. Jin, Marty R. Schmer and Gary E. Varvel

706 **Overland Flow and Erosion from Runoff Plots on a Mollisol in Northeast China.** Shuai Chen*, C. Lee Burras and Xingyi Zhang

707 **C and N Pools in a Brazilian Ultisol According to Tillage Systems and N Sources.** Rodrigo S. Nicoloso*, Charles W. Rice, Roberto A. Grave, Camila R. Wuaden, Morgana Dalla Costa and Adriana Pigosso

708 **Tillage Effects on Corn Water Use and Water Use Efficiency in a Sandy Loam Soil Under Irrigated Conditions.** Jalal D Jabro*, William B. Stevens and William M. Iversen

709 **Soil Salinity: Germination Tolerance of Alternative Oilseed Crops for Soil Health.** Heather L Dose*, Matthew D Thom and Russell W. Gesch

710 **Improved Irrigation Methods for Conserving Freshwater in the Irrigated Pecans of the Desert Southwest U.S.** Girisha Keshavamurthy Ganjegunte*, John A Clark, William L. Hargrove and Richard Heerema

711 **Can Rice Paddies Mitigate Pesticides in Agricultural Runoff?** Matthew T. Moore* and Martin A. Locke

712 **Maize and Soybean Root Traits Measured Under Tile-Drained Soils in Iowa.** Raziel Antonio-Ordoñez*, Michael J. Castellano and Sotirios V Archontoulis

713 **Using Remotely Piloted Aerial Cameras to Estimate Runoff into Sediment Basins.** Michaela Long*, Robert Austin, Richard A. McLaughlin and Joshua L. Heitman

714 **Biomass Cropping Effects on Soil C and N Dynamics in a Subtropical Ecosystem.** Maria Lucia A. Silveira*, John Erickson, Joel Reyes-Cabrera, Lynn Sollenberger, Vanessa Piotto, Danilo Quadros, Susana Mello and Claudinei Santos

SESSION NO. 432—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Chemistry General Poster

SSSA Division: Soil Chemistry

715 **Soil Organic Matter in Silvopasture and Brazilian Cerrado in Tropical Region.** Marcos Vinicius Mansano Sarto*, Wander Luis Barbosa Borges, Ciro Antonio Rosolem and Charles W. Rice

716 **Evaluation of Heavy Metals from Cocoa Growing Soils of Trinidad & Tobago.** Sivapatham Paramasivam*, Chauntilena Butler, Umaharan Pathmanathan, Caleb Aaron Lewis, Kuppuswamy Jayaraman and Adrian Lennon

717 **Copper Oxide Nanoparticle Effects on Crop Growth and Root Hydraulic Conductivity.** Sanjai J. Parikh*, Andrew J. Margenot, Devin A. Rippner, Matthew R. Dumlao, Peter G. Green and Andrew J McElrone

718 **Effects of Soil Chemical Properties on Quartz Reststrahlen Band Response.** Matthew A Middleton*, Joshua J. LeMonte and Brandon J. Lafferty

719 **The Sorption of Arsenic Influence on Characteristics of Taxonomically Distinct Soils.** Haley M West*, Brooke Stevens, Jennifer M. Seiter, Mark Chappell and Beth E. Porter

SESSION NO. 433—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Enhanced Efficiency N Fertilizers/ N Management/Volatile N Loss Poster

SSSA Division: Soil Fertility and Plant Nutrition

903 **Understanding the Microenvironment Surrounding Enhanced Efficiency Urea-Based N-Fertilizer in Soils.** Wayne P Robarge*

904 **Polymer-Coated Urea Rates, Timings, and Ratio Combinations with Non-Coated Urea for Corn Production.** Dhruba Dhakal* and Kelly A. Nelson

905 **The Role of Enhanced Efficiency Fertilizers in Fall and Spring Nitrogen Placement.** Rigas E. Karamanos*, Stewart A Brandt, Chris Holzapfel, Brian Nybo, Dick Puurveen, Steve Shirtliffe and Mario Tenuta

906 **Evaluating a Modified Passive Flux Sampler for Ammonia.** Miguel L. Cabrera*, David E. Kissel, Logan Moore and John Rema

907 **Effect of an Experimental Urease Inhibitor on Ammonia Volatilization of Surface Applied Urea.** Gregory J. Schwab*, Ethel Garnier and William Hunter Frame

