

MONDAY, JULY 30

TECHNICAL PROGRAM MONDAY, JULY 30 9:30AM-12:00PM

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Monday, July 30 - 9:30AM-12:00PM

SESSION 101 ADVANCED WOOD- AND BIO-COMPOSITES FOR STRUCTURAL AND OTHER APPLICATIONS
– Sponsored by ASE-12, PAFS-07/1, PAFS-20
Moderators: Kaushlendra Singh and Oluwatosin oginni, West Virginia State Univ, Morgantown, WV
LOCATION: 140B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801312	Wood as a Biofiber Reinforcement in Composites for Large-Scale 3D Printing Erin Webb, Oak Ridge National Laboratory, Oak Ridge, Tennessee United States (Presenter: Erin Webb) (Erin Webb, Timothy Theiss, Soydan Ozcan, Halil Tekinalp)
09:50AM	1801670	Bio-carbon - A sustainable material for improving physico-mechanical and thermal properties of bio-composites Dilpreet Bajwa, North Dakota State University, Fargo, ND United States (Presenter: Dilpreet Bajwa) (Dilpreet Bajwa, Pankaj Pandey, Sushil Adhikari, Sreekala Bajwa)
10:05AM	1800651	Characterization of High-pressure treated wood in relation to changes on its microstructure and chemical composition under equilibrium moisture content Xiuping Jiang, Zhejiang University, Hangzhou, China, People's Republic of (Presenter: Xiuping Jiang) (Xiuping Jiang, Yong Yu, Songming Zhu, Huanhuan Li, Chunfang Wang, Hao Wang)
10:20AM	1800042	Friction Loss and Heat Transfer of Wood Pulp Suspensions: A Review Shrin Ghatrehsamani, University of Florida, Gainesville, FL United States (Presenter: Shirin Ghatrehsamani) (Shirin Ghatrehsamani, Yiannis Ampatzidis, Sahar Ghatrehsamani)
10:35AM		BREAK
10:45AM	1801129	Determining the Role of the Leaf Sheath on the Strength of Corn Stalks Christopher Stubbs, New York University, New York, New York United States (Presenter: Christopher Stubbs) (Christopher Stubbs, Douglas Cook, Wenhuan Sun)

11:00AM	1801770	Polysaccharide Composites as Barrier Materials Jeffrey Catchmark, Penn State, University Park, PA United States (Presenter: Jeffrey Catchmark) (Jeffrey Catchmark, Kai Chi, Snehasish Basu)
11:15AM	1800994	Production and characterization of in situ synthesis of silver nanoparticles into TEMPO-mediated oxidized bacterial cellulose and their antivibriocidal activity against shrimp pathogens Sivaramasamy Elayaraja, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Sivaramasamy Elayaraja) (Sivaramasamy Elayaraja, Liu Gang, Jianhai Xiang, Songming Zhu)
11:30AM	1801330	Design, Development, Evaluation of Gum Arabic Milling Machine Eyad Eltigani, University of Khartoum, Khartoum, Khartoum Sudan (Presenter: Eyad Eltigani) (Eyad Mohamed Eltigani Abuzeid, Khalid Elgassim Mohamed Ahmed, Hossamaldein Fadoul Brima)
11:45AM	1801112	The Design of Longitudinal - axial cylinder for the combine Meng Fanhu, Sandong University Technology, Zibo, Shandong province China, People's Republic of (Presenter: Meng Fanhu) (Meng Fanhu)

Monday, July 30 - 9:30AM-12:00PM

SESSION 102 EMERGING TRENDS IN BIOLOGICAL ENGINEERING - PART 1 – Sponsored by ASE-08
Moderator: John March, Cornell University, Ithaca, NY
LOCATION: 140C

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801429	Application of light emitting diodes in the post-harvest management of food Ramandeep Kaur Sandhu, University of Guelph, Guelph, Ontario Canada (Presenter: Ramandeep Kaur Sandhu) (Ramandeep Kaur Sandhu, Christopher M. Collier, Ashutosh Singh)
09:50AM	1800289	Antibiogram-Biosensor for Rapid Screening of Antimicrobial Resistance Evangelyn Alocilja, Michigan State University, East Lansing, Michigan United States (Presenter: Evangelyn Alocilja) (Evangelyn Alocilja)
10:05AM	1801454	Magnetic Nanoparticles for the Removal of UV-Resistant Bacteria in Influent Wastewater Evangelyn Alocilja, Michigan State University, East Lansing, Michigan United States (Presenter: Evangelyn Alocilja) (Evangelyn Alocilja, Aakash Mishra)
10:20AM	1801130	Plasma-based decontamination of dried plant-related products to enhance food safety Oliver Schlueter, Leibniz Inst. f. Agricult. Eng. Bioecon., Potsdam, Brandenburg Germany (Presenter: Oliver Schlueter) (Oliver Schlueter, Antje Froehling, Heiko Theilen, Joerg Ehlbeck)
10:35AM	1801050	Radio frequency inactivation of Salmonella spp. in cumin seeds Long Chen, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Long Chen) (Jeyamkondan Subbiah)
10:50AM		BREAK
11:00AM	1800364	A Biomaterial Approach to Food Safety Problems Minglin Ma, Cornell University, Ithaca, NY United States (Presenter: Minglin Ma) (Minglin Ma)
11:15AM	1801482	Application of Biochar-amended Biofilter in Removal of Escherichia coli in Lakewater: Effect of Biochar Placement in Biofilter Peining Guan, McGill University, Canada (Presenter: Peining Guan) (Peining Guan, Dr. Shiv Prasher, Dr. Muhammad Afzal, Dr. Saji George, Dr. Jennifer Ronholm)

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11:30AM	1800189	<p>Synthesis of antimicrobial N-halamine-based chitosan-PVA biodegradable films Shan Shan, Michigan State University, Lansing, MI United States (Presenter: Shan Shan) (Shan Shan)</p>
11:45AM	1800330	<p>Antimicrobial activity of N-halamine-based chitosan-PVA composite films against methicillin-resistant Staphylococcus aureus Vinni Thekkudan Novi, Michigan State University, East Lansing, Michigan United States (Presenter: Vinni Thekkudan Novi) (Vinni Thekkudan Novi, Shan Shan, Dr. Evangelyn Alocilja)</p>
12:00PM	1801736	<p>Evaluation of Antioxidant and Antimicrobial Properties of Dark Red Kidney Bean (Phaseolus vulgaris) Protein Hydrolysates Ayesha Sarker, Univ. of Illinois at Urbana Champaign, Urbana, Illinois United States (Presenter: Ayesha Sarker) (Mukta Roy, Ayesha Sarker, Md Abul Kalam Asad, Md Mozammel Hoque)</p>

Monday, July 30 - 9:30AM-12:00PM
SESSION 103

FOREST BASED BIOMASS: HARVESTING, PROCESSING, TRANSPORT, AND STORAGE

– Sponsored by ASE-12, ES-220
Moderator: James Slosson, Forest Concepts, Federal Way, WA

LOCATION: 140D

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801538	<p>Techno-economic Assessment of Pipeline Hydro-transport vs. Truck Delivery of Forest Residue Biomass to a Bio-based Energy Facility Based on Experimental Measurements Mahdi Vaezi, University of Alberta, Edmonton, Alberta Canada (Presenter: Mahdi Vaezi) (Mahdi Vaezi, Amit Kumar)</p>
09:50AM	1800867	<p>Computational modeling of continuum scale constitutive equations to improve biomass feedstock materials handling and conveying systems Hojae Yi, The Pennsylvania State University, University Park, Pennsylvania United States (Presenter: Hojae Yi) (Hojae Yi, Virendra Puri, Christopher Lanning, James Dooley)</p>
10:05AM	1800326	<p>Response Surface Modeling Equilibrium Moisture Content of High Pressure Treated Paulownia Wood Xiuping Jiang, Zhejiang University, Hangzhou, China China, People's Republic of (Presenter: Xiuping Jiang) (Xiuping Jiang, Yong Yu, Songming Zhu, Huanhuan Li)</p>
10:20AM		BREAK
10:30AM	1800552	<p>Economic and environmental assessments of woodchips and pellets storage systems for large-scale biorefineries Kamalakanta Sahoo, University of Georgia, Athens, Georgia United States (Presenter: Kamalakanta Sahoo) (Kamalakanta Sahoo, E.M. (Ted) Bilek, Sudhagar Mani)</p>
10:45AM	1801496	<p>Design and Experiment of 4HJZ-4A Peanut Collecting and Picking Machines Cary Liu, Shandong University of technology, ZiBo, Shandong province China, People's Republic of (Presenter: Cary Liu) (Cary Liu)</p>
11:00AM	1801494	<p>Mechanism and Experimental Research on Vibration Snapping of Corn Qian Wang, Shandong University of Technology, ZiBo, Shandong Province China, People's Republic of (Presenter: Qian Wang) (Qian Wang)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 104

LIFECYCLE ANALYSIS OF AGRICULTURAL PRODUCTS AND SYSTEMS – Sponsored by ASE-16

Moderator: Kyo Suh, Seoul National University, Gangwon-do, South Korea

LOCATION: 140E

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801126	<p>Estimating the confidence interval of environmental certificate systems for agricultural products using farm production data Solhee Kim, Seoul National University, Pyeongchang, Gangwon Korea, South (Presenter: Solhee Kim) (Solhee Kim, Paul Shin, Chanwoo Kim, Chanhoo Jung, Kyo Suh)</p>
09:50AM	1800955	<p>Life cycle assessment (LCA) of summer maize growing system based on chemical and organic fertilizer application in China Yangyang Li, The Ohio State University, Wooster, Ohio United States (Presenter: Yangyang Li) (Yangyang Li, Ajay Shah, Guoxue Li)</p>
10:05AM	1800013	<p>Challenges of conducting a life cycle assessment for bio-based materials using a cotton example Ed Barnes, Cotton Incorporated, Cary, NC United States (Presenter: Edward M. Barnes) (Jesse S. Daystar, Michele L. Wallace)</p>
10:20AM	1801361	<p>Life cycle energy and exergy analyses of penny-cress production and logistics Seyed Hashem Mousavi Avval, Ohio State University, Wooster, Ohio United States (Presenter: Seyed Hashem Mousavi Avval) (Seyed Hashem Mousavi Avval, Ajay Shah)</p>
10:35AM	1801463	<p>Life Cycle Environmental Implications of Food Miles for Major Imported Agricultural Products Chanwoo Kim, Seoul National University, Seoul, Korea, South (Presenter: Chanwoo Kim) (Chanwoo Kim, Solhee Kim, Chanhoo Jung, Paul Shin, Kyo Suh)</p>
10:50AM		BREAK
11:00AM	1801128	<p>An environmental assessment of beef cattle production in the United States Alan Rotz, USDA-ARS, University Park, PA United States (Presenter: Alan Rotz) (Alan Rotz, Senorpe Asem-Hiablie, Sara Place, Greg Thoma)</p>
11:15AM	1800505	<p>FEW nexus tool for assessing optimal crops in uncertain climatic and economic conditions Kyle Proctor, Oregon State University, Corvallis, Oregon United States (Presenter: Kyle Proctor) (Seyed Mohammad Hossein Tabatabaie, Ganti Murthy)</p>
11:30AM	1800127	<p>The AgroCycle approach to Life Cycle Sustainability Assessment of agri-food 'waste' Nicholas Holden, University College Dublin, Dublin, Dublin Ireland (Presenter: Nicholas Holden) (Thomas Oldfield, Wenhao Chen, Fionnuala Murphy, Shane Ward)</p>
11:45AM	1801109	<p>Greenhouse gas emissions from corn residue collection for cellulosic biofuel production Asmita Khanal, The Ohio State University, Columbus, Ohio United States (Presenter: Asmita Khanal) (Seyed Hashem Mousavi Avval, Sami Khanal, Ajay Shah)</p>

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SESSION 105

CATALYTIC AND THERMOCHEMICAL CONVERSION OF BIOMASS - PYROLYSIS, TORREFACTION, AND GASIFICATION

– Sponsored by ES-220
Moderators: Sandun Fernando, Texas A&M University, College Station, TX; Veronica Mbaneme, North Carolina State University, Raleigh, NC

LOCATION: 140F

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800587	Activated Carbon as Catalyst for Microwave-Assisted Catalytic Pyrolysis of Biomass Elmar Villota, Washington State University, Richland, WA United States (Presenter: Elmar Villota) (Elmar Villota, Hanwu Lei, Moriko Qian, Wendy Mateo, Yayun Zhang, Zihu Yang)
09:50AM	1801338	Computational Fluid Dynamic Modeling of Catalytic Hydrous Pyrolysis in a Fluidized Bed Reactor to Produce Refinery-Ready Bio-crude Oil Ross Houston, University of Tennessee, Knoxville, Tennessee United States (Presenter: Ross Houston) (Ross Houston, Nourredine Abdoulmoumine)
10:05AM	1801279	Determining and modeling the residence time distribution of biomass particles in a bench-scale bubbling fluidized bed reactor Nourredine Abdoulmoumine, University of Tennessee, Knoxville, TN United States (Presenter: Nourredine Abdoulmoumine) (Benjamin Cruz, Oluwafemi Oyediji, Emilio Ramirez, Charles Daw, Nourredine Abdoulmoumine)
10:20AM	1800922	Development and application of a continuous fast microwave pyrolysis system for sewage sludge utilization Shiyu LIU, Univ. of Minnesota, Saint Paul, MN United States (Presenter: Shiyu Liu) (Shiyu Liu, Junwen Zhou, Nan Zhou, Liangliang Fan, Yaning Zhang, Peng Peng, Erik Anderson, Kuan Ding, Yunpu Wang, Yujuan Liu, Paul Chen, Roger Ruan)
10:35AM	1801345	In-situ vs ex-situ catalytic fast pyrolysis of Opuntia ficus-indica and Grindelia squarrosa Phillip Cross, Auburn, al United States (Presenter: Phillip Cross) (Phillip Cross)
10:50AM		BREAK
11:00AM	1800816	Numerical investigation of CO2 valorization via the steam gasification of biomass for producing syngas with flexible H2 to CO ratio Shakirudeen Salaudeen, University of Guelph, Guelph, Ontario Canada (Presenter: Shakirudeen Salaudeen) (Shakirudeen Salaudeen, Bishnu Acharya, Mohammad Heidari, Precious Arku, Animesh Dutta)
11:15AM	1800846	Power Generation from Co-Gasification of Municipal Solid Wastes and Biomass: Engine Power and Emission Performance Ajay Kumar, Oklahoma State University, Stillwater, OK United States (Presenter: Ajay Kumar) (Natarianto Indrawan, Ajay Kumar, Prakashbhai Bhoi, Raymond Huhnke)
11:30AM	1801150	Simulation of biomass gasification performance using non-stoichiometric equilibrium method Oluwafemi Oyediji, University of Tennessee, Knoxville, Tennessee United States (Presenter: Oluwafemi Oyediji) (Oluwafemi Oyediji, Nourredine Abdoulmoumine)
11:45AM	1800696	Upgrading Hydrothermal Liquefaction Biocrude Oil Converted from Animal Waste Wan-Ting (Grace) Chen, University of Illinois, Urbana, IL United States (Presenter: Wan-Ting (Grace) Chen) (Wan-Ting (Grace) Chen)

12:00PM 1801469

Catalytic fast pyrolysis of rice husk for bio-oil production
Ronghou Liu, Shanghai JiaoTong University, Shanghai, Shanghai China, People's Republic of (Presenter: Ronghou Liu) (Ronghou Liu)

Monday, July 30 - 9:30AM-12:00PM

SESSION 106

PRODUCTION, PROCESSING AND CONVERSION OF ALGAE

– Sponsored by ES-220
Moderator: Ajay Shah, Ohio State University, Wooster, OH; Sudhagar Mani, University of Georgia, Athens, GA

LOCATION: 140G

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801622	Advanced Strategies for Value Recovery through implementation of Wastewater Algal Biomass Biorefineries (WABB) Michael Stablein, University of Illinois Urbana Champaign, Urbana, Illinois United States (Presenter: Michael Stablein) (Michael Stablein, Wan-Ting Chen, Aersi Aierzhati, Buchun Si, Yuanhui Zhang)
09:50AM	1801164	Pretreatment and Hydrothermal Liquefaction of Filamentous Algae Grown on Dairy Wastewater Catherine Brewer, New Mexico State University, Las Cruces, NM United States (Presenter: Catherine Brewer) (Meshack Audu, Huilin Wang, Tianbai Tang, David Arellano, Umakanta Jena, Juchao Yan, Catherine E. Brewer)
10:05AM	1801063	Hydrothermal Co-solvent Processing of Marine Algae Biomass Umakanta Jena, United States (Presenter: Umakanta Jena) (Umakanta Jena, Yang Han, Zheng Cui, S.K. Hoekman)
10:20AM	1801497	Comparison study on hydrothermal liquefaction of four different filamentous algae and microalgae (Nannochloropsis sp.) and, comparing fractionated fuel properties prior to and after upgrading with hydrogen. Nikhil Jain, Auburn University, Auburn, Alabama United States (Presenter: Nikhil Jain) (Nikhil Jain, Sushil Adhikari)
10:35AM	1800215	Optimization of protein solubilization from Chlamydomonas reinhardtii following biological-based cell disruption Chelsea Dixon, Kansas State University, Manhattan, Kansas United States (Presenter: Chelsea K. Dixon) (Lisa R. Wilken)
10:50AM		BREAK
11:00AM	1801578	Microalgae Cultivation, Harvest, and Water Recycling Using Processed Anaerobic Digestates as Feedstock Tyler Barzee, UC Davis, Davis, CA United States (Presenter: Tyler Barzee) (Tyler Barzee, Cody Yothers, Abdolhossein Edalati, Hamed El-Mashad, Annaliese Franz, Ruihong Zhang)
11:15AM	1801333	Improved microalgae biomass production and wastewater treatment: Pre-treating municipal anaerobic digestate for algae cultivation Brendan Higgins, Auburn University, Auburn, AL United States (Presenter: Qichen Wang) (Brendan Higgins, Haodong Ji, Dongye Zhao)
11:30AM	1800216	Potential of gluconate on biomass improvement and high-light stress tolerance of Haematococcus pluvialis under mixotrophic culture NA PANG, Washington State University, Pullman, WA United States (Presenter: Na Pang) (Na Pang)

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11:45AM	1801404	<p>Vitamin cofactors from microbes increase growth and lipid production in microalgae by altering metabolism Brendan Higgins, Auburn University, Auburn, AL United States (Presenter: Brendan Higgins) (Brendan Higging, Qichen Wang, Sandon Du, Jean VanderGheynst)</p>
12:00PM	1800290	<p>Enhancement in lipid/oil extraction from indigenous fresh water microalgae species at varying extraction temperature and time using accelerated solvent extraction (ASE) Asoiro Felix Uzochukwu, University of Nigeria, Nsukka, Nsukka, Enugu State Nigeria (Presenter: Asoiro Felix Uzochukwu) (Asoiro Felix Uzochukwu, Wilfred I. Okonkwo, Clement O. Akubuo, Nkechinyere O. Nweze)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 107

RENEWABLE ENERGIES

– Sponsored by ES-220, ES-210

Moderator: Milan Martinov, Faculty of Technical Sciences, Vojvodina, Serbia

LOCATION: 141

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800433	<p>Study on Lignocellulosic Bioethanol Production in Serbia - Prospects and Constraints Milan Martinov, UNS Faculty of Technical Sciences, Novi Sad, Vojvodina Serbia (Presenter: Milan Martinov) (Milan Martinov, Peter Schulze Lammers, Djordje Djatkov, Miodrag Viskovic)</p>
09:50AM	1800614	<p>Potentials of Renewables in Mitigating Deficient Energy Supply in Africa Babajide Adelekan, Provost, Federal College of Agriculture, Ibadan, Oyo Nigeria (Presenter: Babajide Adelekan) (Babajide Adelekan)</p>
10:05AM	1800359	<p>Development of Renewable Energy Resources for Sustainable Energy Use in Nigeria Yahaya Olotu, Federal University of Technology, Akure, Ondo State Nigeria (Presenter: Yahaya Olotu) (Emmanuel Omenuko, Yahaya Olotu)</p>
10:20AM	1800502	<p>Anaerobic digestion of grass: effect of drying and ensiling on biogas yield Alessandro Chiumenti, University of Udine, Udine, Italy (Presenter: Alessandro Chiumenti) (Chiumenti A., Pezzuolo A., Sartori L., Boscaro D., da Borso F.)</p>
10:35AM	1800803	<p>Renewable Energy in Nigeria: Prospects and Challenges Prof Mohammed K. Othman, NAERLS, Ahamdu Bello University Zaria, Zaria, Kaduna Nigeria (Presenter: Prof Mohammed K. Othman) (Prof. Mohammed K. Othman)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 108

VALUE-ADDED CHEMICALS AND PRODUCTS FROM BIOMASS

– Sponsored by ES-220

Moderator: Sushil Adhikari, Auburn University, Auburn, AL; Rajdeep Shakya, Auburn University, Auburn, AL

LOCATION: 142A

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800100	<p>Develop food packaging nanocomposites from lignocellulosic biomass Lin Wei, South Dakota State University, Brookings, South Dakota United States (Presenter: Lin Wei) (Lin Wei)</p>

09:50AM	1800771	<p>Engineering efficient xylose metabolism in oleaginous yeast <i>Yarrowia lipolytica</i> Mark Blenner, Clemson University, Clemson, SC United States (Presenter: Mark Blenner) (Spencer Smith, Lauren Gambill, Murtaza Shabbir Hussain, Gabriel Rodriguez, Mark Blenner)</p>
10:05AM	1801142	<p>Glyphosate Sorption using Bio-based Materials Saravanan Ramiah Shanmugam, Auburn University, Auburn, Alabama United States (Presenter: Saravanan Ramiah Shanmugam) (Saravan Ramiah Shanmugam, Sushil Adhikari, Hyungseok Nam, Vivek Patil)</p>
10:20AM	1800626	<p>Functional Characterizing of Lutein Esterification Gene from <i>Tagetes erecta</i> in Green Algae <i>Chlorella sorokiniana</i> Yuxiao Xie, Washington State University, Pullman, WA United States (Presenter: Yuxiao Xie) (Yuxiao Xie)</p>
10:35AM	1801498	<p>Production of valuable bioactive lipid co-products in microalgae Cody Yothers, University of California- Davis, Davis, CA United States (Presenter: Cody Yothers) (Cody Yothers, Ameer Taha, Annaliese Franz, Andrew Burch)</p>
10:50AM		BREAK
11:00AM	1800627	<p>Succinic Acid Production from Liquid Hot Water Pretreated Corn Fiber Divya Ramchandran, University of Nebraska, Lincoln, Lincoln, NE United States (Presenter: Mark Wilkins) (Divya Ramchandran, Cheryl Immethun, Rajib Saha, Mark Wilkins)</p>
11:15AM	1801144	<p>Maleic Acid and Aluminum Chloride Catalyzed Conversion of Glucose to 5-(Hydroxymethyl)furfural in Water: Dimethylsulfoxide Mixtures Nathan Mosier, Purdue University, West Lafayette, IN United States (Presenter: Nathan Mosier) (Jonathan Overton, Nathan Mosier)</p>
11:45AM	1800194	<p>Evaluation of a novel non-thermal liquid plasma reactor to convert soybean oil to biodiesel Jun Zhu, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Jun Zhu) (Sarah Wu, Jun Zhu, Shaobo Deng, Hsiang Hsieh)</p>
12:00PM	1801202	<p>Synthesis of Sustainable Lubricant Enhancer from Wet Hydrolyzed Solids Randy Maglinao, Montana State University Northern, Havre, Montana United States (Presenter: Randy Maglinao) (Randy Maglinao, Eleazer Resurreccion, Sandeep Kumar, Amado Maglinao, Sergio Capareda, Bryan Moser)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 109

SAFETY CONSIDERATIONS IN

AGRICULTURE – Sponsored by ESH-04, ESH-04/1

Moderator: Gretchen Mosher, Iowa State University, Ames, IA

LOCATION: 142B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800259	<p>Designing a Skid Loader Entry System for Lower Extremity Disabilities to Enhance Worker Safety Dee Jepsen, The Ohio State University, Columbus, Ohio United States (Presenter: S. Dee Jepsen) (Alwan, A., Bertocci, A., Belcher, J., Buisson, E., Manko, A., Jepsen, S.D.)</p>
09:50AM	1800886	<p>Development of a Safety Matrix Point-System for Greenhouse Operations Management Jaime Thissen, University of Illinois, Champaign, IL United States (Presenter: Jaime Thissen) (Jaime Thissen)</p>

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10:05AM	1800797	<p>Development of Reach Envelopes for Optimum Location of self-propelled machine Controls Based on Indian female Agricultural Workers Gajendra Singh, IIT Kharagpur, Kharagpur, West Bengal India (Presenter: Gajendra Singh) (Gajendra Singh)</p>
10:20AM	1801410	<p>Prediction of Extraction Forces for Entrapment Victim in Common Grain Storage Conditions Charles Schwab, Iowa State University, Ames, IA United States (Presenter: Charles V. Schwab) (Charles V. Schwab, Pamela J. Schwab, Lauren E. Schwab)</p>
10:35AM		BREAK
10:45AM	1801430	<p>Evaluating the Effect of Friction and Speed on Foldable Roll-Over Protective Structure Actuation Forces Farzaneh Khorsandi, University of California, Davis, Davis, CA United States (Presenter: Farzaneh Khorsandi) (Farzaneh, Khorsandi, Paul Ayers)</p>
11:00AM	1800400	<p>FAA 14 CFR Part 107 for Commercial UAS and UAS as Agriculture Field Equipment: A Review for Agriculture Safety Standards Charles Collins, North Carolina State University, Raleigh, NC United States (Presenter: Charles Collins) (Gary Roberson, Scott Hale)</p>
11:15AM	1801343	<p>Improving Safety and Health in the Cattle Feedyard Industry Aaron Yoder, University of Nebraska, Omaha, NE United States (Presenter: Aaron M. Yoder) (Daniel Kent)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 110

CURRENT ACHIEVEMENTS AND NEW R&D TRENDS IN RENEWABLE ENERGY RESOURCES AND TECHNOLOGIES - INVITED SPEAKERS

– Sponsored by ES-210

Moderator: Lin Wei, South Dakota State University, Brookings, SD

LOCATION: 142C

Time	Paper #	Title/Author
9:30AM		Introduction
9:35AM		National Woodchip Heating Fuel Technical Quality Standard Project James Dooley, Forest Concepts LLC, Auburn, Washington
9:55AM		Microwave-assisted Gasification of Solid Wastes for Electricity Generation Roger Ruan, University of Minnesota, St Paul, Minnesota
10:15AM		Integration of Solar Energy for Thermochemical Conversion Processes Sushil Adhikari, Auburn University, Auburn, AL
10:35AM		BREAK
10:45AM		Process Optimization of Campus Hybrid Solar Power System Idowu Adewumi, Federal College of Agriculture, Ibadan, Nigeria
11:05AM		Renewable Energy Sustainability and Safety Indicators for Selected Greenhouse Production Facilities in North America Jaime Thissen, University of Illinois Urbana-Champaign, Urbana, Illinois
11:25AM		Optimizing the Use of Renewable Energy Systems on Irish Dairy Farms Michael Breen, Cork Institute of Technology, Millstreet Town, Cork, Ireland
11:45AM		Discussion

Monday, July 30 - 9:30AM-12:00PM

SESSION 111

BIG DATA AND DATA ANALYSIS FOR AGRICULTURAL APPLICATIONS PART 1

– Sponsored by

ITSC-254, ITSC-217

Moderator: Mario Mondaca, University of Wisconsin, Madison, WI

LOCATION: 250A

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800897	Quantifying agricultural data generation on Wisconsin farms: A case study Jessica Drewry, University of Wisconsin-Madison, Madison, WI United States (Presenter: Jessica Drewry) (Jessica Drewry, Brian Luck, John Shutske, David Trechter)
09:50AM	1801320	Assessment of Digital Capacity, Needs and Access Barriers Among Crop, Dairy and Livestock Producers John Shutske, University of Wisconsin, Madison, WI United States (Presenter: John M. Shutske) (John M. Shutske, David Trechter, Brian D. Luck, Jessica L. Drewry, Matthew J. DeWitte, Lynn Pitman, Mary Kluz)
10:05AM	1800486	What is cyber-physical system driven agriculture? - Redesign of big data for outstanding farmer management- Eiji Morimoto, Tottori University, Tottori, Tottori Japan (Presenter: Eiji Morimoto) (Eiji Morimoto)
10:20AM	1800999	Data evaluation for tractor operation based on GNSS and multiple sensors Tetsuya Wadamori, Tottori University, Tottori city, Tottori Japan (Presenter: Tetsuya Wadamori) (Eiji Morimoto, Tetsuya Wadamori)
10:35AM		BREAK
10:45AM	1801302	AgGateway, an Industry consortium for digital agriculture standards implementation: how it fits into the standards space R. Andres Ferreyra, Ag Connections, LLC, Murray, KY United States (Presenter: R. Andres Ferreyra) (Ben Craker, R. Andres Ferreyra, Shannon Haringx, Todd Howatt, Joe Tevis, Jim Wilson)
11:00AM	1801319	Implementing Grain Traceability Standards: CART and Simulation R. Andres Ferreyra, Ag Connections, LLC, Murray, KY United States (Presenter: R. Andres Ferreyra) (Frank Riddick, Evan Wallace, Scott Nieman, Joe Tevis, R. Andres Ferreyra)

Monday, July 30 - 9:30AM-12:00PM

SESSION 112

COMPUTATIONAL FLUID DYNAMICS (CFD) APPLICATIONS IN AGRICULTURE - PART 1

– Sponsored by

ITSC-217, ITSC-254, PAFS-40

Moderator: Christopher Choi, University of Wisconsin-Madison, Madison, WI

LOCATION: 250B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800589	Advances of Computational Fluid Dynamics (CFD) in Agricultural and Biological Systems Engineering – A Review Christopher Choi, University of Wisconsin-Madison, Madison, WI United States (Presenter: Christopher Choi) (Christopher Choi)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

09:50AM	1801632	<p>Comparing transient CFD simulated versus measured hydrogen sulfide gas concentrations during barn and manure pit-safety ventilation in a commercial swine nursery room. Daniel Hofstetter, The Pennsylvania State University, University Park, PA United States (Presenter: Daniel Hofstetter) (Daniel Hofstetter, Harvey Manbeck, Dennis Murphy, Virendra Puri, Eileen Fabian)</p>
10:05AM	1800812	<p>CFD modelling for plant canopy interception of spray droplets from pesticide application Lauren Padilla, Stone Environmental, Montpelier, VT United States (Presenter: Lauren Padilla) (Lauren Padilla, Shanique Grant, Jonnie Dunne, Jeff Perine, Mark Ledson)</p>
10:20AM	1800084	<p>Proposal of a CFD index applied to thermal greenhouse characterization Jorge Flores-Velazquez, Mexico (Presenter: Jorge Flores-Velázquez) (Jorge Flores-Velazquez, Cruz Aguilar-Rodriguez, Fernando Rojano Aguilar, Waldo Ojeda Bustamante)</p>
10:35AM		BREAK
10:45AM	1800556	<p>A CFD study of the effects of pit partition curtains on the airflow and gas dispersion in the pit head-space of a pig unit Chao Zong, China Agricultural University, Beijing, China, People's Republic of (Presenter: Chao Zong) (Chao Zong, Guoqiang Zhang)</p>
11:00AM	1801376	<p>Integrated monitoring system of working environment in pighouse using IoT(Internet of Things) Il-Hwan Seo, Chonbuk National University, Jeonju, Korea, South (Presenter: Il-Hwan Seo) (Il-Hwan Seo)</p>
11:15AM	1800292	<p>CFD Modeling of the Environment of a Naturally Ventilated Greenhouse for Central Mexico Conditions José Eduardo Rosales Vicelis, Universidad Autónoma Chapingo, Texcoco, Mexico Mexico (Presenter: José Eduardo Rosales-Vicelis) (Jose Eduardo Rosales Vicelis, Efren Fitz-Rodriguez, Jose Humberto Lopez Diaz)</p>
11:30AM	1801576	<p>Improving Oxygenation Process in a Fish Tank using Computational Fluid Dynamics Muhammad Saif Ullah Khalid, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Muhammad Saif Ullah Khalid) (Muhammad Saif Ullah Khalid, Xiaoping Jiang, Binxin Wu)</p>

10:05AM	1801624	<p>High-throughput phenotyping of tree canopy architecture for breeding and production management Sindhuja Sankaran, Washington State University, Pullman, WA United States (Presenter: Sindhuja Sankaran) (Juan Jose Quirós Vargas, Stefano Musacchi, Sara Serra, Sindhuja Sankaran)</p>
10:20AM	1801362	<p>Evaluation of the performance of machine learning methods in soybean segmentation for image-based high-throughput phenotyping in greenhouse Jing Zhou, University of Missouri-Columbia, Columbia, Missouri United States (Presenter: Jing Zhou) (Jing Zhou, Xiuqing Fu, Shuiqin Zhou, Jianfeng Zhou)</p>
10:35AM	1801166	<p>A Robotized Multi-Sensor Perception-driven Indoor Plant Phenotyping System Yin Bao, Iowa State University, Ames, Iowa United States (Presenter: Yin Bao) (Yin Bao, Lie Tang)</p>
10:50AM		BREAK
11:00AM	1800834	<p>Field-based Plant Architectural Traits Characterization for Maize Using Time-of-Flight 3D Imaging Yin Bao, Iowa State University, Ames, Iowa United States (Presenter: Yin Bao) (Yin Bao, Lie Tang)</p>
11:15AM	1801749	<p>A New 3D White Referencing Technology for Calibrating Images of 3D Objects in High-Throughput Imaging Systems Liangju Wang, Purdue University, West Lafayette, Indiana United States (Presenter: Liangju Wang) (Liangju Wang)</p>
11:30AM	1800483	<p>Cotton Yield Estimation based on Plant Height From UAV-based Imagery Data Aijing Feng, University of Missouri-Columbia, Columbia, Missouri United States (Presenter: Aijing Feng) (Aijing Feng, Kenneth Sudduth, Earl Vories, Meina Zhang, Jianfeng Zhou)</p>
11:45AM	1801718	<p>Handheld Phenotyping Device Zhihang Song, Purdue University, West Lafayette, Indiana United States (Presenter: Zhihang Song) (Zhihang Song)</p>
12:00PM	1801117	<p>RPI Macro Camera: An Inexpensive and Handheld Camera Based on the Raspberry Pi Computer for Plant Phenotype Studies Jiaqi Mei, China Agricultural University, Beijing, China, People's Republic of (Presenter: Jiaqi Mei) (Jiaqi Mei, Zhiqiang Liu, Lujia Han, Zengling Yang)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 113 IMAGING TECHNOLOGIES FOR HIGH THROUGHPUT PHENOTYPING - PART 1 – Sponsored by ITSC-312, ITSC-348, MS-48
Moderator: Changying Li, University of Georgia, Athens, GA

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800940	<p>High-Throughput Phenotyping Methods for Green Fruit Vivian Vuong, United States (Presenter: Vivian Vuong) (David Slaughter, Dina St. Clair, Paul Bosland, Bryce Kubond, Amanjot Kaur)</p>
09:50AM	1801626	<p>High-throughput phenotyping of peanut canopy architecture by ground LiDAR sensing technology and image analysis technology Ning Wang, Oklahoma State University, Stillwater, OK United States (Presenter: Ning Wang) (Ning Wang, Hongbo Yuan, Rebecca Bennett, Kelly Chamberlin, Bin Luo)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 114 MACHINE VISION APPLICATIONS IN AGRICULTURE AND FOOD - PART 1

– Sponsored by ITSC-312
Moderator: Yan-Fu Kuo, National Taiwan University, Taipei, Taiwan
LOCATION: 251C

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801407	<p>Drip irrigation leak detection using faster region-based convolutional neural network (R-CNN) Tiebiao Zhao, University of California, Merced, Merced, CA United States (Presenter: Tiebiao Zhao) (Tiebiao Zhao, Haoyu Niu, David Doll, Dong Wang, YangQuan Chen)</p>
09:50AM	1800321	<p>Behaviors detection of pregnant sows based on deep learning Chenbo Song, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Chenbo Song) (Xiuqin Rao)</p>
10:05AM	1801253	<p>Application of Deep Learning Algorithm on Tea Shoot Identification and Localization Yu-Ting Chen, National Taiwan University, Taipei, China, Republic of (Taiwan) (Presenter: Yu-Ting Chen) (Chia-Chang Wu, Shih-Fang Chen)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

10:20AM	1801244	<p>Real-Time Online Detection of Wooden Breast Myopathy in Chicken Fillets using High-Speed Machine Vision Seung-Chul Yoon, USDA-ARS, Athens, GA United States (Presenter: Seung-Chul Yoon) (Seung-Chul Yoon, Brian Bowker, Kurt Lawrence, Hong Zhuang)</p>
10:35AM	1800076	<p>Recognition and Location of Tightly-Stacked Bagged Agricultural Materials Han Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Han Li) (Han Li, Ruijuan Chi, Yuefeng Du, Enrong Mao, Yuejing Yang)</p>
10:50AM	BREAK	
11:00AM	1800665	<p>New segmentation and counting algorithm for ureidiospores of Puccinia striiformis f. sp. tritici based on microimgae processing Yu Lei, Northwest A&F University, Yangling, Shaanxi China, People's Republic of (Presenter: Yu Lei) (Yu Lei, Dongjian He, Zhifeng Yao)</p>
11:15AM	1800594	<p>Virus-Infected Plant Detection in Potato Seed Production Field by UAV Imagery Ryo Sugiura, NARO, Japan (Presenter: Ryo Sugiura) (Shogo Tsuda, Hiroyuki Tsuji, Noriyuki Murakami)</p>
11:30AM	1800315	<p>Discriminating morphologically similar species in Genus Cinnamomum (Lauraceae) Using Machine Vision Hao-Wen Yang, National Taiwan University, Taipei, China, Republic of (Taiwan) (Presenter: Hao-Wen Yang) (Hao-Wen Yang, Hao-Chun Hsu, Chih-Kai Yang, Ming-Jer Tsai, Yan-Fu Kuo)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 115

ROBOTICS AND CO-ROBOTICS FOR AGRICULTURE - PART 1

– Sponsored by ITSC-318, ITSC-353, MS-48, MS-58

Moderator: Santosh Pitla, University of Nebraska-Lincoln, Lincoln, NE

LOCATION: 252A

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801522	<p>Precise coordination method and system for in-field multi-operation of farm machinery Caicong Wu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Caicong Wu) (Caicong Wu, Yutin Zhu, Jie Wang)</p>
09:50AM	1801715	<p>Efficient Dispatching of a Team of Harvest-aid Robots to Reduce Waiting Time for Human Pickers Hasan Seyyedhasani, University of California, Davis, Davis, California United States (Presenter: Hasan Seyyedhasani) (Hasan Seyyedhasani, Chen Peng, Stavros Vougioukas)</p>
10:05AM	1800348	<p>Multi-robot operation system for robot tractor Wonjae Cho, Institute of Agricultural Machinery, NARO, Tsukuba, Ibaraki-ken Japan (Presenter: Wonjae Cho) (Wonjai Cho)</p>
10:20AM	1801694	<p>Optimized predictive dispatching of robotic harvest-aids using Multiple Scenario Approach Chen Peng, University of California, Davis, Davis, CA United States (Presenter: Chen Peng) (Chen Peng, Hasan Seyyedhasani, Stavros Vougioukas)</p>
10:35AM	BREAK	
10:45AM	1801284	<p>Multipurpose Robotic Platform for Field Scouting Gary McMurray, Georgia Tech Research Institute, Atlanta, Ga United States (Presenter: Gary McMurray) (Gary McMurray, Glen Rains, Frank Dellaert, Ai-Ping Hu, Konrad Ahlin, Benjamin Joffe, Jing Dong, Sean Thomas)</p>

11:00AM	1801262	<p>Telemanipulation by Unmanned Aerial Vehicles for Agricultural Data Applications Sierra Young, University of Illinois Urbana-Champaign, Urbana, IL United States (Presenter: Sierra Young) (Karun Koppula, Ryan Lanciloti, Jacob Riesen, Joshua Peschel)</p>
11:15AM	1800985	<p>Design of a Non-Destructive Forage Biomass Estimation Robot Cengiz Koparan, Clemson University, Clemson, South Carolina United States (Presenter: Cengiz Koparan) (Cengiz Koparan)</p>
11:30AM	1801013	<p>Application of fractional order proportional-integral controllers for autonomous platforms in agriculture Akram Gholami, University of California, Merced, Merced, California United States (Presenter: Akram Gholami) (Akram Gholami, YangQuan Chen, Reza Ehsani)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 116

SPECTROSCOPIC SENSING AND IMAGING - PART 1 – Sponsored by:

ITSC-348

Moderator: Won-Suk Lee, University of Florida, Gainesville, FL

LOCATION: 252B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800195	<p>Classifying Reflectance Targets from Hyperspectral Data Collected Under Ambient Light Conditions using a Passive Low-Cost Remote Sensing System Ali Hamidisepehr, University of Kentucky, Lexington, Kentucky United States (Presenter: Ali Hamidisepehr) (Ali Hamidisepehr, Michael Sama)</p>
09:50AM	1800346	<p>Convolutional neural network based classification analysis for near infrared spectroscopic sensing Xiaolei Zhang, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Xiaolei Zhang) (Xiaolei Zhang, Jinfan Xu, Tao Lin, Yibin Ying)</p>
10:05AM	1801006	<p>Feasibility of using visible/near-infrared (Vis/NIR) spectroscopy to detect aflatoxigenic fungus and aflatoxin contamination on corn kernels Feifei Tao, Mississippi State University, Harrison, MS United States (Presenter: Feifei Tao) (Feifei Tao, Haibo Yao, Fengle Zhu, Zuzana Hruska, Yongliang Liu, Kanhiah Rajasekaran, Deepak Bhatnagar)</p>
10:20AM	BREAK	
10:30AM	1800547	<p>Detection of water content in rapeseed leaves using terahertz time-domain spectroscopy and imaging Fangfang Qu, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Fangfang Qu) (Fangfang Qu, Lei Lin, Chengyong Cai, Tao Dong, Yong He, Pengcheng Nie)</p>
10:45AM	1800713	<p>Discrimination of grape seed varieties using laser-induced breakdown spectroscopy Yiyang Zhao, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Yiyang Zhao) (Yiyang Zhao, Chu Zhang, Susu Zhu, Fei Liu, Lanlan Fei, Shuijuan Feng, Yong He)</p>
11:00AM	1801139	<p>Hyperspectral indices for identifying glyphosate-resistant weeds Alimohammad Shirzadifar, NDSU, Fargo, ND United States (Presenter: Alimohammad Shirzadifar) (Alimohammad Shirzadifar, Sreekala Bajwa, Nazanin Rajabpour, Kirk Howat, Mike Ostlie, John Nowatzki)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 9:30AM-12:00PM

SESSION 117

ADVANCES IN COTTON ENGINEERING - PART 1 – Sponsored by MS-23/7/3
Moderator: Bobby Hardin, Texas A&M University, College Station, TX

LOCATION: 331A

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801324	Development of a New Ginning System for Cotton Breeders - Gin Stand John Wanjura, USDA ARS CPPRU, Lubbock, TX United States (Presenter: John Wanjura) (John Wanjura, Greg Holt, Mathew Pelletier, Craig Bednarz)
09:50AM	1801722	Effect of fiber cohesion on processing energy and fiber quality Bobby Hardin, Texas A&M University, College Station, TX United States (Presenter: Robert G. Hardin IV) (Robert G. Hardin IV, Christopher D. Delhom, Efreem Bechere)
10:05AM	1800083	Evaluation of a Preconditioning System for a Cottonseed Mechanical Delinter Greg Holt, USDA-ARS, Lubbock, TX United States (Presenter: Greg Holt) (Greg Holt, Tom Wedegaertner, John Wanjura, Mathew Pelletier)
10:20AM	1801783	How Conventional and Experimental Lint Cleaning Processes Affect Fiber Length Uniformity Index Carlos Armijo, United States (Presenter: Carlos Armijo) (Carlos Armijo, Christopher Delhom, Derek Whitelock, Paul Funk, John Wanjura, Gregory Holt, Ruixiu Sui, Vikki Martin)
10:35AM		BREAK
10:45AM	1800944	Multiplexed LED illumination multispectral imaging system for textile mill use Christopher Delhom, USDA-ARS, New Orleans, LA United States (Presenter: Christopher Delhom) (Christopher Delhom, Thomas Miller)
11:00AM	1801782	Exploring Methods to Detect Stickiness in Seed Cotton at the Cotton Gin Derek Whitelock, United States (Presenter: Derek Whitelock) (Derek Whitelock, Chris Delhom, Paul Funk, Carlos Armijo)
11:15AM	1801764	Current procedures for finding moisture content in seed cotton, lint, and cottonseed Paul Funk, USDA ARS, Mesilla Park, NM, United States (Presenter: Paul Funk) (Paul Funk)

Monday, July 30 - 9:30AM-12:00PM

SESSION 118

AUTOMATION AND ROBOTICS FOR FRUIT, VEGETABLES, AND OTHER SPECIALTY CROPS - PART 1

– Sponsored by MS-48, ITSC-318, MS-58
Moderator: Yiannis Ampatzidis, University of Florida, Immokalee, FL

LOCATION: 351B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800312	Evaluation of Tying Forces for Mechanical Branch Training on Trellis Trained Apple Trees Yaqoob Majeed, Washington State University, Pullman, Washington United States (Presenter: Yaqoob Majeed) (Yaqoob Majeed, Long He, Xin Zhang, Longsheng Fu, Manoj Karkee, Qin Zhang, Matthew David Whiting)
09:50AM	1800921	Improvements and evaluation of an infield bin filler for apple bruising and distributions zhao zhang, USDA/ARS, Lansing, MI United States (Presenter: Zhao Zhang) (Zhao Zhang, Anand Pothula, Renfu Lu)

10:05AM 1801015

Grapefruit picking end effector and the adaptable controller

Kyusuk You, United States Department of Agriculture, Wooster, OH United States (Presenter: Kyusuk You) (Thomas F. Burks)