908 **Effect of Method of UAN Application on Ammonia Losses.** Miguel L. Cabrera*, David E. Kissel, Dorcas H. Franklin and John Rema

909 **Enhanced Efficiency Fertilizers in Maintaining Yield and Reducing Nitrogen Losses in Irrigated, Late-Sown Potatoes.** Amitava Chatterjee*, Upasana Ghosh and Harlene Hatterman-Valenti

910 **Ammonia Emissions from N-Fertilization of Maize and Common Bean Grown in a Brazilian Cerrado Oxisol.** Maria da Conceição Santana Carvalho*, Nelson Horowitz and Adriano Stephan Nascente

911 **Optimal Placement of Nitrogen Fertilizer Sources to Improve Corn Growth.** Tyler Steusloff*

912 **Economic Potential for a Pre Sidedress Soil Nitrate Test Based Variable Rate Nitrogen Application in Corn.** Ryan Miller*, Jeffrey A. Vetsch and Brad Carlson

913 **Fertilizer Nitrogen Recovery of Spring Barley.** Christopher W. Rogers* and Grant Loomis

914 **Assessing and Adapting in-Season Diagnostic Tests to Guide Winter Grain Nitrogen Topdressing for the Northeastern U.S.** Ellen Mallory* and Heather M. Darby

915 **Effect of Residual Soil Nitrogen Management on Partitioning of Nitrogen in Wheat.** Dennis L. Coker*, Jason E. Mowrer, Clark B. Neely, Daniel L. Hathcoat, Binita Thapa, Tony L. Provin, Zach T. Davis and Xandra Morris

916 **Continued Improvement of Nitrogen Fertility Management for Sugarbeet in the Northwest U.S.** David D. Tarkalson*

917 **Drilling Nitrogen into an Established Wheat Crop.** Brent Ballagh*, D. Brian Arnall, David A. Marburger, Dr. John Long, Joao Souza, Vaughn Reed, Joy Abit, Edmond Bryan Rutter and Luciano Cegobias

SESSION NO. 434—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Nutrients from Organic and Non-Traditional Fertilizers Poster

SSSA Division: Soil Fertility and Plant Nutrition

Moderator: Lori Hoagland

918 **First-Year Decomposition and Nutrient Release Characteristics of Ten Annual Crop Residues in South-Central Saskatchewan, Canada.** Ryan D. Hangs* and Jeff J. Schoenau

919 **Estimating Mineralizable Nitrogen from Organic Materials.** Kate Cassity-Duffey*, Miguel L. Cabrera, Dorcas Franklin, Julia W. Gaskin, David E. Kissel and Uttam K. Saha

920 **Chemical Characteristics of Biosolids Composted with Eucalyptus Bark.** Irae Amaral Guerrini*, Roberto Lyra Villas Boas, Magali Ribeiro da Silva, Caroline Moura Dándrea Mateus, Marianne Fidalgo Faria, Laura Oliveira Cleto Silva, Aline Cássia Fonseca and Mônica Morena Gabira

921 **Evaluation of Torrefied Napiergrass (Pennisetum purpureum Schumach.) Biomass As a Renewable Fertilizer.** Heather D. Baldi*, Russell W. Jessup and Dirk B. Hays

922 **Corn Yield and Nutrient Uptake Response to Subsurface-Lateral Bands Application of Poultry Litter.** Karamat R Sistani*, Jason R Simmons, Edwin Ritchey and Thomas R. Way

923 **Long Terms Effects of Biochar on Improving Sandy Soil Quality and Crop Productivity in a Research Field in Bambey, Senegal.**

924 **Comparing the Ecosystems Services Provided By Mixed or Single Species Cover Crops in Subtropical United States.** Pushpa Soti* and Alexis Racelis

SESSION NO. 435—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Phosphorus Poster

SSSA Division: Soil Fertility and Plant Nutrition

925 **Modeling the Extraction Reactions of Olsen and Modified Truog Tests to Improve the Measurements of Soil Phosphorus Pools.** Xiufu Shuai*, Liwang Ma and Ole Wendroth

926 **A Routine Laboratory Method to Determine Phosphorus Availability, Capacity, and Release Characteristics for Soils.** Moustafa A. Elrashidi*