10:20AM 1800942

Development and evaluation of an automatic in-field sorting system for apples

Anand Pothula, USDA Sugar beet and Bean Research Unit, East Lansing, MI United States (Presenter: Anand Pothula) (Anand Pothula, Zhao Zhang, Renfu Lu)

10:35AM 1801684

Estimating the Fruit Picking Throughput of a Tele-

scopic Arm in High Density Trellised Pear Orchards
Rajkishan Arikapudi, University of California Davis, Davis, CA United States (Presenter: Rajkishan Arikapudi) (Rajkishan Arikapudi, Stavros Vougioukas)

10:50AM

11:00AM 1800432

BREAK

Infrared-hot air combined drying system for the drying of giant grass

Lu Zhiheng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Yanfeng Li, Zhiqin Wang, Decheng Wang, Zhifei Gu, Kuihua Zheng, Yalei Wu, Yan Li)

11:15AM 1800451

The Design and Experiment on Influencing Factors of Power Consumption of An End-Effector for Natural Tapping Robot

Xiyu Sheng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xiyu Sheng) (Xiyu, Sheng, Chunlong Zhang, Shunlu Zhang, Ting Yuan, Junxiong Zhang, Wei Li, Decheng Li, Dashuai Wang)

11:30AM 1800661

The Reconstruction of the Knotter

Lu Zhiheng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yan Li; Yalei Wu) (Zhifei Gu, Decheng Wang, Xiaolong Huan, Yanfang Li, He Li, Kuihua Zheng, Yalei Wu, Yan Li)

11:45AM 1801643

Evaluation of a Leveling System for a Weeding Robot under Field Condition

Lin Chen, Washington State University, Pullman, WA United States (Presenter: Lin Chen) (Lin Chen, Manoj Karkee, Qin Zhang, Yunlong Wei, Long He)

12:00PM 1801488

Development of an Acoustic Sensor to Detect Harvest-readiness of Cacao Pods

Cininta Pertiwi, University of California, Merced, Merced, California United States (Presenter: Cininta Pertiwi) (Cininta Pertiwi, Reza Ehsani, Arash Toudeshki, Elnaz, Akbari, Akram Gholami Parez)

12:15PM 1801859

Convolution Neural Network Based Automatic Corn Kernel Qualification

Chao Ni, College Park, MD United States (Presenter: Chao Ni) (Dongyi Wang, Maxwell Holmes, Robert Vinson, Yang Tao)

Monday, July 30 - 9:30AM-12:00PM

SESSION 119

AUTONOMOUS VEHICLES AND SYSTEMS - PART 1

– Sponsored by MS-58, ITSC-318, ITSC-353
Moderator: TBA

LOCATION: 331C

Time Paper # Title/Author

09:30AM

09:35AM 1801589

Introduction

A review of the state of the art in agricultural automation. Part I: Sensing technologies for optimization of machine operation and farm inputs

Craig Baillie, University of Southern Queensland, NCEA, Toowoomba, Queensland Australia (Presenter: Craig P. Baillie) (Craig P. Baillie, J. Alex Thomasson, Craig R. Lobsey, C. R., Cheryl L. McCarthy, Diogenes L. Antille)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

09:50AM	1801590	<p>A review of the state of the art in agricultural automation. Part II: On-farm agricultural communications and connectivity Craig Baillie, University of Southern Queensland, NCEA, Toowoomba, Queensland Australia (Presenter: Craig P. Baillie) (J. Alex Thomasson, Craig P. Baillie, Diogenes L. Antille, Cheryl L. McCarthy, Craig R. Lobsey)</p>
10:05AM	1801591	<p>A review of the state of the art in agricultural automation. Part III: Agricultural machinery navigation systems Craig Baillie, University of Southern Queensland, NCEA, Toowoomba, Queensland Australia (Presenter: Craig P. Baillie) (Craig P. Baillie, Craig R. Lobsey, Diogenes L. Antille, Cheryl L. McCarthy, J. Alex Thomasson)</p>
10:20AM	1800246	<p>Innovations in Autonomous Agricultural Machines: Concepts and feasibility Uduak Edet, University of Manitoba, Winnipeg, Manitoba Canada (Presenter: Uduak Edet) (Danny, D. Mann, Eric Hawley)</p>
10:35AM		BREAK
10:45AM	1800987	<p>Smart Water Sampling with UAV-integrated Sensor Node Cengiz Koparan, Clemson University, Clemson, South Carolina United States (Presenter: Cengiz Koparan) (Cengiz Koparan)</p>
11:00AM	1801620	<p>Wireless Networking of Agricultural Equipment for Autonomous Vehicle Control Christopher Wiegman, The Ohio State University, Columbus, Ohio United States (Presenter: Christopher Wiegman) (Christopher Wiegman, Santiago Avila, Ryan Tietje, Andrew Klopfenstein, Scott Shearer)</p>
11:15AM	1801768	<p>Development of Image Positioning and Orientation Sensor Package to Auto Georeference Unmanned Aerial Imagery Ajay Sharda, Kansas State University, Manhattan, Kansas United States (Presenter: Ajay Sharda) (Ajay Sharda, Phillip Dix, Harman Singh Sangha)</p>

10:20AM	1800528	<p>Energy Requirements for Creating High-Density Biomass Bales Kevin Shinnars, University of Wisconsin, Madison, WI United States (Presenter: Kevin Shinnars) (Joshua Friede)</p>
10:35AM	1801331	<p>Techno-economic analysis of corn grain harvest and transportation Luis Huezco, The Ohio State University, Wooster, Ohio United States (Presenter: Luis Huezco) (L. Huezco, A. Manandhar, A. Shah)</p>
10:50AM		BREAK
11:00AM	1800480	<p>Energy Consumption of Sugarcane Basecutting Using Contra-Rotating Basecutters Shaochun Ma, China Agricultural University, Beijing, China, People's Republic of (Presenter: Shaochun Ma) (Fenglei Wang, Shaochun Ma, Wenli Ke, Guangyou Yang, Ming Liu)</p>
11:15AM	1800440	<p>Machinery maneuvering efficiency and perennial crops: field shape complexity defines the efficiency Veronika Vazhnik, Pennsylvania State University, State College, Pennsylvania United States (Presenter: Veronika Vazhnik) (L. Michael Griffel, Veronika Vazhnik, Damon Hartley, Jason K. Hansen, Tom L. Richard)</p>
11:30AM	1800530	<p>Impact of parcel size, field shape, crop yield, storage location and collection equipment on the performance of single-pass cut-and-chip harvest system in commercial shrub willow fields Mahmood Ebadian, University of British Columbia, Vancouver, BC Canada (Presenter: Mahmood Ebadian) (Mahmood Ebadian, Magen Elizabeth Shedden, Erin Webb, Shahab Sokhansanj, Mark Eisenbies, Timothy Volk, Justin Heavey, Karl Hallen)</p>
11:45AM	1800531	<p>A novel risk analysis methodology to evaluate the economic performance of a biorefinery and to quantify the economic incentives for participating biomass producers Mahmood Ebadian, University of British Columbia, Vancouver, BC Canada (Presenter: Mahmood Ebadian) (Yu Wang, Mahmood Ebadian, Shahab Sokhansanj, Erin Webb, Hisham Zeriffi, Anthony Lau)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 120

BIOMASS FEEDSTOCK SUPPLY LOGISTICS AND MODELING

– Sponsored by MS-23/7/2, MS-49
Moderator: Josh Harmon, CNH Industrial, New Holland, PA

LOCATION: 332

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800514	<p>Needs and Benefits of ASAE/ASABE Standards, Engineering Practices, and Technical Data Applicable to Biomass and Related Industrial Feedstocks James Dooley, Forest Concepts, LLC, Auburn, WA United States (Presenter: James Dooley) (James Dooley, Igathinathane Cannayan, Kevin Comer, Oladiran Fasina, Kevin Kenney, Sudhagar Mani, Shahabaddine Sokhansanj)</p>
09:50AM	1800963	<p>Video Analysis of a Controlled Burn of Corn Stover Square Bales with Various Stack Configurations Keith Webster, Iowa State University, Ames, Iowa United States (Presenter: Keith Webster) (Keith Webster, Matthew Darr, Erin Webb, Robert Chambers)</p>
10:05AM	1800219	<p>Storage Dynamics and Lignocellulosic Degradation in Industrial Biomass Storage Matthew Darr, Iowa State University, Ames, IA United States (Presenter: Matthew Darr) (Keith Webster, Rachel Bearden)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 121

PESTICIDE FORMULATION APPLICATION TECHNOLOGY, ENVIRONMENTAL EFFECTS - PART 1

– Sponsored by MS-23/6, MS-54
Moderator: Adam Barlow, John Deere Des Moines Works, Arkeny, IA

LOCATION: 333

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800453	<p>Performance of a universal intelligent spray control system for insect pest and disease management in ornamental nurseries Matt Wallhead, USDA-ARS, Wooster, OH United States (Presenter: Matt Wallhead) (Matt Wallhead, Heping Zhu)</p>
09:50AM	1800458	<p>Preliminary investigation of droplet impact, rebound and retention on maize and soy leaves JohnPaul Abbott, United States (Presenter: Johnpaul R. Abbott) (Heping Zhu)</p>
10:05AM	1801608	<p>Examining the influence of flight parameters and image processing software in the quality of UAV acquired images for agricultural decision-making John Fulton, Ohio State University, Columbus, Ohio United States (Presenter: Sami Khanal) (Sami Khanal, Richard Colley III, John Fulton, Andrew Klopfenstein, Nathan Douridas, Scott Shearer)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

10:20AM		BREAK
10:30AM	1800399	Developing of Premixing Inline Injection System for Agricultural Sprayers Zhihong Zhang, USDA-ARS, Wooster, Ohio United States (Presenter: Zhihong Zhang) (Zhihong Zhang, Heping Zhu, Huseyin Guler, Yue Shen)
10:45AM	1800329	Utilization of Microspheres in the Investigation of Atmospheric Movement of Fungal Spores Harold Thistle, USDA Forest Service, Morgantown, WV United States (Presenter: Harold Thistle) (Harold Thistle, Gary Kees, Justin Nairn, Alison Forster, Tara Strand, April Hiscox, Andrew Leibhold, Ann Hajek)
11:00AM	1800183	Evaluation of spray accuracy for an experimental greenhouse variable-rate spray system Tingting Yan, United States (Presenter: Tingting Yan) (Tingting Yan, Heping Zhu, Li Sun, Xiaochan Wang, Peter Ling)

Monday, July 30 - 9:30AM-12:00PM
SESSION 122

TRANSFER OF CONCEPT ON PRECISION AGRICULTURE FOR SUSTAINABLE GLOBAL CROP PRODUCTION - PANEL DISCUSSION – Sponsored by MS-54, E-2050

Moderator: Ganesh Bora, Mississippi State University, Mississippi State, MS

LOCATION: 354

Transfer of concept, not transfer of technology, is key to successful global adaptation of precision agricultural technology to optimize resources for sustainable crop production. When the concept works for the particular crop or in a region; the technology can be developed locally.

Panelist:
Dr. Akindele Folarin Alonge, University of Uyo, Awka, Iboam State Nigeria
Dr. Dharmendra Saraswat, Purdue University, West Lafayette, IN United States
Dr. John Schueller, University of Florida, Gainesville, FL United States
Dr. Michael Ngadi, McGill University, Ste-Anne-de-Bellevue, QC United States
Dr. Yubin Lan, USDA ARS, College Station, TX United States

Monday, July 30 - 9:30AM-10:30AM
WATER SECURITY PANEL DISCUSSION - PRODUCING MORE FOOD WITH LESS WATER: DOES TECHNOLOGY, MANAGEMENT, OR POLICY PROVIDE THE BEST BANG FOR OUR BUCK? – PANEL DISCUSSION

Sponsored by E-2050

Moderator: Sherry Hunt, PhD, Research Leader for USDA-ARS Hydraulic Engineering Research Unit, Stillwater, OK

LOCATION: Grand Ballroom B

Monday, July 30 - 10:30AM-12:00PM
SESSION 123

NATURAL RESOURCES & ENVIRONMENTAL SYSTEMS DISTINGUISHED LECTURE - INVITED SPEAKERS – Sponsored by: NRES

Moderator: Carmen Agouridis, University of Kentucky, Lexington, KY

LOCATION: Grand Ballroom B

Agricultural and biological engineers play a key role in addressing water security and water quality issues through research, teaching, and extension efforts. In this invited session, award-winning leaders from the NRES community offer their perspectives on the challenges we, as a society, face. These speakers also seek to inspire us to develop sustainable solutions those challenges.

Time	Paper #	Title/Author
10:30AM		Introduction
10:30AM	1801861	Opportunities and Advancements in Precision Irrigation Kenneth Stone, USDA-ARS, Florence, SC United States
11:00AM	1801860	Water Quality “The Reality Show” Kati Migliaccio, University of Florida, Gainesville, Florida United States
11:30AM	1801898	Dimensions of Animal Agriculture at the Nexus: Food, Energy, Water, Soils, a Cow Pie at a Time Daniel Andersen, Iowa State University, Ames, Iowa United States

Monday, July 30 - 9:30AM-12:00PM
SESSION 124

GREENHOUSE AND NURSERY TECHNOLOGY – Sponsored by PAFS-30

Moderator: Mark Lefsrud, McGill University, Ste-Anne-de-Bellevue, QC Canada

LOCATION: 334

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801097	Design and development of an automatic plug tray dibbler cum seeder for Indian vegetable nursery Carolyn Rathinakumari, ICAR-Indian Institute of Horticultural R, Bengaluru, Karnataka India (Presenter: A. Carolyn Rathinakumari) (Carolyn Rathinakumari)
09:50AM	1801354	Vertically oriented 30% porous concrete hydroponic substrates Tristan Chauvin-Bosse, McGill, Macdonald Campus, Sainte-Anne-de-Bellevue, Quebec Canada (Presenter: Tristan Chauvin-Bosse) (Tristan Chauvin-Bosse)
10:05AM	1800396	Canadian Integrative Northern Greenhouse (CING) Project: Full Scale Prototype Testing David Leroux, McGill, Montreal, Qc Canada (Presenter: David Leroux) (David Leroux, Patricia Gaudet)
10:20AM	1801397	Design of a modified hydroponic shipping container Robert Stwalley, Purdue University, West Lafayette, Indiana United States (Presenter: Robert M. Stwalley III) (Jack Houtman, Rachel Sparks, Robert M. Stwalley III)
10:35AM		BREAK
10:45AM	1800476	Determination of NH₄, NO₃ and K in manure extracts used for crop growth in hydroponic systems Peter Tikasz, McGill University, Montreal, Qc Canada (Presenter: Peter Tikasz) (Peter Tikasz)
11:00AM	1801221	Developing 3D models of plants using time-of-flight cameras and a precision turn-table. Colin Usher, Georgia Tech Research Institute, Atlanta, GA United States (Presenter: Colin Usher) (Colin Usher)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

11:15AM 1801121 **Impact of light-emitting diodes (LEDs) on the growth of spinach (*Spinacia oleracea* L.) seedlings**
Avinash Agarwal, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Avinash Agarwal) (Snehasish Dutta Gupta)

Monday, July 30 - 9:30AM-12:00PM

SESSION 125 PRECISION ANIMAL MANAGEMENT: LARGE ANIMAL – Sponsored by PAFS-40, MS-23/19/3

Moderator: Josh Jackson, University of Kentucky, Lexington, KY

LOCATION: 335

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800780	Identification of Background Noise by Mel-scale Frequency Cepstral Coefficients (MFCC) and Vector Quantisation (VQ) for Piglets Sound Detection Ching-Lu Hsieh, National Pintung Univ. of Sci. and Tech., Pingtung, Taiwan China, Republic of (Taiwan) (Presenter: Ching-Lu Hsieh) (Jheng-Hong Hsieh, Ching-Lu Hsieh)
09:50AM	1800517	Thermal modelling of fattening pig houses: a new calculation tool Andrea Costantino, Politecnico di Torino, Torino, Italy (Presenter: Andrea Costantino) (Andrea Constantino, Lorenzo Comba, Paolo Cornale, Luca Battagliini, Enrico Fabrizio)
10:05AM	1801282	Beef cattle mineral feeder visit frequency using ultra high frequency (UHF) tags Josh Jackson, University of Kentucky, Lexington, Kentucky United States (Presenter: Josh Jackson) (Josh Jackson, Morgan Hayes, Jeff Lehmkuhler)
10:20AM	1801304	Real-time monitoring of cow's health state using behavioral activities and milk yield dynamics Alberto Pena Fernandez, KU Leuven, Leuven, Vlaams Brabant Belgium (Presenter: Alberto Pena Fernandez) (Alberto Pena Fernandez, Karen Helle Sloth, Susanne Klimpel, Tomas Norton, Daniel Berckmans)
10:35AM	1800769	Recognition of Scene-interactive Behaviors of Calves Based on Video Analysis yangyang Guo, Northwest A&F University, Yangling, Shaanxi China, People's Republic of (Presenter: Yangyang Guo) (Dongjian He, Huaibo Song)
10:50AM		BREAK
11:00AM	1800806	Development of a Labour Utilisation Decision Support Tool to Efficiently Measure Grass Herbage Mass Using a Rising Plate Meter Darren Joseph Murphy, Cork Institute of Technology, Cork, Munster Ireland (Presenter: Darren J. Murphy) (Darren J. Murphy, Bernadette O' Brien, Michael D. Murphy)
11:15AM	1801648	Development of Multi-Scale Walkover System for Precision Livestock Management Jordan Fischer, Oklahoma State University, Stillwater, OK United States (Presenter: Jordan Fischer) (John Long, Ryan Reuter, Ning Wang, Collin Craige)
11:30AM	1800864	Measured Airflow Through Gable-Roofed Naturally-Ventilated Beef Cattle Barns Erin Cortus, University of Minnesota, St. Paul, MN United States (Presenter: Erin Cortus) (Erin Cortus, Warren Rusche, Joseph Darrington)
11:45PM	1801146	Unmanned Aircraft Systems for Enhanced Biosecurity Through Aerial Surveillance Wayne Woldt, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Wayne Woldt) (Wayne Woldt, Donald Reynolds, Marcia Oetjen)

Monday, July 30 - 9:30AM-12:00PM

SESSION 126 ADVANCED TREATMENT TECHNOLOGY ON FOOD & ORGANIC WASTES/BYPRODUCTS MANAGEMENT-PART 1 – Sponsored by PRS

Moderator: Wei Liao, Michigan State University, East Lansing, MI

LOCATION: 336

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800630	Algal Protein Extraction by Ball Mill Yan Liu, Michigan State University, East Lansing, Michigan United States (Presenter: Yan Liu) (Song Li, Yan Liu, Wei Liao)
09:50AM	1800980	Bioenergy and bioproducts in the Australian red meat processing industry: A case study Bernadette McCabe, University of Southern Queensland, Toowoomba, Queensland Australia (Presenter: Bernadette McCabe) (Bernadette K. McCabe, Peter W. Harris, Thomas Schmidt, Diogenes L. Antille, Seonmi Lee, Andrew Hill, Craig P. Baillie)
10:05AM	1801230	Chemical Composition and Antibacterial Activity of Essential Oil of Fresh and Cured Betel Leaves (Piper betle L.) Mitali Madhumita, Indian Institute of Technology, Kharagpur, West Bengal India (Presenter: Mitali Madhumita) (Mitali Madhumita, Proshanta Guha, Ahindra Nag)
10:20AM	1800413	Cocoa (<i>Theobroma cacao</i> L.) Pod Husks as Precursor for Activated Carbon Production under Microwave-Assisted Pyrolysis Shiela Marie Villota, Central Luzon State University, Science City of Munoz, Nueva Ecija Philippines (Presenter: Shiela Marie Villota) (Shiela Marie Villota, Jeffrey Lavarias, Hanwu Lei)
10:35AM	1800169	Comparative study of ANN(Artificial Neural Network) versus RSM(Response Surface Methodology) for predicting the recovery of phenolic compounds from spent coffee grounds by conventional and microwave assisted extraction Sravanthi Budaraju, University of Minnesota, St. Paul, Minnesota United States (Presenter: Sravanthi Budaraju) (Sravanthi Budaraju, Kumar Mallikarjunan)
10:50AM		BREAK
11:00AM	1800648	Extraction and Characterization of Mango (<i>Mangifera indica</i>) seed kernel oil Bhupinder Kaur, IIT, Kharagpur, WB, India, Kharagpur, West Bengal India (Presenter: Bhupinder Kaur) (Prem Prakash Srivastav)
11:15AM	1801402	Designated Physical and Flow Properties of Post Harvested Tomatoes in Differing Handling Media Omotayo Osadipe, Federal University of Technology, Akure, Akure, Ondo Nigeria (Presenter: Omotayo Osadipe) (Omotayo Osadipe, Ayoola Olalusi)
11:30AM	1800786	Effect of different Plasticizers on Mechanical and Moisture Barrier Properties of Edible Hydroxypropyl methylcellulose (HPMC) film Gulshan Kumar Malik, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Gulshan Kumar Malik) (Gulshan Kumar Malik, Jayeeta Mitra)
11:45PM	1800919	Effect of High Voltage Atmospheric Cold Plasma on inactivation of <i>Listeria innocua</i> on Queso Fresco cheese, cheese model and Tryptic soy agar Zifan Wan, Iowa State University, Ames, Iowa United States (Presenter: Dr. Kevin Keener) (Zifan Wan, S.K. Pankaj, Curtis Mosher, Kevin Keener)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 9:30AM-12:00PM

SESSION 128

BIOCHEMICAL CONVERSION AND BIOPROCESS MODELING – Sponsored

by PRS-280, ES-220
Moderator: Hasan Atiyeh, Oklahoma State University, Stillwater, OK

LOCATION: 338

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800333	Vitamin K2 (Menaquinone-7) production by <i>Bacillus subtilis</i> natto by using a glucose-based medium in biofilm reactors Ali Demirci, Pennsylvania State University, University Park, PA United States (Presenter: Ali Demirci) (Ehsan Mahdinia, Ali Demirci, Aydin Berenjian)
09:50AM	1800274	Co-Fermentation of Sugars and Gases for Enhanced Alcohols Production Hasan Atiyeh, Oklahoma State University, Stillwater, OK United States (Presenter: Hasan Atiyeh) (Hasan K. Atiyeh, Pradeep Munasinghe, Kan Liu, Ralph S. Tanner and Thaddeus Ezeji)
10:05AM	1801335	Exploiting endogenous CRISPR-Cas system for multiplex genome editing in <i>Clostridium</i> and engineering <i>Clostridium</i> for enhanced biobutanol production Yi Wang, Auburn University, Auburn, AL United States (Presenter: Yi Wang) (Yi Wang, Jie Zhang)
10:20AM	1801754	Kinetic modeling of mixed sugar effects on butanol fermentation by <i>Clostridium saccharoperbutylacetonicum</i> Quan Zhou, North Carolina State University, Raleigh, NC United States (Presenter: Quan Zhou) (Quan Zhou)
10:35AM	1800286	Quantifying Reduction in Soaking in Aqueous Ammonia Pretreatment Severity and Enzyme Loadings for Corn Stover Pellets Nurun Nahar, Fargo, ND United States (Presenter: Nurun Nahar) (Nurun Nahar, Ramsharan Pandey, Scott Pryor)
10:50AM		BREAK
11:00AM	1801010	Identification of bottlenecks of fungal pretreatment of lignocellulosic biomass: process development and techno-economic analysis Juliana Vasco-Correa, The Ohio State University, Wooster, Ohio United States (Presenter: Juliana Vasco-Correa) (Juliana Vasco-Correa, Ajay Shah)
11:15AM	1800644	A comparative account of glucose yields and bioethanol production from SSF and SHF at high solids loading with variable PEG concentration Haider Kadhum, Oregon State University, Corvallis, Oregon United States (Presenter: Haider Kadhum) (Durga Madhab Mahapatra, Ganti Murthy)
11:30AM	1800899	Techno-economic analysis of citric acid production via bio-based products Junqi Wang, United States (Presenter: Junqi Wang) (Junqi Wang, Ajay Shah)
11:45AM	1801299	Source-Yield-Property Interrelations for Cellulose Nanomaterials Extracted from Forest Biomass Gurshagan Kandhola, University of Arkansas, Fayetteville, AR United States (Presenter: Gurshagan Kandhola) (Gurshagan Kandhola, Angele Djioleu, Kalavathy Rajan, Benjamin Babst, William Headlee, Danielle Carrier, Jin-Woo Kim)
12:00PM	1801195	Advanced Fuel Production from Camelina Oil Eleazer Resurreccion, Montana State University Northern, Havre, Montana United States (Presenter: Eleazer Resurreccion) (Eleazer Resurreccion, Sandeep Kumar, Mason Martin, Paul Jeffrey, Randy Maglinao, Benjamin Rice, Javad Roostaei, Yongli Zhang)