927 **Phosphorus Fraction in Soil Oxidic after Application of Traditional and Potential Phosphate Fertilizer.** Leonardo Theodoro Bull* Sr., Aline Silva Sandim and Natalia Rodrigues Ferreira

928 **Phosphorus Movement in Long-Term Experimental Plots.** Gobena Huluka*, Audrey Gamble and Dennis Delaney

929 **Legacy Phosphorus Affect on Soybean Yield.** Charles A. Shapiro*

930 **Soil Test P Level and Tillage Effect on Corn Yield.** Jeremy Milander*, Charles Wortmann, Charles A. Shapiro and Timothy M. Shaver

931 **Sufficiency Level Vs. Build and Maintain Approaches to Managing Phosphorus for Crop Production.** Albert L. Sims, Daniel E. Kaiser, Carl J. Rosen, Jeffrey S. Strock, Jeffrey A. Vetsch and Karina P. Fabrizzi*

932 **Agronomic Effectiveness of Dolomite Phosphate Rock Fertilizers: A Greenhouse Experiment.** Xueying Song*, Zaihua Guo and Zhenli He

933 **Potential Reasons of Increased New England States Phosphorus Pollution: A Review.** Lakesh Sharma*, Sukhwinder Kaur Bali, Ahmed A Zaeen and James D. Dwyer

SESSION NO. 436—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Fertility and Plant Nutrition of Agronomic Crops Poster I

SSSA Division: Soil Fertility and Plant Nutrition

Section or Division Cosponsor: ASA Section: Agronomic Production Systems

800 **Vertical Tillage and Burning in Flax Straw Management and Effects on Soil Nutrient Levels, Physical Parameters and Yield in South-Central Saskatchewan.** Raul Avila Vinueza*

801 **Profile of Farmers and Soil Fertility after 40 Years of Land Use in the Cerrado Biome, Brazil.** Tatiane Melo Lima*, Bruno Teixeira Ribeiro, Regina Maria Quintão Lana and Athos Gabriel Gonçalves Nascimento

802 **Poultry Litter, Potassium Thiosulfate, Foliar Micronutrient, and Fungicide Combinations for Michigan Soybean Production.** Daniel Quinn* and Kurt Steinke

803 **Mycorrhiza and Carbohydrate Relations in Sorghum and Shortleaf Pine (Pinus echinata Mill.).** Asmare Atalay*

804 **Root Morphology of Upland Rice Cultivars Grown Under Aluminum Toxicity.** Dirceu Maximino Fernandes*, Lucas Barbosa de Freitas Sr. and Suelen Cristina Mendonça Maia

805 **Corn and Soybean Grain Yield with Differential Soil Drainage in Minnesota.** Fabián G. Fernández, Karina P. Fabrizzi* and Seth L. Naeve

806 **Nutrient Uptake of Corn, Soybean, and Hard Red Spring Wheat Following the Application of Chelate Sources on the Seed.** Apurba K Sutradhar* and Daniel E. Kaiser

807 **Stratification of Soil pH and the Spatial Variability in Oklahoma No-till Soils.** Patrick H. Watkins* and D. Brian Arnall

808 **Modified Lignin for Micronutrient Chelation.** Tiantian Li*, Yuncong Li and Zhaohui Tong

809 **Manure and Fertilizer Management Influence on Soil Nutrient Levels and Grain Yields in Eastern South Dakota from 2003 to 2014.** Anthony G. Bly*, Ron Gelderman, Sara Berg, Brad Rops, Peter J. Sexton and Chris Morris

810 **Macro Nutrient Use Efficiency of Cacao Genotypes Under Varying Levels of Nutrient Availability.** Virupax C. Baligar*, Alex-Alan Almeida, Dario Ahnert, Regina Machado, M.A.Q Ribeiro, Yan-Me Li, Marshall Elson, Zheli He and Nand K Fageria

811 **Geographic, Soil, and Management Characteristics Impact Winter Cereal Performance.** Sarah E Lyons*, Quirine M. Ketterings, Zhehan Tang, Shona Ort, Gregory Godwin, Karl J. Czymmek, Sheryl Swink and Thomas F. Kilcer

812 **On-Farm Evaluation of Double Crop Fertility Management in Oklahoma.** Vaughn Reed*, D. Brian Arnall, Brent Ballagh, Joao Souza, Edmond Bryan Rutter, Josh Lofton and Hailin Zhang