Monday, July 30 - 9:30AM-12:00PM

SESSION 129

DRYING, HANDLING AND STORAGE

- **PART 1** – Sponsored by PRS-702

Moderator: Carol Jones, Oklahoma State University, Stillwater, OK

LOCATION: 353

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800281	A Review on Grain Damage, Modeling, and Testing Procedures Zhengpu Chen, Purdue University, West Lafayette, IN United States (Presenter: Zhengpu Chen) (Zhengpu Chen)
09:50AM	1801311	Assessment and Mitigation of Aflatoxin and Fumonisin Contamination in Stored Animal Feeds and Ingredients in Rwanda Kizito Nishimwe, Iowa State University, Maes, Iowa United States (Presenter: Kizito Nishimwe) (Kizito Nishimwe, Erin Bowers, Jean de Diew Ayabagabo, Richard Habimana, Sameul Mutiga, Dirk Maier)
10:05AM	1801717	Controlled atmosphere simulation and testing of corn cob and grain drying under typical tropical climate conditions Akinbode Adedeji, University of Kentucky, Lexington, KY United States (Presenter: Francis Agbali) (McNeill, S., Montross, M., Adedeji A. A.)
10:20AM		BREAK
10:30AM	1800705	Controlled drying and rehydrating of almonds on a farm scale in Australia John Fielke, University of South Australia, Mawson Lakes, South Australia (Presenter: John Fielke) (John Fielke)
10:45AM	1801406	Dry matter loss and chemical changes to soybeans at 14, 18 and 22% moisture and 30°C measured in a dynamic grain respiration system Ana Beatriz Pereira da Silva, University of Illinois, Urbana, Illinois United States (Presenter: Ana Beatriz Pereira da Silva) (Mary-Grace C. Danao, Richard S. Gates, Kent D. Rausch)
11:00AM	1800422	Non-destructive Analysis of Stored Wheat Insect Infestation Using Visible/Near Infrared Hyper-spectral Imaging Gayatri Mishra, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Gayatri Mishra) (Mrs. Shubhangi Srivastava Prof. Hari Niwas Mishra)

Monday, July 30 - 9:30AM-12:00PM

SESSION 130

FOOD PROCESS AND ENGINEERING - PART 1

– Sponsored by PRS-703, PRS-701

Moderator: Akinbode Adedeji, University of Kentucky, Lexington, KY

LOCATION: 355

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801275	Air classification of by-product of lentil dehulling into protein-rich and starch-rich fractions Lope Tabil, University of Saskatchewan, Saskatoon, Saskatchewan Canada (Presenter: Lope Tabil or Chidinma Afam-Mbah) (Chidinma Afam-Mbah, Lily Ketabi, Shahram Emami, Lope G. Tabil, Robert T. Tyler)
09:50AM	1800526	Application of radio frequency pasteurization process to almond kernels: Heating uniformity improvement Rui Li, Northwest A&F University, Yangling, Xianyang, Shaanxi China, People's Republic of (Presenter: Rui Li) (Rui Li, Xiaoxi Kou, Xu Zhou, Lihui Zhang, Shaojin Wang)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

10:05AM	1801644	<p>Bioactive Compounds from Food Waste - Reuse for sustainability Balu Nayak, University of Maine, Orono, Maine United States (Presenter: Balu Nayak) (Balu Nayak)</p>
10:20AM	1800537	<p>Characteristics of pitaya after radio frequency treating: structure and phenolic compounds Hao Jiang, Northwest A & F University, Yangling, Shaanxi China, People's Republic of (Presenter: Hao Jiang) (Hao Jiang)</p>
10:35AM		BREAK
10:45AM	1801423	<p>Characterization of the Strength and Microstructure of Cassava Flour Extrudates Folasayo Fayose, Federal University Oye Ekiti, Oye Ekiti, Ekiti Nigeria (Presenter: Folasayo Fayose) (Folasayo Fayose, Agboola Ogunlowo)</p>
11:00AM	1800916	<p>Cold plasma degradation kinetics and pathways of carbaryl and methiocarb in water Shashi Pankaj, Iowa State University, Ames, Iowa United States (Presenter: Dr. Kevin Keener) (Rkia Moutiq, Shashi Pankaj, Zifan Wan, Aubrey Mendonca, Kevin Keener)</p>
11:15AM	1800896	<p>Consistency of Rice Milling Quality and Grade: Results from USDA-FGIS Laboratory Mill and Commercial Mills Ragab Khir, University of California Davis, Davis, California United States (Presenter: Ragab Khir) (Ragab Khir, Namfon Samsalee, Cameo Tsui, Corrinna Lee, Cathleen Brenner, Tara McHugh, Rungsinee Sothornvit, Zhongli Pan)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 131

FOOD SAFETY ENGINEERING -

PART 1 – Sponsored by PRS-703

Moderator: Griffiths Atungulu, University of Arkansas, Fayetteville, AR

LOCATION: 356

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800355	<p>A sensitive and effective methodology for analyzing histidine dipeptides in meat and bone meal by ultra-high performance liquid chromatography tandem mass spectrometry Yahong Han, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yahong Han) (Yahong Han, Xian Liu, Lujia Han, Bing Gao, Ye Liu, Shengnan Zhao)</p>
09:50AM	1801592	<p>Cold Plasma Treatment of Tree Nuts to Reduce Aflatoxin Kevin Keener, Iowa State University, Ames, IA United States (Presenter: Kevin Keener) (Kevin Keener, Mark Hochwalt, Cherian George, Michael Ndengele, Frank Jakse, Larry Clarke)</p>
10:05AM	1800917	<p>Development of a continuous non-thermal plasma (NTP) disinfection system for milk powders Peng Peng, University of Minnesota, St. Paul, Minnesota United States (Presenter: Peng Peng) (Peng Peng, Nan Zhou, Dongjie Chen, Charles Schiapacasse, Yanling Cheng, Min Addy, Yaning Zhang, Erik Anderson, Liangliang Fan, Raymond Hatzenbeller, Yiwei Ma, Shiyu Liu, Yuhuan Liu, Paul Chen, Roger Ruan)</p>
10:20AM	1800323	<p>Disease discrimination and growth tracking of fungi in peaches using electronic nose Liu Qiang, Nanjing Agricultural University, Nanjing, Jiangsu China, People's Republic of (Presenter: Liu Qiang) (Dandan Zhou, Ke Sun, Chao Ding, Leiqing Pan)</p>

10:35AM	1801640	<p>Efficacy of pulsed UV-light in reducing Escherichia coli K12 on the surface of chevon Richa Arya, Fort Valley State University, Fort Valley, Georgia United States (Presenter: Richa Arya) (Richa Arya, Madalyn Bryant, Hema Degala, Ajit Mahapatra, Govind Kannan)</p>
10:50AM		BREAK
11:00AM	1800361	<p>Enhancement in the quality, intrinsic parameters and residual cyanide of packaged garri: Effects of selected packaging containers and time Asoiro Felix Uzochukwu, University of Nigeria, Nsukka, Nsukka, Enugu State Nigeria (Presenter: Asoiro Felix Uzochukwu) (Asoiro Felix Uzochukwu)</p>
11:15AM	1801604	<p>Factors Influencing Salmonella Survival Kinetics in Low-Moisture Foods During Storage Ian Hildebrandt, Michigan State University, East Lansing, Michigan United States (Presenter: Ian Hildebrandt) (Ian Hildebrandt, Bradley Marks)</p>
11:30AM	1801368	<p>Guide and Resources to the Statistical Aspects of Food Safety Darrell Donahue, Michigan State University, East Lansing, MI United States (Presenter: Darrell W. Donahue, PhD, CQE) (Andreas Kiermeier)</p>
11:45AM	1801229	<p>Impact of Radiant-Heat and Tempering Treatments on Decontamination of Aspergillus flavus and ability thereof to Discourage Production of aflatoxin on Shelled Corn Deandrae Smith, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Deandrae Smith) (Deandrae L. Smith, Shantae A. Wilson, Griffiths G. Atungulu)</p>
12:00PM	1800784	<p>Fourier Transform Near Infrared Spectroscopy for rapid estimation of quality of Peanuts Rakesh Kumar Raigar, IIT Kharagpur, Kharagpur, West Bengal India (Presenter: Rakesh Kumar Raigar) (Rakesh Kumar Raigar, H.N. Mishra)</p>
12:15PM	1801099	<p>Determination of Moisture Content of Peanut (Arachis hypogaea Linn.) Kernels Using Near-Infrared Hyperspectral Imaging System Jose Domingo Guzman, Cagayan State University, Tuguegarao City, Philippines (Presenter: Jose D. Guzman) (Jennifer Rabanera)</p>

Monday, July 30 - 9:30AM-12:00PM

SESSION 132

PHYSICAL PROPERTIES AND EFFECT ON DRYING, HANDLING AND PROCESSING –

Sponsored by PRS-702, PRS-701

Moderators: Akinbode Adedeji, University of Kentucky, Lexington, KY, Griffiths Atungulu, University of Arkansas, Fayetteville, AR

LOCATION: 357

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801200	<p>Antioxidants and total polyphenols in spray dried maple powder Manickavasagan Annamalai, University of Guelph, Guelph, Ontario Canada (Presenter: Manickavasagan Annamalai) (Jiawen Wang, Manickavasagan Annamalai, Renuka Waduge, Dedeepya Vuppu)</p>
09:50AM	1800847	<p>Applying Thin-Layer Drying Principles to Optimize Solar Drying of Apples Diana Ramirez, Purdue University, West Lafayette, Indiana United States (Presenter: Diana Ramirez) (Diana Ramirez, Klein Ileleji, Zusongying Zhao)</p>
10:05AM	1801300	<p>Effect of particle size and moisture content on the flowability of wheat flour John Lawrence, Kansas State University, Salina, KS United States (Presenter: John Lawrence) (John Lawrence)</p>

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MONDAY, JULY 30

10:20AM	1801259	Physical properties of spray dried maple powder Dedeepya Vuppu, University of Guelph, Guelph, Ontario Canada (Presenter: Praveena Thirunathan) (Dedeepya Vuppu, Manickavasagan Annamalai, Renuka Nilmini Waduge, Vasanth Krishnamoorthy)
10:35AM BREAK		
10:45AM	1800124	The kinetics of anthocyanin and color degradation of dried grape pomace (<i>Vitis vinifera</i> L.) using controlled humidity convective air dryer. Frederick Sarpong, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Frederick Sarpong) (Frederick Sarpong)
11:00AM	1801812	Investigation of Drying and Tempering Effect on Rough Rice Moisture Distribution in Combined Far-Infrared Drying Using Finite Element Method Dariush Zare, Shiraz University, Shiraz, Iran (Presenter: Dariush Zare) (Dariush Zare, Mojtaba Nosrati)
11:15AM	1801003	Quantification of the optical properties of two-layer food products using an improved algorithm for spatial frequency domain imaging Dong Hu, Michigan State University, East Lansing, MI United States (Presenter: Dong Hu) (Dong Hu, Renfu Lu, Yibin Ying)

Monday, July 30 - 2:30PM-5:00PM

SESSION 133

EMERGING TRENDS IN BIOLOGICAL ENGINEERING - PART 2

– Sponsored by ASE-08

Moderator: John March, Cornell University, Ithaca, NY

LOCATION: 140C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800298	Effect of Antimicrobial Film on the Shelf Life of Various Leafy Vegetables Claire Bassett, Michigan State University, East Lansing, Michigan United States (Presenter: Evangelyn Alocilja) (Claire Bassett, Shan Shan)
2:50PM	1800487	Development of eggshell membrane based-nano-engineered platforms Sunho Park, Chonnam National University, Gwangju, Korea, South (Presenter: Sunho Park) (Sunho Park, Sujin Kim, Sungmin Park, Jangho Kim)
3:05PM	1801072	Comparison of adsorption matrices for exploring emitted floral scents and targeted analysis of floral volatiles from four commercially important Jasminum species Monica Barman, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Monica Barman) (Monica Barman, Adinpunya Mitra)
3:20PM	1800099	Cell-instructive Biomaterials for Musculoskeletal Regenerative Engineering Meng Deng, Purdue University, West Lafayette, Indiana United States (Presenter: Meng Deng) (Meng Deng)
3:35PM		BREAK
3:45PM	1801750	Genetics of Electron Uptake in <i>Shewanella oneidensis</i> Buz Barstow, Cornell University, Ithaca, NY United States (Presenter: Buz Barstow) (Buz Barstow)
4:00PM	1801460	Degradation of Veterinary Antibiotics in Swine Manure via Anaerobic Digestion Ali Hosseini Taleghani, University of Missouri, Columbia, Missouri United States (Presenter: Ali Hosseini Taleghani) (Ali Hosseini, Teng Lim, Chung-Ho Lin, Allen Wang, Joshua Brown)

4:15PM	1801436	Anaerobic gut fungi as an emerging platform for cellulose degrading enzyme production Jonathan Overton, Purdue University, Lafayette, IN United States (Presenter: Jonathan Overton) (Jonathan Overton, Casey Hooker, Ethan Hillman, Kevin Solomon)
4:30PM	1800858	Investigating fundamental constraints on enzyme evolution using massively parallel sequence-function analyses Matthew Faber, Michigan State University, East Lansing, MI United States (Presenter: Matthew Faber) (Timothy Whitehead, Matthew Faber)

Monday, July 30 - 2:30PM-5:00PM

SESSION 134

INNOVATIONS AND INTEGRATION OF INSTRUCTION

– Sponsored by

EOPD-205, EOPD-203

Moderator: Tom Brumm, Iowa State Univ, Ames, IA

LOCATION: 140B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800456	University of Nebraska Lincoln - Testing Ag Performance Solutions (TAPS) Program: Integration of Research and Extension Daran Rudnick, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Daran Rudnick) (Daran Rudnick, Chuck Burr, Matt Stockton, Rodrigo Werle)
2:50PM	1801198	Teaching Coding to Technology Students for Automation Applications Santosh Pitla, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Santosh Pitla) (Santosh Pitla, David Mabie, Evan Curtis)
3:05PM	1801205	Analysis of math competencies in a general physics course for agricultural science majors to identify at risk populations. David Mabie, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: David Mabie) (David Bora, Evan Curtis, Deepak Keshwani)
3:20PM	1800210	Evaluation of Active Learning Techniques in Multiple Agricultural Engineering Courses Ganesh Bora, Mississippi State University, Mississippi State, MS United States (Presenter: Ganesh Bora) (Ganesh Bora, Prem Parajuli, Joel Paz, Kris King)
3:35PM	1800580	Development and evaluation of using a mobile application as a demonstration tool for outreach to inform and educate farmers, academia, and the community of agricultural stewardship using the SmartFarm Decision Support System. Caleb Fink, California Polytechnic State University, San Luis Obispo, CA United States (Presenter: Caleb Fink) (Caleb Fink, Bo Liu, Fletcher Easton, Chandra Krintz, Rich Wolski, Balaji Sethuramasamyraja)
3:50PM		BREAK
4:00PM	1801449	Leveraging Asynchronous Learning in an Upper Division Engineering Design Course John Long, Oklahoma State University, Stillwater, OK United States (Presenter: John Long) (John Long, Ryan Reuter, Ning Wang, Collin Craige)
4:15PM	1800968	Design and Testing of a Prototype Distillation Unit: A Student Class Project Ewumbua Monono, North Dakota State University, Fargo, North Dakota United States (Presenter: Ewumbua Monono) (Ewumbua Monono, Dennis Wiesenborn)

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MONDAY, JULY 30

- 4:30PM 1800258 **The Nebraska Hayseed Project: A transdisciplinary teaching initiative linking agriculture, performing arts, and oral history**
Deepak Keshwani, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Deepak Keshwani) (Deepak Keshwani, Becky Boesen, Mary Kay Quinlan, Petra Wahlqvist)
- 4:45PM 1801771 **Integration of Ethics into the Biological Engineering Curriculum**
Jeffrey Catchmark, Penn State, University Park, PA United States (Presenter: Jeffrey Catchmark) (Jeffrey Catchmark, Xiaofeng Denver Tang, Thomas Litzinger, Eduardo Mendieta)

Monday, July 30 - 2:30PM-5:00PM SESSION 135

ERGONOMICS, SAFETY, AND HEALTH POSTER SESSION

– Sponsored by ESH
Moderator: Gretchen Mosher, Iowa State University, Ames, IA

LOCATION: Atrium

Poster #	Paper #	Title/Author
1	1801347	A Review of the National Research and Extension Agenda for Agricultural Safety and Health Aaron Yoder, University of Nebraska, Omaha, NE United States (Presenter: Aaron M. Yoder) (Serap Gorucu, Michael L. Pate and Dennis J. Murphy)
2	1800239	Evaluation of Foldable ROPS lift assist designs Paul Ayers, University of Tennessee, Knoxville, TN United States (Presenter: Paul Ayers) (Paul Ayers, Farzaneh Khorsandi)
3	1801399	Suitability of Ergonomics in Tropical Engineering Designs and Usabilities Omotayo Osadipe, Federal University of Technology, Akure, Akure, Ondo Nigeria (Presenter: Omotayo Osadipe) (Omotayo Osadipe)
4	1801807	Effects of Pulsing of Light on the Dentinogenesis of Stem Cells Hong Bae Kim, Seoul National University, Seoul, Korea, North (Presenter: Hong Bae Kim) (Hong Bae Kim, Kyoung-Je Jang, Myung Chul Lee, Bog Hee Kim, Phil-Hoon Choung, John Hoon Chung)
5	1801814	Fatalities and Injuries Associated with Manure (Livestock Waste) Storages and Handling Systems Mahmoud Nour, Purdue University, West Lafayette, Indiana United States (Presenter: Mahmoud Nour) (Mahmoud Nour, Yuan-Hsin Cheng, William Field)
6	1801816	Summary of Indiana Farm Fatalities of Senior Farmers: 1997-2016 Sean Tormoehlen, Purdue University, West Lafayette, Indiana United States (Presenter: Sean Tormoehlen) (Sean Tormoehlen, William Field)
7	1801113	Risk estimation of pesticide residues in apple in Shanxi province of China in 2017 Wenshen Jia, ATFM, Beijing, China, People's Republic of (Presenter: Wenshen Jia) (Xinxin Jin, Wenshen Jia, Ligang Pan, An Li, Jieqiong Liang, Shanshan Liu)
8	1801148	What information is contained in China's traceable labels? Song Huan, China Agricultural University, Beijing, China, People's Republic of (Presenter: Song Huan) (Huan Song, Ruimei Wang, Fan Wang)

Monday, July 30 - 2:30PM-5:00PM

SESSION 136

ADVANCES IN BIOMASS PREPROCESSING AND PRETREATMENT - PART 1

– Sponsored by ES-220, ASE-12
Moderator: Jaya Shankar Tumuluru, Idaho National Laboratory, Idaho Falls, ID

LOCATION: 140D

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801154	A novel mathematical model for the start-up phase of sequential batch anaerobic digesters Harold M. Keener, The Ohio State University/OARDC, Wooster, OH United States (Presenter: Harold M. Keener) (Harold M. Keener, Fuqing Xu)
2:50PM	1800409	An Energy-Neutral and Chemical-Free Feedstock Treatment Process to Generate Mono-Sugars for Lignocellulosic Biorefining Yuan Zhong, Michigan State University, East Lansing, Michigan United States (Presenter: Yuan Zhong) (Yuan Zhong, Henry Frost, Wei Liao)
3:05PM	1801645	An integrated system for manure wastewater treatment and utilization Min Addy, University of Minnesota, St Paul, MN, United States (Presenter: Min Addy) (Min Addy)
3:20PM	1801654	Changes in composition, enzymatic digestibility and microbial communities during sequential solid-state fungal pretreatment of non-sterile Miscanthus Juliana Vasco-Correa, The Ohio State University, Wooster, Ohio United States (Presenter: Juliana Vasco-Correa) (Juliana Vasco-Correa, Rachel Capouya, Ajay Shah, Yebo Li, Thomas Mitchell)
3:35PM	1800688	Fractionation and characterization of lignin from endocarp biomass using deep eutectic solvent Wenqi Li, University of Kentucky, Lexington, KY United States (Presenter: Wenqi Li) (Wenqi, Li, Seth DeBolt, Jian Shi)
3:50PM		BREAK
4:00PM	1800241	Fungal pretreatment of lignocellulosic biomass with manganese supply to enhance lignin degradation and methane production under solid-state anaerobic digestion Xiao Fu, Washington State University, Pullman, WA United States (Presenter: Xiao Fu) (Xiao Fu)
4:15PM	1801579	Investigations on interactions between crude cellulases and various classes of cellulose in the presence of lignin and PEG with Quartz crystal microbalance with dissipation monitoring (QCMD) Durga Madhab Mahapatra, Oregon State University, Corvallis, Oregon United States (Presenter: Durga Madhab Mahapatra) (Durga Madhab Mahapatra)
4:30PM	1800101	Nanocellulose extraction from corn stover using acid hydrolysis and following by homogenization Lin Wei, South Dakota State University, Brookings, South Dakota United States (Presenter: Lin Wei) (Lin Wei, Zeyad Albahr)
4:45PM	1801537	Sugar production of autoclave-pretreated oil palm empty fruit bunches by different acids Fitria Fitria, Washington State University, Richland, Washington United States (Presenter: Fitria) (Sita Heris Anita, Maulida Oktaviani, Widya Fatriasari)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 2:30PM-5:00PM

SESSION 137

SOLUTIONS TO AGRICULTURAL WATER SUSTAINABILITY AND SECURITY IN INDIA AND OTHER DEVELOPING COUNTRIES (AABFEIO) - INVITED SPEAKERS

– Sponsored by E-2050

Moderator: Vivek Sharma, University of Wyoming, Powell, WY

LOCATION: 140E

Efficient management of agricultural water resources is vital to agricultural productivity worldwide, especially in India, which is one of the most irrigated country in the world. This session will specifically focus on agricultural water sustainability and security issue in terms of water quantity and quality in India and other developing countries. Invited speakers will highlight the solution to agricultural water sustainability and security problems. **TARGET AUDIENCE:** AABFEIO and ASABE members with interest in learning major agricultural water management challenges in India and other developing countries.

Time Paper # Title/Author

2:30PM

Introduction

2:35PM

Water Resources on the Weakest Link to Achieve Food Security: An Agricultural and Biological Engineering Perspective

Dr. Indrajeet Chaubey, Associate Dean and Director of International Programs in Agriculture; Professor, Dept of Agricultural and Biological Engineering; Professor, Dept of Earth, Atmospheric and Planetary Sciences, Purdue University, West Lafayette, IN

3:05PM

Improving Water Management, Agricultural Production and Food Security in Drought-Prone Areas

Dr. Christopher Neale, Director of Research, Robert B Daugherty Water for Food Global Institute at the University of Nebraska, Lincoln, NE

3:35PM

BREAK

3:45PM

Role of Government Policies in Meeting Water Security Needs of India in 2050

Dr. Rameshwar Kanwar, Dept of Agricultural and Biological Systems Engineering, Iowa State University, Ames, IA

4:15PM

Safe and Responsible Use of Wastewater in Agriculture

Dr. Shiv O. Prasher, Distinguished James McGill Professor, Dept of Bioresource Engineering, McGill University, Quebec Canada

4:40PM

Panel Discussion and Questions

Monday, July 30 - 2:30PM-5:00PM

SESSION 138

APPROPRIATE-SCALE MECHANIZATION FOR GLOBAL FOOD SECURITY - INVITED SPEAKERS

– Sponsored by E-2050

Moderator: Ajit Srivastava, Michigan State University, East Lansing, MI

LOCATION: 140F

Time Paper # Title/Author

2:30PM

Introduction

2:35PM

1801837

Attributes of Appropriate-Scale Mechanization

Alan Hansen, University of Illinois, Urbana, Illinois United States (Presenter: Alan Hansen) (Alan Hansen)

2:50PM

Taking a Participatory Farming Systems Approach to Mechanizing Maize Production in Burkina Faso

Tim Harrigan, MSU, East Lansing, Michigan United States (Presenter: Tim Harrigan) (Tim Harrigan, Robert Burdick, Vinsoun Millogo, Michelle Kere, Burkina Faso)

3:05PM

1801841

A Low-cost Locally-made Maize Planter in Burkina Faso

Robert Burdick, Tillers International, Scotts, MI United States (Presenter: Robert Burdick) (Robert Burdick, Tim Harrigan, Vinsoun Millogo)

3:20PM

A Comparison of Direct Seeding and Conventional Seeding for Paddy in Cambodia

Ronald Averill, Michigan State University, East Lansing, Michigan United States (Presenter: Saruth et al.) (Chad Saruth, Lor Lytour, Hin Lyhour, Seng Savath, Yoeurng Suytroeurng)

3:35PM

1801840

Appropriate-scale Thresher for Small-holders in Africa

Kerry Clark, University of Missouri, Columbia, MO United States (Presenter: Kerry Clark) (Kerry Clark)

3:50PM

4:00PM

1801839

BREAK

A Solar-powered Bean Thresher for Zambia

Adam Lyman, Michigan State University, East Lansing, MI United States (Presenter: Ron Averill) (Adam Lyman, Ron Averill)

4:15PM

Appropriate-scale Post-harvest Storage System

Carlos Campabadal Teran, Kansas State University, Manhattan, KS United States (Presenter: Carlos Campabadal Teran) (Carlos Campabadal Teran)

4:30PM

1801842

A Solar-powered Two-Wheel Multi-Purpose Traction Platform

Ajit Srivastava, Michigan State University, East Lansing, Michigan United States (Presenter: Ajit Srivastava) (Ajit Srivastava, Richard Ledebuhr, Steve Marquie)

4:45PM

Oggun Tractor: An Affordable Open-sourced Design for Small-holder Farmers

Horace Clemmons, Cleber, LLC, Raleigh, NC United States (Presenter: Horace Clemmons) (Horace Clemmons)

5:00PM

1801904

Appropriate-Scale Mechanization in China

Minli Yang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Minli Yang) (Minli Yang)

5:15PM

Closing Comments

Alan Hansen

Monday, July 30 - 2:30PM-5:00PM

SESSION 139

BIOSENSORS AND BIOELECTRONICS - PART 1

– Sponsored by ITSC-230, ITSC-348, ITSC-353

Moderator: Daniel Jenkins, University of Hawaii, Honolulu, HI

LOCATION: 142A

Time Paper # Title/Author

2:30PM

Introduction

2:35PM

1800885

Nanodiagnosics for Rapid Microbial Detection

John Brockgreitens, University of Minnesota-Twin Cities, St Paul, Minnesota United States (Presenter: John Brockgreitens) (Minh-Phuong Ngoc Bui, John Brockgreitens, Abdennour Abbas)

2:50PM

1800027

Porous Silicon Optical Biosensors for Rapid Monitoring of Trace Heavy Metals in the Environment

Giorgi Shtenberg, Agricultural Research Organization, Bet-Dagan, Israel (Presenter: Nofar Pinker) (Nofar Pinker and Giorgi Shtenberg)

3:05PM

1801147

A portable impedance aptasensing system for rapid detection of Salmonella Typhimurium in poultry products

America Sotero, University of Arkansas, Fayetteville, Arkansas United States (Presenter: America Sotero) (Ronghui Wang, Wen Tao, Benhua Zhang, Yanbin Li)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

3:20PM	1801203	<p>Surface Imprinted Polydopamine based Magnetic Separation and Quantum Dots based Fluorescent Biosensor for Detection of Foodborne Pathogenic Bacteria Xinge Xi, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Xinge Xi) (Xinge Xi, Ronghui Wang, Zhong Chen, Yanbin Li)</p>
3:35PM		BREAK
3:45PM	1800779	<p>A Facile and Sensitive SERS-based Aptasensor for Colormetric Detection of Acetamidiprid in Green Tea based on Unmodified Gold Nanoparticles Quansheng Chen, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Quansheng Chen) (Quansheng Chen)</p>
4:00PM	1800524	<p>3D-printed pneumatic microfluidic mixer for colorimetric detection of Listeria monocytogenes Ping Yao, Shenyang Agricultural University, Shenyang, Liaoning China, People's Republic of (Presenter: Ping Yao) (Ping Yao, Nathan Harris, Ronghui Wang, Xinge Xi, Jingyi Wang, Yanbin Li, Steve Tung)</p>
4:15PM	1801066	<p>Fabrication of a highly sensitive smartphone-based on-site diagnostic kit for measuring drought stress in crops Kyeong-Hwan Lee, Chonnam National University, Gwangju, Korea, South (Presenter: Kyeong-Hwan Lee) (Young-Soo Choi, Min Kyu Im, Mi Rha Lee, Kyeong-Hwan Lee)</p>
4:30PM	1801035	<p>Modeling and Simulation of Chlorophyll Fluorescence Emission from Plant Leaves at Different Light Intensities Ya Guo, Jiangnan University, Wuxi, China (Presenter: Ya Guo) (Lijiang Fu, Shaopeng Feng, Yongnian Jiang, Jinglu Tan, Xunsheng Ji, Ya Guo)</p>

Monday, July 30 - 2:30PM-5:00PM
SESSION 140

COMPUTATIONAL FLUID DYNAMICS (CFD) APPLICATIONS IN AGRICULTURE - PART 2 – Sponsored by ITSC-217, ITSC-254, PAFS-40
Moderator: Christopher Choi, University of Wisconsin-Madison, Madison, WI
LOCATION: 250B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801633	<p>Evaluating hydrogen sulfide gas contamination of tunnel ventilated barn airspace during manure pit safety ventilation using CFD. Daniel Hofstetter, The Pennsylvania State University, University Park, PA United States (Presenter: Daniel Hofstetter) (Daniel Hofstetter, Harvey Manbeck, Dennis Murphy, Virendra Puri, Eileen Fabian)</p>
2:50PM	1800571	<p>Optimized placement of baffles based on convective heat removal from cattle Christopher Choi, University of Wisconsin-Madison, Madison, WI United States (Presenter: Christopher Choi) (Xiaoshuai, Wang, Christopher Choi, Guoqiang Zhang, Bo Zhou, Mario Mondaca)</p>
3:05PM	1800984	<p>Experimental Study of raw dairy manure rheology subjected in the anaerobic digester Niki Rezazadeh, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Binxin Wu) (N. Reza-zadeh, D.Gradov, X. Sun, B. Wu)</p>
3:20PM	1800673	<p>Modeling and Optimization of an Electrostatic Precipitator for Poultry PM Collection Reyna Knight, The Ohio State University, Columbus, Ohio United States (Presenter: Reyna Knight) (Reyna Knight, Lingying Zhao)</p>
3:35PM		BREAK

3:45PM	1800137	<p>Simulation analysis and test for flow field and deposition concentration of small size Unmanned plant protection helicopter Shi Qiang, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Shi Qiang) (Shi Qiang, Mao Hanping, Guan Xian ping)</p>
4:00PM	1801627	<p>Dimensionless scaling method for extending CFD simulation results for mechanically ventilated animal housing located above manure pits. Daniel Hofstetter, The Pennsylvania State University, University Park, PA United States (Presenter: Daniel Hofstetter) (Daniel Hofstetter, Virendra Puri, Harvey Manbeck, Dennis Murphy, Eileen Fabian)</p>
4:15PM	1800647	<p>CFD modeling of air flow distribution in customized withering trough for tea processing Ashutosh Chavan, Indian Institute of Technology Kharagpur, West Midnapore, West Bengal India (Presenter: Ashutosh Chavan) (Ashutosh Chavan, Ashis Kumar Datta)</p>

Monday, July 30 - 2:30PM-5:00PM
SESSION 141

IMAGING TECHNOLOGIES FOR HIGH THROUGHPUT PHENOTYPING - PART 2 – Sponsored by ITSC-312, ITSC-348, MS-48
Moderator: Changying Li, University of Georgia, Athens, GA
LOCATION: 250C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801318	<p>Phenocam color image calibration using higher order terms Sunoj Shajahan, North Dakota State University, Fargo, North Dakota United States (Presenter: Sunoj Shajahan) (C. Igathinathane, N. Saliendra, J. Hendrickson)</p>
2:50PM	1800763	<p>A review on sensor-based crop stress assessment Subhashree Navaneetha Srinivasagan, North Dakota State University, Fargo, North Dakota United States (Presenter: Subhashree Navaneetha Srinivasagan) (Subhashree Navaneetha Srinivasagan, Sunoj Shajahan, Igathinathane Cannayen, John Hendrickson, Jonathan Halvorson, David Archer)</p>
3:05PM	1800939	<p>Proximal and remote sensing methods to evaluate Ascochyta blight disease severity in chickpea Chongyuan Zhang, Washington State University, Pullman, WA United States (Presenter: Chongyuan Zhang) (Chongyuan Zhang, Haiou Guan, Lav Khot, Weidong Chen, Sindhuja Sankaran)</p>
3:20PM	1800489	<p>Hyperspectral imaging technology combined with genome-wide association study rapidly identifies more genes related to rice quality Dawei Sun, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Dawei Sun) (Dawei Sun, Haiyong Weng, Liang Wan, Alwaseela Abdalla Mohamed Hassan, Ahmed Islam El-Manawy, Yueming Zhu, Haowei Fu, Qingyao Shu, Fei Liu, Yong He, Haiyan Cen)</p>
3:35PM		BREAK
3:45PM	1801425	<p>Development of an algorithm for the periodic leaf movement analysis of soybean Tanzeel Rehman, Purdue University, West Lafayette, Indiana United States (Presenter: Tanzeel Rehman) (Tanzeel Rehman, Jian Jin, Dongdong Ma, Zhihang Song, Liangju Wang)</p>
4:00PM	1801504	<p>Aerial and ground robot high-throughput phenotyping for in-field cotton boll detection Liujun Li, University of Georgia, Athens, GA United States (Presenter: Shangpeng Sun) (Changying Li, Shangpeng Sun, Andrew Paterson)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

4:15PM 1800843 **Aerial Imagery for Yield Prediction of Experimental Wheat Plots**
Ali Moghimi, University of Minnesota, Minneapolis, MN United States (Presenter: Ali Moghimi) (Ali Moghimi, Ce Yang, James A. Anderson, Susan K. Reynolds)

Monday, July 30 - 2:30PM-5:00PM

SESSION 142 **MACHINE VISION APPLICATIONS IN AGRICULTURE AND FOOD - PART 2**

– Sponsored by ITSC-312
Moderator: Yan-Fu Kuo, National Taiwan University, Taipei, Taiwan

LOCATION: 251C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800313	Intelligent feeding decision method for fish in aquaculture Chao Zhou, China, People's Republic of (Presenter: Chao Zhou) (Chao Zhou, Xinting Yang, Chuanheng Sun, Kai Lin, Daming Xu, Lan Chen, Qiang Guo)
2:50PM	1800905	Development of a Machine Vision System for Skin Injury Screening of Dairy Cattle Amanda Boatswain Jacques, McGill University, Montreal, Quebec Canada (Presenter: Amanda Boatswain Jacques) (Amanda Boatswain Jacques, Ryan Knight, Viacheslav Adamchuk, Maxime Leduc, Elsa Vasseur)
3:05PM	1800091	The Potential Application of Sensor Fusion and Wavelength Selection on Prediction of Leaf Primordia of Potato Tubers Ahmed Rady, Alexandria University, Alexandria, Egypt (Presenter: Ahmed M Rady) (Dabel E. Guyer, William Kirk, Irwin R Donis-Gonzalez)
3:20PM	1801044	Development of an Application Program Interface (API) for detection of matured pineapple Virendra Tewari, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Virendra Tewari) (Virendra Tewari, Vivek Kumar)
3:35PM	1800739	Determination of shape features for apricot based on machine vision Xi Yang, Shihezi University, Shihezi, China, People's Republic of (Presenter: Xi Yang) (Xi Yang, Ruoyu Zhang, Kunlin Zou)
3:50PM		BREAK
4:00PM	1800211	Image Processing Technique for Sorting and Grading of Fresh Tomatoes Using Matlab Ozoemena Ani, University of Nigeria, Nsukka, Nsukka, Enugu Nigeria (Presenter: Ozoemena Ani) (Ozoemena Ani, Gideon Okoro, Anslem Oyiga)
4:15PM	1800151	A Model to Determine Injection Position in Grass Carp Based on Machine Vision Dongdong Li, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Dongdong Li) (Dongdong Li, Jianping Li, Songming Zhu)
4:30PM	1800148	Vision-based Grapevine Pierce's disease detection system using artificial intelligence Yiannis Ampatzidis, University of Florida, Immokalee, Florida United States (Presenter: Yiannis Ampatzidis) (Albert C. Cruz, Ashraf El-Kereamy, Yiannis Ampatzidis)
4:45PM	1801168	Corn kernel broken rate determination based on centroid-contour distance Yitian Wang, Zhejiang University, Hangzhou City, Zhejiang Province China, People's Republic of (Presenter: Yitian Wang) (Xiuqin Rao)

Monday, July 30 - 2:30PM-5:00PM

SESSION 143 **ROBOTICS AND CO-ROBOTICS FOR AGRICULTURE - PART 2**

– Sponsored by ITSC-318, ITSC-353, MS-48, MS-58

Moderator: Hasan Seyyedhasani, University of Kentucky, Lexington, KY

LOCATION: 252A

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801719	Greenhouse Robot with the Handheld Device Zhihang Song, Purdue University, West Lafayette, Indiana United States (Presenter: Zhihang Song) (Zhihang, Song)
2:50PM	1800697	Integration of a Plant Phenotyping Robotic Manipulator with LemnaTec High-Throughput Plant Phenotyping System Abbas Atefi, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Abbas Atefi) (Abbas Atefi, Yufeng Ge, Santosh Pittla)
3:05PM	1800983	Improvement and Automation of Red Raspberry Cane Taping Machine Based on Field Evaluation Results Kapil Khanal, Washington State University, Prosser, WA United States (Presenter: Kapil Khanal) (Santosh Bhusal, Manoj Karkee and Qin Zhang)
3:20PM		BREAK
3:30PM	1800570	Machine Vision Guided Robotics for Blue Crab Disassembly -- Deep Learning Based Crab Morphology Segmentation Yang Tao, University of Maryland, College Park, Maryland United States (Presenter: Maxwell Holmes) (Dongyi Wang, Maxwell Holmes, Robert Vinson, Gary Seibel, Yang Tao)
3:45PM	1801505	Automated Front Half Singulation Device Simeon Harbert, Georgia Tech Research Institute, Atlanta, GA United States (Presenter: Sean Thomas) (Sean Thomas, Simeon Harbert, Wayne Daley)
4:00PM	1801385	Co-Robotic Poultry Processing Cone-loading Simeon Harbert, Georgia Tech Research Institute, Atlanta, GA United States (Presenter: Simeon Harbert) (Simeon Harbert, Matthew Lemons, Bryan Vincent, Sean Thomas, Wayne Daley)

Monday, July 30 - 2:30PM-5:00PM

SESSION 144 **SPECTROSCOPIC SENSING AND IMAGING- PART 2**

– Sponsored by

ITSC-348
Moderator: Seung-Chul Yoon, USDA ARS, Athens, GA

LOCATION: 252B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800446	Miniaturized Handheld Near-Infrared Spectrometer for the Determination of Tomato Quality Zhiming Guo, Jiangsu University, Zhenjiang, Jiangsu province China, People's Republic of (Presenter: Zhiming Guo) (Zhiming Guo, Quansheng Chen, Xiaobo Zou, Qin Ouyang)
2:50PM	1801091	Monitoring high-absorption aqueous solution with multiple attenuated total reflection terahertz time-domain spectroscopy Yuxin Huang, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Yuxin Huang) (Wendao Xu, Jianyuan Qin, Lijuan Xie, Yibin Ying)

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MONDAY, JULY 30

3:05PM	1801204	<p>The Improved Nitrogen Prediction Model of Sugar-cane Leaf from Spectral Reflectance by Considering the Interaction Effect of NPK Xiuhua Li, Guangxi University, China, People's Republic of (Presenter: Ce Yang) (Ce Wang, Xiuhua Li, Lijia Wang, Xiao Chen, Ce Yang, Minzan Li, Shaodui Ma)</p>
3:20PM	1800712	<p>The Analysis of Deltamethrin Using Density Functional Theory and Its Determination in Strawberry by Surface Enhanced Raman Spectroscopy Tao Dong, Zhejaing University, China, People's Republic of (Presenter: Tao Dong) (Tao Dong, Pengcheng Nie, Yong He, Shupeixiao, Lei Lin)</p>
3:35PM		BREAK
3:45PM	1800379	<p>Fast quantification of nematode population in walnut using a hyperspectral scanner Tiebiao Zhao, University of California, Merced, Merced, CA United States (Presenter: Tiebiao Zhao) (Tiebiao Zhao, Alireza Pourreza, Andreas Westphal, YangQuan Chen)</p>
4:00PM	1801687	<p>Smartphone monitoring of plant water stress Soo Chung, University of Arizona, Tucson, Arizona United States (Presenter: Soo Chung) (Soo Chung, Lane Breshears, Austin Vedder, Jeong-Yeol Yoon)</p>
4:15PM	1800709	<p>Rapid Identification of Transgenic Maize Using Mid-Infrared Spectroscopy Xiaodan Liu, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Xiaodan Liu) (Xiaodan Liu, Xuping Feng, Fei Liu, Jiyu Peng, Yong He, Xiaoyan Wang)</p>
4:30PM	1800498	<p>Prediction of soil TN level based on near infrared absorption spectrum Minzan Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Minzan Li) (Junyi Zhang, Peng Zhou, Longsheng Chen, Hong Sun, Liwei Yang, Minzan Li)</p>

Monday, July 30 - 2:30PM-5:00PM
SESSION 145
MACHINERY DATA & TASK OPTIMIZATION - PART 1 – Sponsored by MS-49
 Moderator: Santosh Pitla, University of Nebraska-Lincoln, Lincoln, NE
LOCATION: 141

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801763	<p>Peanut Planting Optimization with Machinery Data Jason Ward, NC State, Raleigh, NC United States (Presenter: Jason Ward) (Jason Ward, Gary Roberson, Wes Porter)</p>
2:50PM	1801016	<p>CAN-Based Forage Yield Mapping Amelia Lindsay, Purdue University, West Lafayette, IN United States (Presenter: Dennis Buckmaster) (Amelia Lindsay, Yang Wang, Samuel Noel, Yaguang Zhang, James V. Krogmeier, Dennis Buckmaster)</p>
3:05PM	1801877	<p>EU technology for vehicle to vehicle safety Peter Van der Vlugt, AEF/Kvermland Group, Nieuw-Venep, NH Netherlands (Presenter: Peter Van der Vlugt) (Peter Schlingmann)</p>
3:20PM	1801182	<p>Using probabilistic risk assessment to quantify equipment reliability for short rotation woody crops Magen Shedden, Oak Ridge Associated Univ, Oak Ridge, Tennessee United States (Presenter: Magen Shedden) (Magen Shedden)</p>
3:35PM		BREAK
3:45PM	1800857	<p>In-Field Harvest Logistics Modeling for Single Combine/ Grain Cart Operations John Evans, University of Nebraska, Lincoln, Nebraska United States (Presenter: John Evans) (John Evans, Santosh Pitla, Joe Luck)</p>

4:00PM	1800821	<p>Development of working mode for an agricultural tractor during baler operation Wansoo Kim, Chungnam National University, Daejeon, Korea, South (Presenter: Wan-Soo Kim) (Yong-Joo Kim, Dae-Hyun Lee, Seung-Yun Baek, Sun-Ok Chung, Chang-Hyun Choi)</p>
4:15PM	1800037	<p>Impact of raking and baling patterns on alfalfa hay dry matter and quality losses Khalid Al-Gaadi, King Saud University, Riyadh, Saudi Arabia (Presenter: Khalid Al-Gaadi) (Khalid Al-Gaadi)</p>
4:30PM	1800501	<p>Turning structures and driving strategies of different fields Heinz Bernhardt, Technical University of Munich, Freising, Bavaria Germany (Presenter: Heinz Bernhardt) (Julian Bartenschlager, Matthias Stettmer, Michael Mederle)</p>