813 **Effects of a Yeast Fermentation Product on mRNA Levels of Root Growth and Development-Related Genes in Maize.** Layne Ellen Harris* and Kristen M Brennan

814 **Study of Improving Yield Prediction and Sulfur Deficiency Detection Using Optical Sensors.** Lakesh Sharma*, Sukhwinder Kaur Bali and James D. Dwyer

SESSION NO. 437—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Fertility and Plant Nutrition of Agronomic Crops Poster II

SSSA Division: Soil Fertility and Plant Nutrition

815 **Landform Affects Soil Properties and Crop Yields but Not Fertilizer Response.** Eric Bremer*, Ross McKenzie, Doon Pauly and Ken Greer

816 **Zinc Sulfate Coated Urea Fertilizer As a Potential Zinc Source in Drill-Seeded Delayed Flood Rice Production.** Nutifafa Adotey*, Manoch Kongchum, Garnett Brooks Whitehurst, Eric B. Sucre, Jifeng Li and Dustin L. Harrell

817 **Fertilizer Use Efficiency and Profitability of Irrigated Rice in Mali and Niger.** Charles Wortmann, Garba Maman*, Mohamed Dicko, Kassoum Maman Nouri and Niananko Kamissoko

818 **Potassium Recommendations for Corn in North Dakota: Influence of Clay Chemistry.** John Breker, Thomas M. DeSutter, Amitava Chatterjee, Manbir Kaur Rakkar, Lakesh Sharma, Eric C. Schultz and David W. Franzen*

819 **Are Nutrient Deficiencies Limiting High Yield? Tissue and Soil Analyses of North Carolina Corn Yield Contest Entries.** Jeffrey G. White*, Ronnie W. Heiniger and Gail G. Wilkerson

900 **Meta-Analysis of Cover Cropping Systems: The Effects of Cover Crops on Subsequent Cash Crop Yields and Nitrogen Contribution.** Anaïs Charles*, Anne Vanasse, Laura L Van Eerd, Nicolas Tremblay, Gaétan Bourgeois and Derek H. Lynch

901 **Isolation and Characterization of Aphanomyces Euteiches Antagonistic Bacteria from Pea Root and Rhizosphere Soil.** Zakir Hossain, Luke Bainard and Yantai Gan*

902 **Impact of Diversified Crop Rotations on Soil Fungal Communities.** Yining Niu, Luke Bainard, William May, Chantal Hamel and Yantai Gan*

SESSION NO. 438—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Physics and Hydrology General Poster Session 1

SSSA Division: Soil Physics and Hydrology

934 **Effects of Poultry Litter Application on Soil Physics and Hydraulic Properties for Increasing Crop Water Use Efficiency.** Gary Feng*, Ardeshir Adeli, Dennis Reginelli and Johnie N. Jenkins

935 **Sugarcane Residue Management: Influence of a Modified Sweeper on Yields and Water Quality.** H. Magdi Selim*, Brenda Tubana, Allen Arceneaux, Christopher Coreil Jr. and Moustafa A. Elrashidi

1000 **Net CO_2 and CH4 Gas Fluxes and Concentrations at Conventional and No Tillage Upland Fields.** Junko Nishiwaki*, Marina Kowa, Masakazu Komatsuzaki and Hiroyuki Ohta

1001 **Evapotranspiration of Bell Pepper Grown with Cloud-Based Fertigation in Greenhouse.** Yuki Ito*, Hiroshi Takesako, Kiyoshi Ozawa, Eiji Kita, Muneo Kanno and Kosuke Noborio

1002 **Comparison of Grape Vineyard Linear-Soil Heat Flux and Soil Heat Pulse Probe Arrays.** Chihiro Naruke* and Scott B. Jones

1003 **Water Quality Impacts of Bioenergy Crops Grown on Marginal Land.** Bharat Sharma Acharya*, Humberto Blanco, Robert B. Mitchell, Richard M. Cruse and David A. Laird

1004 **Transfer Factor of Radiocesium from Soil to Vegetables Grown in Decontaminated Soil in Fukushima.** Kosuke Noborio*, Yuki Ito, Yuki Takagi, Ryuta Honda, Hiroshi Takesakko, Kiyoshi Ozawa and Eiji Kita