Monday, July 30 - 2:30PM-5:00PM
SESSION 146
PRECISION APPLICATION OF CHEMICALS AND FERTILIZERS
 – Sponsored by MS-54, MS-23/6, MS-60
 Moderator: Dan Martin, USDA ARS, College Station, TX
LOCATION: 142B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800136	<p>Analysis of Boom Cleanout Procedure John Lang, Pentair, New Brighton, MN United States (Presenter: John Lang) (John Lang)</p>
2:50PM	1801017	<p>Automation of reservoir based solid set canopy delivery system (SSCDS) for commercial scale spray applications in tree fruit crops Rakesh Ranjan, Washington State University, Pullman, WA United States (Presenter: Rakesh Ranjan) (Rakesh Ranjan, Guobin Shi, Rajeev Sinha, Gwen Alyn Hoheisel, Matthew Grieshop, Lav Khot)</p>
3:05PM	1800070	<p>Fertilizer Characteristics Yanjie Chen, Purdue University, West Lafayette, IN United States (Presenter: Yanjie Chen) (Yanjie Chen)</p>
3:20PM	1801468	<p>Optimal solid set canopy delivery system configured for high-density apple orchards in WA State Rajeev Sinha, Washington State University, Prosser, Washington United States (Presenter: Rajeev Sinha) (Rajeev Sinha, Lav Khot, Gwen Hoheisel, Matthew Grieshop)</p>
3:35PM		BREAK
3:45PM	1801471	<p>Performance of a scaled-up solid set canopy delivery system in a high-density apple orchard Rajeev Sinha, Washington State University, Prosser, Washington United States (Presenter: Rajeev Sinha) (Rajeev Sinha, Lav Khot, Rakesh Ranjan, Guobin Shi, Gwen Hoheisel, Matthew Grieshop)</p>
4:00PM	1801560	<p>Recognition and Quantification of Granular Fertilizer Particles within a Static Environment by Utilizing Image Processing Techniques Richard Colley III, The Ohio State University, Columbus, Ohio United States (Presenter: Yulong Lin) (Richard Colley III, John Fulton, Christopher Wiegman)</p>
4:15PM	1800852	<p>Techno-economic analysis of conventional pesticide sprayer retrofitted with intelligent control functions for nursery crop production Ashish Manandhar, The Ohio State University, Columbus, Ohio United States (Presenter: Ashish Manandhar) (Ashish Manandhar, Ajay Shah, Hepin Zhu, Erdal Ozkan)</p>
4:30PM	1801082	<p>The detection of Leaf Area Index using ultrasonic sensor technology for Precision Chemical Application Wei Deng, NERCITA in China, Beijing, China, People's Republic of (Presenter: Wei Deng) (Wei Deng)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 2:30PM-5:00PM

SESSION 148 CROP AND SOIL SENSING - PART 1

– Sponsored by MS-54, MS-45
Moderator: Lav Khot, Washington State University, Pullman, WA

LOCATION: 250A

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801593	A review of the state of the art in agricultural automation. Part IV: Sensor-based nitrogen management technologies Dio Antille, University of Southern Queensland, NCEA, Toowoomba, Queensland Australia (Presenter: Diogenes L. Antille) (Diogenes L. Antille, Craig R. Lobsey, Cheryl L. McCarthy, J. Alex Thomasson, Craig P. Baillie)
2:50PM	1801569	Assessing Forage Moisture System Accuracy for Round Alfalfa Bales Jacob Schwindt, Kansas State University Bio and Ag Engg, Manhattan, KS United States (Presenter: Jacob Schwindt) (Jacob Schwindt, Ajay Sharda, Doohong Min, Daniel Filippo)
3:05PM	1800878	Automatic system for long-term monitoring of soil N2O isotope flux at high temporal and spatial resolution. Jordi Francis Clar, UW Madison, Madison, Wisconsin United States (Presenter: Jordi Francis Clar) (Robert P. Anex)
3:20PM	1800873	Development of an On-Line Sensor System for Mapping Soil Properties at Planting Viacheslav Adamchuk, McGill University, Ste-Anne-de-Bellevue, QC Canada (Presenter: Viacheslav Adamchuk) (Viacheslav Adamchuk, Maxime Leclerc, Connor Miller, Marie-Christine Marmette, Frederic Rene-Laforest, Brett Bennett, Chuck Hempleman)
3:35PM		BREAK
3:45PM	1800926	Evaluating Soil Moisture Sensors: Comparing Types, Installation and Performance Kevin Heflin, Texas A&M AgriLife Research, Amarillo, Texas United States (Presenter: Gary Marek) (Thomas Marek, Gary Marek, Jerry Moorhead, Dana Porter, Qingwu Xue, Robert Schwartz, Yong Chen)
4:00PM	1800488	Field Testing of a Novel VNIR Penetrometer System for Vertical Soil Sensing Nuwan Wijewardane, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Nuwan Wijewardane) (Yufeng Ge, Cristine Morgan)
4:15PM	1801663	Field Evaluation of Commerical "on-the-go" Soil Sensors Paul Weckler, Oklahoma State University, Stillwater, OK United States (Presenter: Paul Weckler) (Paul Weckler, John Long, Brian Arnall, Brent Ballagh, Jordan Fischer, Changyuan Zhai, Matt Rogers, Robert Figger)

Monday, July 30 - 2:30PM-5:00PM

SESSION 149 ADVANCEMENTS IN CN AND RUNOFF HYDROLOGY - PART 1 –

Sponsored by NRES-21
Moderators: Ernest Tollner, University of Georgia, Athens, GA; Kritika Kothari, Texas A&M University, College Station, TX

LOCATION: 331A

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801655	A probabilistic CN modeling approach for soil moisture and runoff prediction under different climate, crop type, and irrigation scenarios Anthony Parolari, Marquette University, Milwaukee, Wisconsin United States (Presenter: Anthony Parolari) (Mark Bartlett)

2:50PM 1800174 **Assessing Peak Discharges using Modified NRCS-CN methods of Direct Outflow for two Low-gradient Coastal Forested Watersheds**

Devendra Amatya, USDA Forest Service, Cordesville, SC United States (Presenter: Devendra Amatya) (Andrzej Walega, Devendra Amatya, Timothy Callahan)

3:05PM 1800040 **Assessing Basin-scale Water Savings under Improved Irrigation Practices: A Case Study in Rincon Valley, New Mexico, USA**

Shalamu Abudu, Texas A&M AgriLife Research Center, El Paso, Texas United States (Presenter: Zhuping Sheng) (Shalamu Abudu, Sora Ahn, Zhuping Sheng)

3:20PM **BREAK**

3:30PM 1800085 **Assessment of the SCS-CN Method performance in a tropical Oxisol watershed in Southeast Brazil**

Carlos Mello, Federal University of Lavras, Lavras, Minas Gerais Brazil (Presenter: Carlos Mello) (Geovane Alves, Carlos Mello, Samuel Beskow, Lloyd Norton, Mark Nearing)

3:45PM 1801473 **Applicability Assessment of Simplified Infiltration Models for Urban Environment in Relative to the Richards Equation**

Xixi Wang, Old Dominion University, Norfolk, Virginia United States (Presenter: Xixi Wang) (Xiaomin Yang, Xixi Wang)

4:00PM 1800230 **Investigating Groundwater Flow and Aquifer Recharge in a Karstic Aquifer Considering the Potentiometric Surface-A Research Prospectus**

Bill Tollner, University of Georgia, Athens, GA United States (Presenter: Bill Tollner) (Bill Tollner, Coleman Barrie, Steven Brantley)

Monday, July 30 - 2:30PM-5:00PM

SESSION 150 ENVIRONMENTAL AND APPLIED TRACERS IN GROUNDWATER AND SURFACE WATER SYSTEMS

– Sponsored by NRES-21, NRES-224, NRES-23, NRES-25, NRES-252, NRES-253, NRES-28
Moderator: Troy Gilmore, University of Nebraska-Lincoln, Lincoln, NE

LOCATION: 331B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800460	An isotopic tracer method to quantify hydrologic budget of isolated freshwater wetlands in the Florida panhandle J M Grace, USDA Forest Service, SRS, Tallahassee, FL United States (Presenter: J M Grace) (Glynnis Bugna, Y Ping Hsieh, J M Grace)
2:50PM	1800820	Phosphate stable oxygen isotopes reveal event-based flow pathways for dissolved phosphorus transport in subsurface-drained landscapes William Ford, University of Kentucky, Lexington, KY United States (Presenter: William Ford) (William Ford, Mark Williams, Megan Young, Kevin King, Eric Fischer)
3:05PM	1801336	Effect of field sampling strategies on stable water isotope signatures Mark Williams, USDA-ARS, West Lafayette, Indiana United States (Presenter: Mark Williams) (Mark Williams, Jessica Lartey)
3:20PM	1800561	Utilizing 3H/3He age-dating tracers to model and evaluate influence of water resources management on groundwater quality, Dutch Flats, NE. Martin Wells, University of Nebraska - Lincoln, Lincoln, Nebraska United States (Presenter: Martin Wells) (Troy Gilmore, Natalie Nelson, Aaron Mittelstet, Dan Snow, Steve Sibray)
3:35PM		BREAK

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

- 3:45PM 1801419 Comparison of Pre-Restoration and Post-Restoration In-Stream Solute Transport and Treatment in a Restored Coastal Plain Stream**
Danielle Winter, North Carolina State University, Raleigh, North Carolina United States (Presenter: Danielle Winter) (Danielle Winter)
- 4:00PM 1801294 A magnetic and fluorescent particle tracer applied to a coastal sand system**
Anna Linhoss, Mississippi State University, MS State, Mississippi United States (Presenter: Anna Linhoss) (Anna Linhoss)
- 4:15PM 1801828 How does the source of baseflow impact nitrate concentrations in four small tributary catchments to the Wabash River, Indiana?**
Marty Frisbee, Purdue University, West Lafayette, Indiana United States (Presenter: Marty D. Frisbee) (Marty Frisbee)
- 4:30PM 1801829 Isotope tracers of pore water geochemistry variability across a backwater wetland- a case study from the Fourpole Creek Watershed, Huntington, WV**
Andrea Erhardt, University of Kentucky, Lexington, Kentucky United States (Presenter: Andrea M Erhardt) (Holly Young, William I. Ford, III)

- 4:15PM 1801739 Evaluation of WEPP Model Performance with Various Climate Inputs**
Dennis Flanagan, USDA - Agricultural Research Service, West Lafayette, Indiana United States (Presenter: Dennis Flanagan) (Dennis Flanagan, Anurag Srivastava, Jim Frankenberger)
- 4:30PM 1801523 The performance of some infiltration models on soil erosion prediction for soils of Imo State, Nigeria.**
Gregory Obiechefu, Imo State Polytechnic, Umuagwo, Nigeria (Presenter: Gregory Obiechefu) (Gregory Obiechefu, Precious Egbuikwem, Kodak Emerson)

Monday, July 30 - 2:30PM-5:00PM

SESSION 151

EROSION MECHANICS AND PREDICTION

– Sponsored by NRES-223, NRES-22

Moderators: Dennis Flanagan, Purdue University, West Lafayette, IN; Celso Castro-Bolinaga, North Carolina State University, Raleigh, NC

LOCATION: 331C

- | Time | Paper # | Title/Author |
|---------------|----------------|---|
| 2:30PM | | Introduction |
| 2:35PM | 1801619 | Evaluation of Solution Techniques for the Submerged Jet Testing
Theresa Thompson, Virginia Tech, Blacksburg, VA United States (Presenter: Theresa Thompson) (Antonio De Cecco, Theresa Thompson, Cami Charonko) |
| 2:50PM | 1801529 | Modelling Water Temperature Effects on Cohesive Soil Erosion
Akinrotimi Akinola, Virginia Tech, Blacksburg, Virginia United States (Presenter: Akinrotimi Akinola) (Akinrotimi Akinola, Theresa Wynn-Thompson, Celal Guney Olgun, Saied Mostaghimi) |
| 3:05PM | 1800876 | Comparison of different topographic methods for (ephemeral) gully erosion susceptibility mapping in the Gully Creek watershed in Ontario, Canada
Andrew Saiedy, University of Guelph, Guelph, Ontario Canada (Presenter: Andrew Saiedy) (Andrew Saiedy) |
| 3:20PM | 1801428 | Soil Erosion by Concentrated Flow in Agricultural Fields of Ontario, Canada
Swapan Roy, University of Guelph, Guelph, Ontario Canada (Presenter: Prasad Daggupati) (Swapan Roy, Prasad Daggupati, Kevin Mckague, Cliff Patterson, Ramesh Rudra) |
| 3:35PM | | BREAK |
| 3:45PM | 1801806 | Modeling of Sediment and Nutrient Loadings in the Ninth River Watershed
Saranya Jeyalakshmi, University of Windsor, Windsor, Ontario Canada (Presenter: Saranya Jeyalakshmi) (Saranya Jeyalakshmi, Vinod Chilkoti, Tirupati Boliseti, Ram Balachandar) |
| 4:00PM | 1800485 | Great Lakes Watershed Management System: Estimating field scale sediment and nutrient changes from BMPs
Jeremiah Asher, Institute of Water Research MSU, East Lansing, MI United States (Presenter: Jeremiah Asher) (Jeremiah Asher) |

Monday, July 30 - 2:30PM-5:00PM

SESSION 152

AGRICULTURAL DRAINAGE: PAST, PRESENT AND FUTURE - HONORING THE CAREER OF DR. NORM FAUSEY - INVITED SPEAKERS

– Sponsored by NRES-23
Moderators: Lindsay Pease, USDA ARS, Columbus, OH; Manal Askar, North Carolina State University, Raleigh, NC

LOCATION: 140G

This special session is in honor of ASABE Fellow Dr. Norman Fausey. Dr. Fausey retired from the USDA-Agricultural Research Service in 2016 after a 50+ year career in the area of agricultural drainage. Invited presenters will highlight the impact of Dr. Fausey's career on past, current, and future agricultural drainage issues. Following the invited presentations, we will open the floor for all to share a few words on how Dr. Fausey has influenced the field of agricultural drainage and the people within it.

- | Time | Paper # | Title/Author |
|---------------|---------|--|
| 2:30PM | | Introduction - Lindsay Pease |
| | | Invited Speakers |
| | | R Wayne Skaggs , North Carolina State University, Raleigh, NC United States |
| | | Ehsen Ghane , Michigan State University, East Lansing, Michigan United States |
| | | Mark Williams , USDA-ARS, West Lafayette, Indiana United States |
| | | Open Discussion |

Monday, July 30 - 2:30PM-5:00PM

SESSION 153

ADVANCES IN SURFACE IRRIGATION AND RICE PRODUCTION

– Sponsored by NRES -242
Moderators: Michele Reba, USDA ARS, State University, AR; Saleh Taghvaeian, Oklahoma State University, Stillwater, OK

LOCATION: 332

- | Time | Paper # | Title/Author |
|---------------|----------------|---|
| 2:30PM | | Introduction |
| 2:35PM | 1801388 | Application of Irrigation Water Management Practices for Furrow Irrigation
Chris Henry, University of Arkansas, Stuttgart, AR United States (Presenter: Chris Henry) (Chris Henry, L. Jason Krutz, Dustin Pickelmann) |
| 2:50PM | 1800472 | A simple theory and numerical simulation of jet impact force on the fixed water dispersion device of impact sprinkler
Zakaria Issaka, Res Cent for Fluid Mach Eng & Tech, JSU, Zhenjiang, Jiangsu, China, People's Republic of (Presenter: Zakaria Issaka) (Li Hong, Jang Yue, Tang Pan, Chao Chen) |

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

3:05PM	1801378	<p>Effects of Irrigation Drainage Tile and Seepage Irrigation on Soil Total Phosphorus Content in North-east Florida Hossein Ghoveisi, University of Florida, Gainesville, Florida United States (Presenter: Hossein Ghoveisi) (Hossein Ghoveisi, Mark W Clark)</p>
3:20PM		BREAK
3:30PM	1800727	<p>Effect of Deficit Irrigation on Drybean Soil Moisture Dynamics, Evapotranspiration, Yield and Water Use Efficiency under Sprinkler and Surface irrigation. Abhijit Rai, University of Wyoming, Laramie, Wyoming United States (Presenter: Abhijit Rai) (Abhijit Rai, Vivek Sharma)</p>
3:45PM	1800075	<p>Effects of Alternate Wetting and Drying Irrigation Regime and Nitrogen Fertilizer on Yield and Nitrogen Use Efficiency of Irrigated Rice in the Sahel Koffi Djaman, New Mexico State University, Las Cruces, New Mexico United States (Presenter: Koffi Djaman) (Koffi Djaman, Valere Mel, Lamine Diop, Abdoulaye Sow)</p>
4:00PM	1801596	<p>Field-scale water management in Mid-South rice production Michele Reba, USDA-ARS, Jonesboro, AR United States (Presenter: Michele Reba) (Michele Reba, Joseph Massey, Arlene Adviento-Borbe)</p>

Monday, July 30 - 2:30PM-5:00PM
SESSION 154
BENEFITS AND CHALLENGES OF MICROIRRIGATION – Sponsored by NRES-245, NRES-24, NRES-244
 Moderators: Freddie Lamm, Kansas State University, Manhattan, KS: Sami Mohamed, Jianguo University, Zhenjiang, China

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801646	<p>Benefits and Challenges for Nutrient Management with Subsurface Drip Irrigation (SDI) Freddie Lamm, KSU Northwest Research-Extension Center, Colby, Kansas United States (Presenter: Freddie Lamm) (Freddie Lamm)</p>
2:50PM	1800415	<p>Viability of Subsurface Drip Irrigation for Alfalfa Production in the Low Desert of California Ali Montazar, University of California, Holtville, California United States (Presenter: Ali Montazar) (Ali Montazar, Khaled Bali, Daniele Zaccaria, Dan Putnam)</p>
3:05PM	1800461	<p>A Solar-powered Drip Irrigation System for Sustainable Vegetable Production in the Midwest United States Steve Miller, Michigan State University, East Lansing, MI United States (Presenter: Steve Andrew Miller) (Steve Miller, Ajit Srivastava, Steve Marquie, Lyndon Kelley, Counteney Roberts)</p>
3:20PM	1800405	<p>Modelling water redistribution under mobile drip irrigation and low-pressure sprinklers and bubblers Tobias Oker, Kansas State University, Manhattan, Kansas United States (Presenter: Tobias Oker) (Tobias Oker, Isaya Kisekka)</p>
3:35PM		BREAK
3:45PM	1801114	<p>Three-dimensional spatial and temporal wetting patterns under drip irrigation using heated fiber optics Asim Biswas, University of Guelph, Guelph, Ontario Canada (Presenter: Asim Biswas) (Duminda Vidana Gamage, Asim Biswas, Ian Strachan)</p>
4:00PM	1801786	<p>Influence of water-nitrogen coupling on dry matter, yield and water use efficiency of flue-cured tobacco under mulch drip irrigation Tingting Chang, Hohai University, Nanjing, China, People's Republic of (Presenter: Tingting Chang) (Yang Xu, Shao Xiaohou, Chang Tingting, Yuan Youbo, Ding Fuzhang, Li Minhui, Zhang Yujie)</p>

4:15PM	1801787	<p>Effects of irrigation regime on soil water content and electrical conductivity in intensive cropping system of China Tingting Chang, Hohai University, Nanjing, China, People's Republic of (Presenter: Tingting Chang) (Yujie Zhang, Tingting Chang, Xiaohou Shao, Yongle Guan)</p>
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Monday, July 30 - 2:30PM-5:00PM
SESSION 155
VULNERABILITY ASSESSMENT OF LAND RESOURCES FOR SUSTAINABLE DEVELOPMENT - INVITED SPEAKERS – Sponsored by

NRES-26
 Moderator: Aavudai Anandhi, Florida A&M University, Tallahassee, FL

LOCATION: 334

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801862	<p>Vulnerability Assessment of Land Resources for Sustainable Development - Session Overview past, present and next steps Aavudai Anandhi, Florida A&M University, Tallahassee, Florida United States (Presenter: Aavudai Anandhi) (Aavudai Anandhi)</p>
2:50PM	1801863	<p>A Vulnerability Assessment Framework for Land Resources Kyle Douglas-Mankin, US Geological Survey, Albuquerque, NM United States (Presenter: Kyle Douglas-Mankin) (Kyle Douglas-Mankin)</p>
3:05PM	1801878	<p>Land-Use Changes and Ecosystem Functions Gang Chen, Florida A&M University, Tallahassee, Florida United States (Presenter: Gang Chen) (Gang Chen, Anandhi Aavudai)</p>
3:20PM		BREAK
3:30PM	1801864	<p>Winter Cover Crops to Sustain Soil in the Great Plains M B Kirkham, Kansas State University, Manhattan, KS United States (Presenter: M.B. Kirkham) (M.B. Kirkham, O.W. Freeman, K.L. Roozeboom, S.A. Staggenborg)</p>
3:45PM	1801865	<p>Vulnerability of Reactive Zones within Riverbank Aquifers Impacting the Accumulation of Trace Elements within Permeable Natural Reactive Barriers Saugata Datta, Kansas State University, Manhattan, KS United States (Presenter: Saugata Datta) (Saugata Datta, Aavudai Anandhi, Robert Finkelman)</p>
4:00PM	1801866	<p>Simultaneous Utilization of Multiple BMPs as a Means of Mitigating Uncertainty in Reduction of Agricultural Non-Point Source Pollution Nathaniel Bailey, Florida A&M University, Tallahassee, FL United States (Presenter: Nathaniel Bailey) (Nathaniel Bailey)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 2:30PM-5:00PM

SESSION 156

MANAGING MANURE AND AGRICULTURAL BYPRODUCTS FOR SUSTAINABILITY - PART 1

– Sponsored by NRES-27

Moderators: Linda Schott, University of Nebraska-Lincoln, Panora, IA; Bethany Brittenham, I&S Group Inc., Newall, IA

LOCATION: 335

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800249	Are recoverable manure nutrients worth the effort? A comparative analysis John Classen, North Carolina State University, BAE, Raleigh, NC United States (Presenter: John Classen) (Alison Deviney, Shannon Banner, Mark Rice, Praveen Kolar)
2:50PM	1801710	A plant growth test on manure fertility assisted by phosphorus solubilizing fungi Xin Zhang, University of Minnesota, St Paul, Minnesota United States (Presenter: Xin Zhang) (Xin Zhang, Aravindan Rajendran, Bo Hu)
3:05PM	1801303	Assessment of Probable Interfering Species Present in Swine Lagoons Effect on Copper Adsorption by Eggshell Biomass Brianna Hess, North Carolina State University, Raleigh, NC United States (Presenter: Praveen Kolar) (Brianna Hess, Praveen Kolar)
3:20PM	1800890	Adsorption of urea by swine manure hydrochar Zachary Lentz, North Carolina State University, Raleigh, NC United States (Presenter: Zachary Lentz) (Zachary Lentz)
3:35PM	1801341	Biochar use in animal mortality composting Neslihan Akdeniz, UIUC, Urbana, IL United States (Presenter: Neslihan Akdeniz) (Neslihan Akdeniz)
3:50PM		BREAK
4:00PM	1800154	Developing nutrient and greenhouse gas inventory from separated manure Horacio Aguirre-Villegas, University of Wisconsin-Madison, Madison, WI United States (Presenter: Horacio A. Aguirre-Villegas) (Horacio Aguirre-Villegas, Mahmoud Sharara, Rebecca Larson)
4:15PM	1800652	Effects of pyrolysis on bioavailability and environmental risk of heavy metals in biochar derived from pig manure Xiuli Shen, Shandong University of Technology, China, People's Republic of (Presenter: Xiuli Shen) (Xiuli Shen, Deli Zhang, Fang Wang, Weiming Yi)
4:30PM	1801615	Evaluation of Biological-Based Additive for Pollution Abatement Cuong Duong, University of Missouri, Columbia, Missouri United States (Presenter: Cuong Duong) (Cuong Duong)
4:45PM	1800335	Exergy-based assessment of sustainability of a solar-powered anaerobic digestion and hybrid constructed treatment wetland system to treat agricultural wastes in Costa Rica Ronald Aguilar, University of Costa Rica, San Pedro, San Jose Costa Rica (Presenter: Dawn Reinhold) (Ronald Aguilar)

Monday, July 30 - 2:30PM-5:00PM

SESSION 157

NUTRIENT REMOVAL, RECOVERY AND RECYCLE - PART 1 – Sponsored

by NRES-28

Moderators: Lordwyn Jeyakumar, Agriculture & Agri-Food Canada, Allabad, Uttar Pradesh, India; Tiffany Messer, University of Nebraska-Lincoln, Lincoln, NE

LOCATION: 336

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801793	Use of Bioinspired Materials to Develop Water Treatment Technologies Laurent Ahiablame, South Dakota State University, Brookings, South Dakota United States (Presenter: Laurent Ahiablame) (Laurent Ahiablame, Most-Farzana Yesmin, Srinivas Janaswamy)
2:50PM	1800209	Ammonium Ion Selective Electrode Response in Swine Urine Solutions Alison Deviney, North Carolina State University, Raleigh, NC United States (Presenter: John Classen) (Alison V. Deviney, John J. Classen, J. Mark Rice, Dean L. Hesterberg)
3:05PM	1800538	An insight into the observed discrepancies in the effect of biochar on removing nitrate in the denitrifying bioreactors Bahareh Hassanpour Guilvaiee, Cornell University, Ithaca, NY United States (Presenter: Bahareh Hassanpour Guilvaiee) (Bahareh Hassanpour Guilvaiee, Tammo Steenhuis, Larry Geohring)
3:20PM	1800874	Policy Landscape Analysis for Recycled Fertilizers: Implications for Emerging Markets and Water Quality Rebecca Muenich, Arizona State University, Tempe, AZ United States (Presenter: Rebecca Muenich) (Rebecca Muenich, Matthew Scholz, James Elser)
3:35PM	1800621	Nitrogen removal from surface and subsurface applied wastewater Clifford Fedler, Texas Tech University, Lubbock, TX United States (Presenter: Clifford Fedler) (Clifford Fedler, Richard Francis)
3:50PM		BREAK
4:00PM	1801546	Fast-growing can be taken as an alternative strategy to fast-settling by microorganism to survive extreme selection pressures in aerobic granulation reactors Yewei Sun, Virginia Tech, Fairfax, VA United States (Presenter: Yewei Sun) (Yewei Sun, Zhi-Wu Wang)
4:15PM	1801810	Performance of Denitrifying Wood Chip Bioreactors Treating Agricultural Tile Drainage Water Under Intermittent Conditions Lordwin Jeyakumar, Agriculture & Agri-Food Canada, India (Presenter: Lordwin Jeyakumar) (David McKenzie, Linda Jewell, Evan Derald)
4:30PM	1801171	Scaling up chemical phosphorus removal from liquid dairy manure Jactone Ogejo, Virginia Tech, Blacksburg, VA United States (Presenter: Jactone Ogejo) (Yihuai Hu, Sampath Karunarathne)
4:45PM	1800991	Sediment microbiome structure and nutrient removal during development of a constructed wetland Mahsa Izadmehr, University of Illinois at Chicago (UIC), Chicago, IL United States (Presenter: Mahsa Izadmehr) (Mahsa Izadmehr, Karl Rockne)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 2:30PM-5:00PM

SESSION 158

LOW IMPACT DEVELOPMENT AND ECOHYDROLOGY – Sponsored by

NRES-22, NRES-28

Moderators: Fouad Jaber, Texas A&M University, College Station, TX; Tian Guo, Heidelberg University, Tiffin, OH

LOCATION: 337

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800618	Comparison of Atmospheric Temperature and Surface Temperatures of Three Pavement Systems: A Case Study in a Summer Week Lu-Ming Chen, University of Illinois Urbana-Champaign, Urbana, 1304 W. Pennsylvania Avenue United States (Presenter: Lu-Ming Chen) (Lu-Ming Chen, Paul, Davidson)
2:50PM	1800617	Comparison of Hydrologic Performance of Three Pavement Systems Lu-Ming Chen, University of Illinois Urbana-Champaign, Urbana, 1304 W. Pennsylvania Avenue United States (Presenter: Paul Davidson) (Paul Davidson, Lu-Ming Chen)
3:05PM	1801773	Hydraulic analysis and pollutant leaching potential of two established bioretention cells amended with fly-ash Alex McLemore, United States (Presenter: Alex McLemore) (Jason Vogel, Glenn Brown)
3:20PM	1801792	Modeling Watershed-Scale impact of Low Impact Development on Water Table Depth and Baseflow Laurent Ahiablame, South Dakota State University, Brookings, South Dakota United States (Presenter: Esther Nelly Mosasee) (Laurent Ahiablame, Esther Mosasee, Seonggyu Park, Ryan Bailey)
3:35PM		BREAK
3:45PM	1801711	Higher soil organic matter in tree pit bioretention cells improves quality of runoff water. Marcelo Frosi, McGill University, Montreal, Quebec Canada (Presenter: Marcelo Frosi) (Maryam Kargar, Shiv O. Prasher, Pierre Jutras, O. Grant Clark)
4:00PM	1801562	Assessing the Effectiveness of Low Impact Developments on Climate Resiliency in the Neshanic River Watershed Subhasis Giri, Rutgers University, New Brunswick, New Jersey United States (Presenter: Subhasis Giri) (Subhasis Giri, Younggu Her, Richard Lathrop)
4:15PM	1800684	A Simple Procedure for Optimized Selection of Low Impact Development Practices and Area Treated at the Watershed Scale Based on User-Defined Criteria John McMaine, United States (Presenter: John McMaine) (John McMaine, Jason Vogel, Alex McLemore, Glenn Brown)
4:30PM	1801656	Engineering and control of green infrastructure water balance dynamics to optimize soil biogeochemical processing for nutrient retention and removal Anthony Parolari, Milwaukee, Wisconsin United States (Presenter: Anthony Parolari) (Laine Havens, Joseph Sizemore)

Monday, July 30 - 5:00PM-7:00PM

SESSION 159

NATURAL RESOURCES & ENVIRONMENTAL SYSTEMS

POSTER SESSION – Sponsored by NRES

Moderator: Carmen Agouridis, University of Kentucky, Lexington, KY

LOCATION: Atrium

Poster #	Paper #	Title/Author
1	1800041	Investigating Discharge Behaviour of a Sharp-Edged Circular Orifice Flow Under Low Head from Unsteady Experimental Procedure and Computational Fluid Dynamics Temitayo Ewemoje, University of Ibadan, Ibadan, Oyo Nigeria (Presenter: Temitayo Ewemoje) (Temitayo Ewemoje, Habeeb Alabi)
2	1800117	Experimental Study and Application Evaluation of Rigid Extruded Polystyrene Foam Board for Frost Heaving Prevention of Channel Lining Qunchang LIU, IWHR, Beijing, China, People's Republic of (Presenter: Qunchang LIU; Yuan SHI) (Ye Ji, Shaohui Zhang, Zhipeng Wang)
3	1800112	Impact of Temperature on the Rheology of Guar Gum as a Non-Newtonian Fluid at Different Concentrations Debasmita Misra, University of Alaska Fairbanks, Fairbanks, Alaska United States (Presenter: Debasmita Misra) (Fawad Naseer, Obadare Awoleke, Debasmita Misra, Majdi Abou Najm)
4	1801723	Instrumentation Performance for Air Entrained Flows Sherry Hunt, USDA-ARS HERU, Stillwater, OK United States (Presenter: Sherry L. Hunt) (Sherry Hunt, Kem Kadavy)
5	1801603	Enhancing Water Storage in the Drained Landscape of Everglades: Geophysical Drivers and Scale-up Angelica Engel, University of Florida, Gainesville, Florida United States (Presenter: Angelica Engel) (Angelica Engel, Sanjay Shukla)
6	1801584	Estimates of closed depressions inundation pattern using AnnAGNPS Pawan Upadhyay, Iowa State University, Ames, Iowa United States (Presenter: Pawan Upadhyay) (Pawan Upadhyay)
7	1801491	Recharge Potential During Wet and Dry Years of the Upper Floridan Aquifer in the lower Apalachicola-Chattahoochee-Flint River Basin, USA Ritesh Karki, Auburn University, Auburn, Alabama United States (Presenter: Ritesh Karki) (Ritesh Karki, Sandra Guzman, Puneet Srivastava)
8	1800455	Water Resources Early Warning Study of MODIS cloud-precipitation relationship over the Wuxijiang basin Dingwang Zhou, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Weijun Bao) (Dingwang Zhou, Jie Chen, Weijun Bao, Zonglou Guo)
9	1801512	Determination of curve number & estimation of runoff using experimental rainfall and runoff data Gurdeep Singh, The Climate Corp, St. Louis, Missouri United States (Presenter: Gurdeep Singh) (Gurdeep Singh, Mansoor Leh, Pushpendra Singh)
10	1801769	Energy Partition and Groundwater Recharge in a Desert-Oasis Transition Zone as Simulated Using RZ-SHAW Zhiming Qi, McGill University, Sainte-Anne-de-Bellevue, Quebec Canada (Presenter: Zhiming Qi) (Zhiming Qi)
11	1801094	Evaluation of METRIC for estimation of actual evapotranspiration from dryland agricultural systems in eastern Washington State Azeem Khan, Washington State University, Pullman, Washington United States (Presenter: Azeem Khan) (Azeem Khan, Claudio Stockle, Jennifer Adam, Troy Peters, Richard Allen, Ricardo Trezza, Brian Lamb)

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12	1800699	Trend Analysis of Reference Evapotranspiration; Case Study of Asaba and Uyo, South-South Nigeria Temitayo Ewemoje, University of Ibadan, Ibadan, Oyo Nigeria (Presenter: Temitayo Abayomi Ewemoje, Mary-jane Okwunna Umego) (Okwunna Maryjane Umego)	24	1800061	In-situ evaluation of three soil moisture sensors in sandy loam and clay loam soils Jay Jabro, USDA ARS, Sidney, Montana United States (Presenter: Jay. D. Jabro) (Jay Jabro)
13	1801568	Water movement in soil under the effect of agricultural cultivation Xiaole Kong, Texas A&M AgriLife Research Center, EL Paso, Texas United States (Presenter: Xiaole Kong) (Xiaole Kong, Shiqin Wang, Zhuping Sheng, Sora Ahn)	25	1800609	Impact of Erosion on Soil Physical Properties in Some Selected Sites Imo State, Nigeria Anthony Amori, Federal Polytechnic Ilaro, Ilaro, Ogun State Nigeria (Presenter: Anthony Amori) (Anthony Amori, Samuel Ihuoma, Uchenna Egbufor)
14	1801071	Changes of heat wave duration in the Mississippi River Basin Ameneh Tavakol, Kansas state university, Manhattan, KS United States (Presenter: Ameneh Tavakol) (Ameneh Tavakol, Vahid Rahmani)	26	1800197	Real-time Water Table Management for optimizing crop yield, conserving water and reducing nutrient losses from artificially drained cropland Seyedehsan Bagheri, North Carolina State University, Raleigh, North Carolina United States (Presenter: Ehsan Bagheri) (Seyedehsan Bagheri, Mohamed Youssef, Chad Poole, George Chescheir, Lamyaa Negm)
15	1801232	Impacts of climate change on streamflow's in two major river basins of Northern Lake Erie Basin in Ontario, Canada Prasad Daggupati, University of Guelph, Guelph, Ontario Canada (Presenter: Prasad Daggupati) (Binbin Zhang, Narayan Kumar Shrestha, Prasad Daggupati, Ramesh Rudra, Rituraj Shukla, Baljeet Kaur, Jun Hou)	27	1800859	Comparison of field management practice effect on soil macroporosity using dye tracer studies in combination visual imaging software Jason Smith, Michigan State University, East Lansing, Michigan United States (Presenter: Jason Smith) (Steve Safferman)
16	1800032	Climate Change and Vulnerability of Engineering Infrastructures: A Critical Review Boniface Ugwuishiwu, University of Nigeria, Nsukka, Nigeria., Enugu, Enugu Nigeria (Presenter: Boniface O. Ugwuishiwu) (Echiegu Emmanuel A)	28	1801360	Effect of tile drainage on streamflow and hydrological water balance in Northern Lake Erie Watershed, Ontario Fahimeh Jafarianlari, University of Guelph, Guelph, Ontario Canada (Presenter: Fahimeh Jafarianlari) (Fahimeh Jafarianlari, Nabil Allataief, Ramesh Rudra, Prasad Daggupati, Taranjot Brar, Anand Gupta)
17	1801296	Climate Data Bias Corrector: A tool for bias correction of GCMs/RCMs outputs Rishabh Gupta, University of Illinois Urbana-Champaign, Urbana, Illinois United States (Presenter: Rishabh Gupta) (Rishabh Gupta, Rabin Bhattarai, Ashok Mishra)	29	1801352	Simulating the Effect of Macropore Flow on Nutrient Transport in Midwestern Tile-drained Fields Equipped with Drainage Water Management Systems Saeid Nazari, University of Kentucky, Lexington, Kentucky United States (Presenter: Saeid Nazari) (Saeid Nazari, William Ford, Kevin King)
18	1801533	Determination and Modeling of Effect of Phosphorus Concentration on Algal Composition and Bioprocessing Potential Cassidy Laird, Clemson University, Clemson, SC United States (Presenter: Cassidy Laird) (Cassidy Laird, Caye Drapcho)	30	1800228	Development and application of a quantitative framework for food-energy-water nexus in the Pacific Northwest, USA Seyed Mohammad Hossein Tabatabaie, Oregon State University, Corvallis, Oregon United States (Presenter: Kyle W Proctor) (Kyle W Proctor, Ganti Murthy)
19	1800967	Impact of Climate Change on Maize Grown in the Brazilian Cerrado Marina Luciana Abreu de Melo, UFSJ, Sete Lagoas, MG Brazil (Presenter: Axel Garcia y Garcia) (Jennifer Alves Camilo, Camilo de Lelis Teixeira de Andrade, Tales Antonio Amaral, Christoph Hermann Passos Tigges, Marina Luciana Abreu de Melo, Chou Sin Chan, Axel Garcia y Garcia)	31	1800226	Improvements to the Process for Managing NRCS Conservation Practice Standards Alica Ketchem, Natural Resources Conservation Service, Richmond, Virginia United States (Presenter: Alica J. Ketchem) (Alica Ketchem, William Reck)
20	1801805	Impacts on Crop Productivity in the Nith River Watershed Due to Changing Climate Saranya Jeyalakshmi, University of Windsor, Windsor, Ontario Canada (Presenter: Saranya Jeyalakshmi) (Saranya Jeyalakshmi, Vinod Chilkoti, Tirupati Boliseti, Ram Balachandar)	32	1801246	Perennial grasses in multifunctional buffers to benefit water quality and farm profitability Steph Herbstritt, Penn State, University Park, PA United States (Presenter: Steph Herbstritt) (Steph Herbstritt)
21	1800996	Development of Web-based Surface Soil Information System at Watershed Scales Yunsoo Sung, Kangwon National University, Chuncheon, Kangwondo Korea, South (Presenter: Yunsoo Sung) (Yunsoo Sung, Yujin Choi, Seoro Lee, Kyoung Jae Lim, Jonggun Kim)	33	1801250	Evaluating Concentrated Flowpaths in Riparian Forest Buffer Contributing Areas using Lidar Imagery and Topographic Metrics Carlington Wallace, United States (Presenter: Carlington Wallace) (Carlington Wallace, Gregory McCarty, Peter Kleinman, Robert Brooks, Sangchul Lee, Tamie Veith, Ali Sadeghi)
22	1800232	Validation and assessment of SPoRT-LIS surface soil moisture estimates for water resources management applications at the basin scale Kelsey McDonough, Kansas State University, Manhattan, KS United States (Presenter: Kelsey McDonough) (Kelsey R. McDonough, Stacy L. Hutchinson, J.M. Shawn Hutchinson, Jonathan L. Case, Vahid Rahmani)	34	1800898	Impact of Riparian Buffer Design on Water Quality in the Jinghe Catchment, China Cong Liu, University of Connecticut, Storrs, CT United States (Presenter: Junya Wu) (Cong Liu, Junya Wu, John Clausen, Tingwu Lei and Xiusheng Yang)
23	1800953	Sensitivity of CSM-CERES-Maize model to soil available water and impact on rainfed maize grown in the Brazilian Cerrado Marina Luciana Abreu de Melo, UFSJ, Sete Lagoas, MG Brazil (Presenter: Axel Garcia y Garcia) (Marina Luciana Abreu de Melo, Camilo de Lelis Teixeira de Andrade, Joao Carlos Ferreira Borges Junior, Christoph Hermann Passos Tigges, Jennifer Alves Camilo, Axel Garcia y Garcia)	35	1801707	Modeling Soil Losses with a Continuous Ephemeral Gully Model Chinthaka Weerasekara, Kansas State University, Manhattan, KS United States (Presenter: Chinthaka Weerasekara) (Chinthaka Weerasekara)
			36	1800947	Development of a Process-Based Subsurface Bioreactor Model Chunhwa Jang, Univ. of Illinois at Urbana-Champaign, Urbana, Illinois United States (Presenter: Rabin Bhattarai) (C. Jang, S. Gautam, R. A. Cooke, R. Bhattarai)

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37	1800145	Implication of amending soils with wood-derive biochar on the farmland carbon sequestration Ahmed Ahmed, McGill University, Saint-Anne-De-Belle- vue, QC Canada (Presenter: Ahmed Ahmed) (Ahmed Ahmed, Jiby Kurian, Sri Sathyarayanan, Vijaya Raghavan)	49	1800932	Identifying watershed Critical Source Areas to control Non-Point Source Pollution Nabil Allataifeh, University of Guelph, Guelph, ON Canada (Presenter: Nabil Allataifeh) (Ramesh Rudra, Prasad Daggupati, Pradeep Goel)
38	1800131	Returning Degraded Soils to Productivity: Investi- gating Mechanisms of Increased Water and Nutrient Retention in Woodchip Amended Soils Erin Menzies Pluer, Cornell University, Ithaca, NY United States (Presenter: Erin Menzies Pluer) (Erin Menzies Pluer, Rebecca Schneider, Lori Leonard, Todd Walter)	50	1801535	Impacts of 4R Nitrogen Management on Crop Pro- duction and Nitrate-Nitrogen Loss In Tile Drainage Carl Pederson, Iowa State University, Ames, IA United States (Presenter: Carl Pederson) (Carl Pederson, Matt Helmers, John Sawyer)
39	1800668	Effect of Temperature on Bioremediating Hydrocar- bon Contaminated Soil Using Compost Mano Krishnapillai, Memorial University of Newfound- land, Corner Brook, Newfoundland Canada (Presenter: Mano Krishnapillai) (Mano Krishnapillai)	51	1801713	Estimation of phosphorus sorption isotherm param- eters for soils using Soil Phosphorus Storage Ca- pacity (SPSC) values Hossein Ghoveisi, University of Florida, Gainesville, Florida United States (Presenter: Hossein Ghoveisi) (Hossein Ghoveisi, Mark W Clark)
40	1800672	Hydrothermal carbonization of the digestate of anaerobic digestion for co-production of high-qual- ity of biochar and fertilizer compounds Bo Zhang, North Carolina A&T State University, Greensboro, NC United States (Presenter: Bo Zhang) (Lijun Wang, Gail Joseph, Sanjaya Ghimire, Abol- ghasem Shahbazi)	52	1801734	Recovery of Phosphorus from Corn Wet Milling In- dustry: A Techno-economic Evaluation Ankita Juneja, University of Illinois Urbana Champaign, Urbana, IL United States (Presenter: Ankita Juneja) (Ankita Juneja, Roland Cusick, Navneet Sharma, Vijay Singh)
41	1800146	Impact of wood-derived biochar on the water flow and pore-sizes distribution of agricultural soils Ahmed Ahmed, McGill University, Saint-Anne-De-Belle- vue, QC Canada (Presenter: Ahmed Ahmed) (Ahmed Ahmed, Vijaya Raghavan)	53	1801653	Sorption and Desorption of Phosphorus as Affected by Corn Stalk Residue in a Gleysol From Quebec, Canada Zhiming Qi, McGill University, Sainte-Anne-de-Bellevue, Quebec Canada (Presenter: Zhiming Qi) (Mariam Sorour, Zhiming Qi, Eman ElSayed, Joann Whalen, Shiv Prasher, Sarah Wu)
42	1800569	Determination of river pollutant loading capacity considering streamflow variations Ligia Serrano Pruski, Federal University of Vicoso, Vi- cosa, MG Brazil (Presenter: Ligia de Oliveira Serrano Pruski) (Alisson Carraro Borges)	54	1801372	System to evaluate movement of biological contam- inants in soil Matthew Miller, University of Illinois, Urbana-Cham- paign, Urbana, IL United States (Presenter: Matthew Miller) (Matthew Miller, Nora Onstad, Michelle Green, William Witola, Paul Davidson)
43	1801747	Estimation of standard flow according to duration and method of flow duration curve in Korea total water pollution load management Kyeung Kim, Seoul National University, Seoul, Korea, South (Presenter: Kyeung Kim) (Kyeung Kim, Moon- Seong Kang, Hyunji Lee, Sang Min Jun, Soon-Ho Hwang)	55	1800017	Relationship between Soil Moisture Content and Penetration Resistance on Vertisols Paul Oppong Kwabena, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Op- pong Paul Kwabena) (Hanping Mao, Li Lin, Guoxin Ma)
44	1801716	Improving HSPF-Based Dissolved Oxygen and Nu- trient Models: Moving Beyond Conventional Cali- bration and Model Performance Analysis at Calibration Sites Anurag Mishra, RESPEC, Mountain View, CA United States (Presenter: Anurag Mishra) (Anurag Mishra, Tony Donigian, Brian Bicknell, John Imhoff, Chuck Regan)	56	1801583	Multimodal algal-bacterial bioprocess (MAB) for Sustainable treatment of Municipal Wastewater with bioproducts recovery Durga Madhab Mahapatra, Oregon State University, Corvallis, Oregon United States (Presenter: Durga Mad- hab Mahapatra) (Durga Madhab Mahapatra)
45	1800392	Lake Okeechobee Phosphorus TMDL: Heuristic As- sessment of Restoration Strategies Yogesh Khare, Everglades Foundation, Palmetto Bay, FL United States (Presenter: Yogesh Khare) (Yogesh Khare, Melodie Naja, Andrew Stainback)	57	1801551	Theoretical understanding of an integrated system using psychrophilic anaerobic biofilms to optimize COD/N ratio for low energy nitrogen removal through nitrification-anammox processes in biogran- ules Yewei Sun, Virginia Tech, Fairfax, VA United States (Presenter: Yewei Sun) (Yewei Sun, Xiaojing Li, Zhi-Wu Wang, Zhen He)
46	1800995	CoBAGNPS: A Toolbox for simulating flow through Water and Sediment Control Basin, WASCoB Anand gupta, University of Guelph, Guelph, Ontario Canada (Presenter: Anand Krishna Gupta) (Anand Gupta, Ramesh Rudra, Bahram Gharabaghi, Prasad Daggupati, Pradeep Goel, Kevin McKague, Rituraj Shukla)	58	1801548	Theoretical understanding of the effectiveness of free ammonia inhibition of nitrite oxidizing bacteria in granular sludge Yewei Sun, Virginia Tech, Fairfax, VA United States (Presenter: Yewei Sun) (Yewei Sun, Timothy R. Kent, Zhi-Wu Wang)
47	1801051	A study on the enhanced denitrification by using biodegradable polymer as solid carbon source Zhiying Han, China, People's Republic of (Presenter: Zhiying Han) (Zhiying Han, Li'an Duan, Yunjie Ruan, Zhangying Ye, Songming Zhu)	59	1801785	Effects of the effective microorganisms (EM) on soil water characteristic curve of greenhouse saline soils Tingting Chang, Hohai University, Nanjing, China, Peo- ple's Republic of (Presenter: Tingting Chang) (Yujie Zhang, Tingting Chang, Yongle Guan, Huan Ye, Xiao- hou Shao)
48	1801037	BMP effect for reducing nutrient load in rice paddy with long-term historical climate data using APEX- Paddy model Taeil Jang, Chonbuk National University, Jeonju, Jeon- buk-do Korea, South (Presenter: Taeil Jang) (Hyunchul So, Donghyun Kim, Teail Jang)	60	1800565	Effects of Groundwater Chemistry on the Transport of Toxoplasma gondii in Saturated Sandy Porous Media Christian Pullano, Clemson University, Clemson, South Carolina United States (Presenter: Christophe Darnault) (Christian Pullano, Tim Muttu, Coralie L'Ollivier, Jitender Dubey, Aurelien Dumetre, Christophe Darnault)