1005 **Temporal Variation of Water Quality from the Ogalalla Aquifer.** Timothy Goebel*, Robert J. Lascano and John Stout

1006 **Multilayer Matric Flux Potential Approach As a Predictor of Transpiration Falling-Rate Phase in Representative Cropped Soils in Southeast Brazil.** Everton Alves Rodrigues Pinheiro* and Quirijn de Jong van Lier

1007 **Spatial Analysis and Scaling of Heterogeneous Hydraulic Properties in a Norwegian Agricultural Field.** Matthew Patterson*, Attila Nemes, Annette Dathe, Esther Bloem and Daniel Gimenez

1008 **Evaluation of Soil Moisture-Based Indices for Quantifying Agricultural Drought in the Southern Great Plains.** Erik S. Krueger*, Tyson E. Ochsner and Steven M. Quiring

1009 **Estimating the Hydraulic Parameters for Golf Course Soils Under Different Cultivation Practices and Product Treatments.** Eduardo Escamilla, Sanjit K Deb*, Li Li and Joseph R Young

1010 **Isotope Signatures of the Precipitation and Natural Waters in the Forests of North Florida.** Glynnis Bugna*, Johnny Grace III and Yuch P Hsieh

1011 **Hysteresis in the Desert Soils.** Xiaobo Hou*

1012 **Can Long-Term Crop Rotation Improve Soil Hydro-Physical Quality and Production Under No-Tillage.** Amin Nouri Gharahassanlou*, Jaehoon Lee, Xinhua (Frank) Yin, Donald D. Tyler, Neal Samuel Eash and Hubert J. Savoy Jr.

1013 **Estimating Saturated Hydraulic Conductivity Along a 860 Km Transect in the Loess Plateau of China.** Yang Yang* and Xiaoxiu Jia

1014 **Soil Texture, Nitrogen and Irrigation Water Quality Influence on Pecan Kernel.** Jorge Fernandez*, Manoj K. Shukla and Blair Stringam

1015 **Effect of Subsurface Tillage on Soil Physical Properties in a Solonetzic Soil.** Raul Avila Vinueza*

1016 **Variation of Usle Surface Soil Erodibility Factor As Influenced By Soil Sampling Methods.** Seungmin Oh*, Hyuck Soo Kim, Sang Phil Lee, Sung Chul Kim, Kyoung Jae Lim, Jong Geon Lee, Seok Soon Jeong and Jae E. Yang

1017 **Spatial Interpolation of Daily Reference Evapotranspiration in Northwest Texas.** Ripendra Awal*, Ali Fares, Ram Ray, Haimanote Bayabil and Eric Risch

1018 **Geostatistical Spatial Interpolation of Soil Water Retention Curve Coupled with Ptf Based on Particle Size Distribution.** Shiga Wataru, Hirotaka Saito* and Yuji Kohgo

1019 **Persistent Homology of Pore Structure in a Post-Agricultural Ultisol.** Eva Arroyo*

1020 **Short Term Influence of Olive Mill Wastewater on Soil Physical and Hydraulic Properties.** Ammar A. Albalasmeh*, Mamoun A Gharaibeh and Mohammad Alajlouni

1021 **Uncertainties in Leaching Assessment in Micro-Irrigated Field Fields Using Water Balance Approach.** Maziar Kandelous* and Jan W. Hopmans

1022 **Effect of Plastic Mulching and Nitrapyrin on N2O Concentration and Emissions in China Under Climate Change.** Chengyi Zhao*, yongxiang Yu, Chunmei Zhu and changyan Tian

SESSION NO. 439—2:30 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Wetland Soils General Poster (includes student competition)

SSSA Division: Wetland Soils

1109 **Application of Alpha, Alpha-Dipyridyl Dye for Hydric Soil Identification.** Jacob F. Berkowitz*, Christine VanZomeren, Steven Currie and Lenore M. Vasilas

1110 **Comparing Performance of Mn-Coated and Fe-Coated IRIS Devices.** Martin C. Rabenhorst*, Patrick J. Drohan, John M. Galbraith, Brian A. Needelman, Lesley Spokas, Mark Stolt, James A. Thompson, Bruce L. Vasilas and Karen L. Vaughan

1111 **Problematic Calcareous Soils in Western Wyoming.** Matthew King* and Karen Vaughan

1112 **Assessing New Developments in IRIS Technology.** Cedric Park* and Martin C. Rabenhorst

1113 **Official Guidance Maps for Appropriate Application of Hydric Soil Field Indicator F21 Red Parent Material: National and Regional User Notes.** Sara Mack*, Martin C. Rabenhorst and Jacob F. Berkowitz

1114 **Impact of Grazing Management on Soil Carbon Storage and Spatial Area of Wetlands Along the National Historic Trails Corridor, Wyoming.** Michael Kasten*, Jay Norton and Karen L. Vaughan

1115 **Application of Aquatic Vegetation As a Bio-Filter for Phosphorous Reduction.** Jay Capasso*, Jehangir Bhadha, Allan Roy Bacon, Samira H. Daroub, Mark W Clark and Timothy Lang

1116 **Eroding Wetland Soils in Coastal Louisiana's Barataria Bay Could Impact Future Climate and Sea Level Rise.** Amanda Fontenot* and John R. White

1117 **Tidal Marsh Nutrient Allocation and Plant Diversity Along a Salinity Gradient.** Lori Sutter* and Randy Chambers

1118 **Nitrogen Stable Isotopic Ratios in Everglades Soils: Spatial Patterns and Environmental Factors.** Katherine Galluscio*, Todd Z. Osborne and Patrick W. Inglett

1119 **Mineral and Redox Controls on Soil Organic Matter Cycling in Seasonal Wetlands.** Rachelle LaCroix*, Kasie Collins, Lesley Spokas, Malak Tfaily and Marco Keiluweit

1120 **Mercury and Carbon Dynamics in Peatland Pore Water during Experimental Warming, Freezing and Thawing.** Jennie Sirota, Randall K. Kolka*, Stephen Sebestyen and Edward A. Nater

1121 **Temperature Influences on Peatland Decomposition: Early Results from the Spruce Experiment.** Randy Kolka*, Natalie A Griffiths, Colleen Iversen and Scott Tiegs

SESSION NO. 440—2:40 PM–3:40 PM

Tampa Convention Center, Room 11, First Floor

CSSA Business Meeting--Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

C09 Biomedical, Health-Beneficial and Nutritionally Enhanced Plants

SESSION NO. 441—2:45 PM–3:15 PM

Tampa Convention Center, Room 1, First Floor

ASA Business Meeting--Land Management and Conservation

ASA Section: Land Management and Conservation

SESSION NO. 442—3:00 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Proximal and Remote Sensing Techniques in Soil Physics and Hydrology - Posters

SSSA Division: Soil Physics and Hydrology

1023 **Coupling Computed Micro-Tomographic Images and Stable Isotopes to Elucidate the Relationship between Soil Carbon and Soil Structure.** Michelle Quigley*, Alexandra Kravchenko and Mark Rivers

1024 **Spatiotemporal Calibration of the Electromagnetic Induction-Salinity Relationship with Anocova Modeling.** Elia Scudiero*, Todd H. Skaggs and Dennis L. Corwin

1025 **Effects of Particle Size on Soil Reflectance.** Morteza Sadeghi*, Ebrahim Babaeian, Markus Tuller and Scott B. Jones

1026 **A Novel Remote Sensing Approach to Quantifying Soil Stability.** Azadeh Gholoubi*, Morteza Sadeghi, Scott B. Jones, Ebrahim Babaeian, Markus Tuller and Hojat Emami

1027 **Application of Shortwave Infrared Imaging for Estimation of Soil Hydraulic Properties.** Ebrahim Babaeian*, Morteza Sadeghi, Mohammad R Gohardoust, Emmanuel Arthur, Scott B. Jones and Markus Tuller

1028 **Application of Satellite Remote Sensing for Mapping and Monitoring of Saline Dust Emission Sources in the Urmia Lake Watershed in Iran.** Mohaddese Effati*, Hossein-Ali Bahrami, Ebrahim Babaeian and Markus Tuller

1029 **Evaluation of a Novel Optical Trapezoid Model for Estimation of Large-Scale Root Zone Soil Moisture Based on MODIS Satellite Observations and Reference Cosmic-Ray Measurements.** Ebrahim Babaeian*, Morteza Sadeghi, Scott B. Jones and Markus Tuller

1030 **Indirect Determination of Leaf Area Index to Calculate Evapotranspiration.** Sally D. Logsdon* and Cynthia A. Cambardella

1031 **Application of Shortwave Infrared Imaging for Estimation of Soil Water Content and Flux Profiles.** Morteza Sadeghi*, Wenyi Sheng, Ebrahim Babaeian, Markus Tuller and Scott B. Jones

SESSION NO. 443—3:00 PM–4:30 PM

Tampa Convention Center, East Exhibit Hall, Third Floor

Soil Physics and Hydrology General Poster Session 2

SSSA Division: Soil Physics and Hydrology

1032 **A Model for Predicting Soil Thermal Diffusivity from Texture, Bulk Density, and Degree of Saturation at Room Temperature.** Xiaoting Xie, Tusheng Ren, Yili Lu* and Robert Horton

1033 **Determining Soil Hydraulic Properties Using Gamma-Ray Attenuation in an Evaporation Experiment.** Quirijn de Jong van Lier* and Everton Alves Rodrigues Pinheiro

1034 **A Heat Pulse-Based Approach for Simultaneous Determination of Soil Bulk Density and Water Content.** Yili Lu, Tusheng Ren* and Robert Horton

1035 **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

1100 **Application of the Guggenheim-Anderson-De Boer Model to Estimate Soil Specific Surface Area from Water Vapor Sorption Isotherms.** Emmanuel Arthur*, Markus Tuller, Per Moldrup, Maria Knadel and Lis W. de Jonge

1101 **Semi-Automated Multiphase Segmentation of 4D Micro-Computed Tomography Data of Porous Media.** Ramaprasad Kulkarni, Jeffrey J. Rodriguez and Markus Tuller*

1102 **An Inverse Method for Estimating Thermal Properties Based on Refining Initial Interval of Probe Spacing.** Ren Ruiqi* and Gang Liu

1103 **Effects of Microbiology Activity on the Mechanical Properties of Rhizosphere As Influenced By Temperatures.** Weida Gao*, Tusheng Ren, Rhys Ashton, Ian Clark, David S. Powlson and Richard R. Whalley

1104 **Using Artificial Neural Networks to Predict Soil Bulk Density.** Jorge Sebastian Silva Orellana* and Carlos A. Bonilla

1105 **Water Potential in an Unsaturated Soil during Freezing and Thawing Processes.** Kunio Watanabe* and Toshikazu Ban

1106 **Testing the Integral Suspension Pressure Method for Particle-Size Analysis with the Pario Device: Accuracy of Results.** Wolfgang Durner*, Yangxu Li, Sascha Iden, Magdalena Huber, Andi Steins, Thomas Pertassek, Axel Göttlein, Wolfgang Petrik, Sara Lindström and Georg von Unold

1107 **Heat and Water Flows through Sand and Hydrophobic, Raw Leonardite Columns.** Aaron L.M. Daigh* and Dedrick D. Davis

1108 **Development of in Situ Quantification of Soil Structure: Methodology and Analysis.** Sarah N. Vaughan*, Edward Jones, Dianna Bagnall, Cristine L. S. Morgan and Alex B. McBratney

SESSION NO. 444—3:30 PM–4:30 PM

Tampa Convention Center, Room 15, First Floor

Special Session-- Science Communicators Reception

Special Sessions

Moderator: Susan Fisk

3:30 PM **Introductory Remarks**

444-1 3:35 PM **Lecture Placeholder.** Susan Fisk*

4:05 PM **Networking**

4:30 PM **Adjourn**

SESSION NO. 445—5:00 PM–6:00 PM

Tampa Convention Center, Ballroom C, First Floor

ASA, CSSA and SSSA Closing Keynote

Keynote/Plenary Sessions

Moderator: Steven Evett, Mark Westgate, Richard Dick

5:00 PM **Introductory Remarks**

445-1 5:05 PM **On the Front Lines of Climate Change** George Kourounis*

6:00 PM **Adjourn**

Notes

Presenting Author Index

Technical oral and poster presentations are listed by session number first, then presentation number. Oral presentations are indicated by 1-2 digits after a session number. Poster presentations are indicated by 3-4 digits after a session number. Use this information in the main part of the program book by locating the session number first and then finding the corresponding paper number within the session.

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z

Notes

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