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61	1800566	Influence of Surfactants and Organic Ligands on the Transport and Retention of Toxoplasma gondii Oocysts in Saturated Silica Sand Porous Media: Experimental Study and Mathematical Modeling Christian Pullano, Clemson University, Clemson, South Carolina United States (Presenter: Christophe Darnault) (Tim Mutty, Christian Pullano, Coralie L'Ollivier, Jitender Dubey, Aurelien Dumetre, Christophe Darnault)	73	1800957	Water productivity of maize for different technological levels and crop rotation schemes in the Brazilian Cerrado Marina Luciana Abreu de Melo, UFSJ, Sete Lagoas, MG Brazil (Presenter: Marina Luciana Abreu De Melo) (Christoph Hermann Passos Tigges, Camilo de Lelis Teixeira de Andrade, Alvaro Vilela de Resende, Marina luciana Abreu de Melo, Jennifer Alves Camilo, Emerson Borghi, Axel Garcia y Garcia)
62	1800520	Dairy industry by-products as culture medium for Arthrospira (Spirulina) platensis for phenolic compounds production Ilce Gabriela Medina Meza, Michigan State University, East Lansing, Michigan United States (Presenter: Lisaura Maldonado-Pereira) (Celic Herrera-Peralta, Lisaura Maldonado-Pereira, Denis Cantu-Lozano, Ilce G. Medina-Meza)	74	1801446	Measuring the Rice Fields Area in Lenjanak County to Determine the Required Irrigation Water, Using RS And GIS Techniques Farzaneh Khorsandi, University of California, Davis, Davis, CA United States (Presenter: Farzaneh Khorsandi) (Farhad Mokhtari, Farzaneh Khorsandi)
63	1800582	Analysis of geospatial and environmental factors on swine manure management Jiangong Li, uiuc, Urbana, IL United States (Presenter: Jiangong Li) (Jiangong Li, Kaiying Wang, Xinlei Wang)	75	1801587	Irrigation water & nitrogen productivity of wheat Araya Berhe, KSU, Garden City, KS United States (Presenter: Araya Berhe) (Araya Berhe)
64	1801775	Nutrient Leaching Under Manure Staging and Sludge-Drying Areas Rhonda Miller, Utah State University, Logan, UT United States (Presenter: Rhonda Miller) (Jennifer Long and Rhonda Miller, Ph.D.)	76	1801152	Analyses of Yield Response with Subsurface Drip Irrigation Strategies and Remote Sensing with UAVs Travis Ford, University of Maryland Eastern Shore, Princess Anne, Maryland United States (Presenter: Travis Ford) (Travis Ford)
65	1800022	Evaluation and minimization of climatic impact and energy consumption for pig manure-wheat straw aerobic composting Jinyi Ge, China Agricultural University, Beijing, N/A China, People's Republic of (Presenter: Jinyi Ge) (Jinyi Ge, Guangqun Huang, Hongjie Yin, Lujia Han)	77	1801752	Conservation Agriculture with Drip Irrigation: A Potential Agricultural Water Management System for sub-Saharan Africa Manoj Jha, North Carolina A&T State University, Greensboro, NC United States (Presenter: Manoj Jha) (Tewodros Assefa, Manoj Jha, Maneul Reyes)
66	1800598	Solid-state anaerobic digestion of dairy manure under mesophilic condition: Perspective of factors and responses Ademola Ajayi-Banji, North Dakota State University, Fargo, North Dakota United States (Presenter: Ademola Ajayi-Banji) (Ademola Ajayi-Banji, Shafiqur Rahman)	78	1800542	Irrigation-Limited Yield Gaps: Trends and Variability in the United States Post-1950 Meetpal Kukal, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Meetpal Kukal) (Dr. Suat Irmak)
67	1801159	Mathematical modeling of the effect of shear intensity on odor generation from dewatered anaerobically digested biosolids dian zhang, Virginia Tech, Manassas, Virginia United States (Presenter: Dian Zhang) (Dian Zhang, Zhi-Wu Wang)	79	1800836	The Effects of 55 Years of Continuous Wastewater Spray Irrigation on Morphometric and Hydrogeologic Properties within a Karstic Geologic Setting Christophe Darnault, Clemson University, United States (Presenter: Christophe Darnault) (Timothy Daniel, John Richendrfer, Henry Lin, Li Guo, Isaac Hopkins, Grace Billy, Zewen Jin, Christophe Darnault)
68	1800240	Enhancing volatile fatty acids accumulation via methanogenesis inhibition during anaerobic digestion of lignocellulosic biomass Yaojing Qiu, Washington State University, Pullman, Washington United States (Presenter: Yaojing Qiu) (Yaojing Qiu)	80	1801700	Versatile, Precise Drip Irrigation System for Agromonic Small-Plot Research Tamás Varga, University of Minnesota, Saint Paul, MN United States (Presenter: Tamás Varga) (Tamas Varga, Gary W. Feyereisen, Michael P. Russelle, Samadangla Ao, Jeffrey A. Coulter)
69	1801703	Biological Wastewater Treatment Strategies for Citrus Nursery Production in Recirculating Soilless Culture Ferisca Putri, University of California- Davis, Davis, Ca United States (Presenter: Ferisca Putri) (Dr. Tien-Chieh Hung, Ayan Bahjat)	81	1801267	Water Use Efficiency and Benchmarking of Irrigation System: A case study in Warangal District, India Hemendra Kumar, Auburn University, Auburn, Alabama United States (Presenter: Hemendra Kumar) (Hemendra Kumar)
70	1801046	Application of the DSSAT-CERES model to predict maize growth and yields in Central Uganda under different nutrient management practices Nicholas Kiggundu, Makerere Univeristy, Kampala, Uganda (Presenter: Nicholas Kiggundu) (Nicholas Kiggundu)	82	1800911	Automated irrigation management with hydrophilic polymers usage in tomato seedlings production Catariny Aleman, Federal University of Viçosa, Viçosa, Minas Gerais Brazil (Presenter: Catariny Aleman) (Catariny Aleman, Flavio Campos, Everardo Mantovani)
71	1800116	DSSAT Crop Model Based Multi-area Experimental Study and Model Database Establishment for Winter Wheat in North China Plain Yuan Shi, IWHR, Beijing, China, People's Republic of (Presenter: Yuan Shi) (Yuan Shi, Meijian Bai, Yinong Li, Yifan Li)	83	1801052	Is OPSIS a success way to irrigate sugarcane in Okinawa, Japan? M H J P Gunarathna, Kagoshima University, Kagoshima, Kagoshima Japan (Presenter: MHJP Gunarathna) (MHJP Gunarathna, Kazuhito Sakai, Tamotsu Nakandakari, Kazuro Momii, Tsuneo Onodera, Hiroyukik Kaneshiro, Hiroshi Uehara, Kousuke Wakasugi)
72	1801705	Scaled-Up Effervescence-Revised Fine Root Extraction Device (SUPER FRED) for Crop Phenotyping Tamás Varga, University of Minnesota, Saint Paul, MN United States (Presenter: Tamas Varga) (Tamas Varga, Samadangla Ao, Michael P. Russelle, Jeffrey A. Coulter, Anne E. Sawyer)	84	1800044	Effects of colors of plastic mulching on soil temperature and growth of rain-fed soybean Mohammad Abdul Kader, Kyoto University, Japan, Kyoto, Kyoto Japan (Presenter: Mohammad Abdul Kader) (Mohammad Abdul Kader, Kimihito Nakamura, Masateru Senge, Shigeto Kawashima)

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85	1800304	Engineering and Technology for Irrigating Africa: A review Baker Tajudeen, National Centre for Agric. Mechanization, Ilorin, Kwara Nigeria (Presenter: Baker Tajudeen) (Baker Tajudeen)	99	1801831	Impact of Climate Change on Critical Source Areas in a Chesapeake Bay Watershed Adel Shirmohammadi, University of Maryland, College Park, Maryland United States (Presenter: Adel Shirmohammadi) (Zhongrun Xiang, Hubert Montas, Adel Shirmohammadi, Paul Leisnham)
86	1800020	Evaluation of irrigation uniformity of impact sprinkler with a fixed water dispersion device under different spacing and layouts Zakaria Issaka, Res Cent for Fluid Mach Eng & Tech, Zhenjiang, Jiangsu, China, People's Republic of (Presenter: Zakaria Issaka) (Hong Li, Yue Jang, Pan Tang, Chen Chao)	100	1800051	LCA Modeling - Integrating crop and livestock in Northern Great Plains (NGP), USA. Prashansa Shrestha, South Dakota School of Mines & Technology, Rapid City, South Dakota United States (Presenter: Prashansa Shrestha) (Heidi L. Sieverding, James J. Stone)
87	1800427	Effect of solution concentration from a center pivot fertigation system on the growth and yield of summer maize in sub-humid climate Weixia Zhao, Beijing, China, People's Republic of (Presenter: Weixia Zhao) (Meng Zhang, Weixia Zhao, Jiusheng Li, Yanfeng Li, Zhen Wang)	101	1801309	Adsorption of Cyclospora cayetanensis to soil Nora Onstad, Univ. of Illinois at Urbana-Champaign, Urbana, IL United States (Presenter: Nora Onstad) (Nora H. Onstad, Michelle L. Green, William H. Witola, Paul C. Davidson)
88	1801317	On managing multiple natural resources through centralized governance structure Woi Sok Oh, University of Florida, Gainesville, Florida United States (Presenter: Woi Sok Oh) (Rachata Muneeppeerakul)	102	1801196	Well-Driver PUP Zackariah Horn, Purdue University, West Lafayette, Indiana United States (Presenter: Zackariah Horn) (Zackariah Horn, Robert Stwalley III)
89	1801422	Comparison of Pre-Restoration and Post-Restoration In-Stream Solute Transport and Treatment in a Restored Coastal Plain Stream Danielle Winter, North Carolina State University, Raleigh, North Carolina United States (Presenter: Danielle Winter) (Danielle Winter)	103	1801848	A Comprehensive Stress Index for Evaluating Plant Water Status in Almonds Kelley Drechsler, UC Davis, Davis, CA United States (Presenter: Kelley Drechsler) (Isaya Kisekka, Shrinivasa Upadhyaya)
90	1801435	Evaluating the effect of Zayandeh Rood river drying up on the underground water quality (Case study: Najafabad and Isfahan plain) Farzaneh Khorsandi, University of California, Davis, Davis, CA United States (Presenter: Farzaneh Khorsandi) (Zohreh Khorsandi, Farzaneh Khorsandi)	104	1801849	Economic feasibility of tail water recovery systems for furrow irrigated rice Vaishali Kandpal, University of Arkansas, Stuttgart, AR United States (Presenter: Vaishali Kandpal) (C.G. Henry)
91	1801165	Sulfur chemistry as an indicator of soil submergence history surrounding ephemeral wetlands J M Grace, USDA Forest Service, SRS, Tallahassee, FL United States (Presenter: J M Grace) (Y. Ping Hsieh, Glynnis Bugna, J M Grace)	105	1801867	Production of Amylolytic Enzymes by Anaerobic Digestion of Cassava Residue Sammy Aso, Rivers State University, Brookings, SD United States (Presenter: Sammy Aso) (Sammy Aso)
92	1801826	Sediment Fingerprinting to Identify Sources of Stream Bed Sediment in an Urbanized Watershed Kritka Malhotra, Auburn University, Auburn, Alabama United States (Presenter: Kritika Malhotra) (Jasmeet Lamba, Stephanie Shepherd)	106	1800242	Using anaerobic digestion to break down microalgae cell walls and enhance lipid extraction Yaojing Qiu, Washington State University, Pullman, Washington United States (Presenter: Yaojing Qiu) (Yaojing Qiu)
93	1801448	Hydrologic Analysis of a Bioretention Site at Michigan State University Emily Banach, Michigan State University, East Lansing, MI United States (Presenter: Emily Banach) (Emily Banach, Dawn Reinhold, Younsuk Dong, Steve Safferman)	107	1800965	Dynamic adjustment of center pivot nozzle height: an evaluation of center pivot water application pattern and the coefficient of uniformity Hadi AL-agele, Oregon State University, Corvallis, Oregon United States (Presenter: Hadi Al-agele) (Hadi Al-agele)
94	1801314	Hydrologic control with an enhanced media sand filter Reid Christianson, University of Illinois, Urbana, Illinois United States (Presenter: Reid Christianson) (Reid Christianson, Deb Caraco, Bryan Seipp)	108	1801850	Water Security Assessment of Current and Future Scenarios through an Integrated Modeling Framework in the Neshanic River Watershed Subhasis Giri, Rutgers University, New Brunswick, New Jersey United States (Presenter: Subhasis Giri) (Nazia N. Arbab, Richard G. Lathrop)
95	1801235	Optimizing Regenerative Stormwater Conveyance for Nutrient Removal Rachel Taylor, North Carolina State University, Raleigh, NC United States (Presenter: Rachel Taylor) (Rachel Taylor, Chadi Sayde)	109	1800641	A coupled natural-human model for water management in reservoir-river system Mehran Homayounfar, University of Florida, Gainesville, Florida United States (Presenter: Mehran Homayounfar) (Mehran Homayounfar, Rachata Muneeppeerakul)
96	1801280	Convenient and Inconvenient Truths about the Sustainability of Animal Production Daniel Andersen, Iowa State University, Ames, Iowa United States (Presenter: Daniel Andersen) (Daniel Andersen)	110	1800643	Navigating farming-BMP-policy interplay through a dynamical model Mehran Homayounfar, University of Florida, Gainesville, Florida United States (Presenter: Mehran Homayounfar) (Mehran Homayounfar, Rachata Muneeppeerakul & Christopher J. Martinez)
97	1801759	Nitrogen pretreatment and conditioning of wheat straw bale growth substrates for plant production. Sherry Blunk, UC Davis, Davis, CA United States (Presenter: Sherry Blunk) (Bryan Jenkins)	111	1800642	On modeling adaptive governance in social ecological systems Mehran Homayounfar, University of Florida, Gainesville, Florida United States (Presenter: Mehran Homayounfar) (Mehran Homayounfar, Rachata Muneeppeerakul)
98	1800693	An Agricultural Extension Demonstration Farm Template & Community Development Project Grace Baldwin, Purdue University, West Lafayette, Indiana United States (Presenter: Grace Baldwin) (Grace Baldwin, Robert M. Stwalley III)			

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 2:30PM-4:00PM

SESSION 160

AGRI-INDUSTRIAL FACILITY DESIGN AND OPERATION – Sponsored by PAFS-20, PAFS-07/1, PAFS-20/4, PRS-701, PRS-702, PRS-703
Moderator: Gregory Williams, Facility Engineering Services, Springdale, AR

LOCATION: 338

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801594	A novel large-scale poultry operation system: cage-free egg production facility, housing system characteristics and management practices Yu Wang, Iowa State University, Ames, Iowa United States (Presenter: Yu Wang) (Yu Wang, Hongwei Xin, Brett Ramirez, Lilong Chai)
2:50PM	1800977	An overview of the new OSHA and 2018 International Building and Fire Code Life Safety Provisions. Gregory Williams, Facility Engineering Services, Springdale, AR United States (Presenter: Gregory Williams) (Gregory Williams, Tom Gettings)
3:05PM	1801353	Applications of porous concrete in agricultural facilities Tristan Chauvin-Bosse, McGill, Macdonal Campus, Sainte-Anne-de-Bellevue, Quebec Canada (Presenter: Tristan Chauvin-Bosse) (Tristan Chauvin-Bosse)
3:20PM	1800362	Assessment of Environmental Control in Typological Installations of Coffee (Coffea) Production in Colombia Jairo Alexander Osorio Saraz, National University Of Colombia, Medellin, Antioquia Colombia (Presenter: Jairo Alexander Osorio Saraz) (Jairo Alexander Osorio Saraz, Robinson Osorio Hernandez, Ilda de Fatima Ferreira Tinoco, Lina Marcela Guerra, Carlos Julio Marquez Cardozo, Julio Cesar Arango Tobon)
3:35PM	1800689	Sustainability Indicators for Selected Greenhouse Production Facilities in North America Jaime Thissen, University of Illinois, Champaign, IL United States (Presenter: Jaime Thissen) (Jaime Thissen, Paul Davidson)

Monday, July 30 - 4:00PM-5:30PM

SESSION 161

DESIGN, ANALYSIS, TESTING AND ASSEMBLY OF STRUCTURES – Sponsored by PAFS-20, PAFS-20/4, PAFS-40
Moderator: Gregory Williams, Facility Engineering Services, Springdale, AR

LOCATION: 338

Time	Paper #	Title/Author
4:00PM		Introduction
4:05PM	1800222	Design and Experiment of Automatic Vaccine Injection System for Grass Carp Dongdong Li, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Dongdong Li) (Dongdong Li, Jianping Li)
4:20PM	1801780	Evaluating the Erosion Effects of Roof Rainfall Runoff on Poultry House Foundation Pads: Development of a Runoff Simulator, Soil Profilometer, and the Use of Ground Based LIDAR to Determine Ground Pad Scouring Jeremiah Davis, Auburn University, Auburn, AL United States (Presenter: Jeremiah Davis) (Geoffrey Lein, Jeremiah Davis, Wesley Donald, Mark Dougherty, Luke Marzen, Fraces O'Donnell)

4:35PM	1801396	Evaluation of a Rainwater Harvesting Model for Broiler Farms to Estimate On-farm Storage Needs Across the U.S. Carson Edge, Auburn University, Auburn, AL United States (Presenter: Carson Edge) (Carson Edge, Jeremiah Davis, William Batchelor, Eugene Simpson, Joseph Purswell)
4:50PM	1800030	Experimental investigation of conjugate heat transfer through post-frame building walls David Bohnhoff, University of Wisconsin-Madison, Madison, WI United States (Presenter: Andrew Holstein) (David Bohnhoff, Andrew Holstein, Shengzhi He)
5:05PM	1800034	Post Frame Building Design and Construction Options David Bohnhoff, University of Wisconsin-Madison, Madison, WI United States (Presenter: David R. Bohnhoff) (David Bohnhoff)

Monday, July 30 - 2:30PM-5:00PM

SESSION 162

ANIMAL RESPONSE TO ENVIRONMENT – Sponsored by PAFS-40
Moderator: Lingjuan Wang Li, North Carolina State University, Raleigh, NC

LOCATION: 354

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800173	Bio-energetic model of a dairy cow using TLM formulation Hugo Milan, Cornell University, Ithaca, New York United States (Presenter: Hugo Milan) (Hugo Milan, Kifle Gebremedhin)
2:50PM	1800019	Chronic Mild Cold Conditioning Improves Growth Performances and Feed Intakes in Young Chicks Ying Ma, China Agricultural University, Beijing, China, People's Republic of (Presenter: Ying Ma) (Ying Ma)
3:05PM	1801712	Effect of solar radiation on physiological responses of Holstein cows in tropical environment Patric Castro, UNESP, Jaboticabal, São Paulo Brazil (Presenter: Patric Castro) (Patric Castro, Alex Maia, Vinicius Fonseca, Gustavo Moura)
3:20PM	1800662	Influence of Stocking density on Growth, Digestive Enzyme Activities, Immune Responses, Antioxidant of Oreochromis niloticus Fingerlings in Biofloc Systems Gang Liu, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Gang Liu) (Gang Liu, Zhangying Ye, Dezhao Liu, Jian Zhao, Elayaraja Sivaramasamy, Yale Deng, Songming Zhu)
3:35PM	1800182	Evaluation of biochar as a beneficial litter amendment for broiler production John Linhoss, Mississippi State University Ag Bio Eng, Mississippi State, MS United States (Presenter: John Linhoss) (John Linhoss, Jason Street, Joseph Purswell)
3:50PM		BREAK
4:00PM	1801784	Monitoring Environmental Stress in New York State Dairy Barns Kristen Perano, Cornell University, Ithaca, NY United States (Presenter: Kristen Perano) (Kristen Perano, Hugo HM Milan, Jennifer Bockhahn, Kifle Gebremedhin, Curt Gooch)
4:15PM	1801170	Nitrogen excretion by laying hens fed with different energetic levels ration and in controlled environments (thermal stress) Luis Gustavo França, Federal University of Sergipe, Aracaju, Sergipe Brazil (Presenter: Richard Stephen Gates) (Luis Gustavo Figueiredo Franca, Richard Stephen Gates, Ilda de Fatima Ferreira Tinoco, Cecilia Ferreira Souza, Marcia Gabrielle Lima Candido)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

4:30PM	1801738	<p>Systematic Evaluation of Laying Hen Exposure to Atmospheric Ammonia - Multivariate Statistical Analysis Angela Green-Miller, University of Illinois, Urbana, IL United States (Presenter: Angela Green-Miller) (Christina Tucker, Angela Green-Miller, San Myint, Yvette Johnson-Walker)</p>
4:45PM	1800724	<p>The dose-effect relationships between green light and metabolism rate in chick embryos Zhentao Zhong, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Qiong Liu) (Qiong Liu, Zhentao Zhong, Yue Yu, Jinming Pan)</p>
5:00PM	1801365	<p>Thermal performance of perforated pen panels for on-farm nutritional test trials Jeremiah Davis, Auburn University, Auburn, AL United States (Presenter: Jeremiah Davis) (Kelly Goneke, Jeremiah Davis, Joseph Purswell, Daniel Chesser, Carson Edge)</p>

Monday, July 30 - 2:30PM-5:00PM

SESSION 163

MEASUREMENT AND MITIGATION OF AIR POLLUTANTS FROM LIVESTOCK AND POULTRY HOUSING – Sponsored by PAFS-50

Moderator: Lilong Chai, Iowa State University, Ames, IA

LOCATION: 356

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801617	<p>Additives to mitigate H2S release from gypsum-bedded dairy manure Long Chen, Penn State University, State College, PA United States (Presenter: Long Chen) (Long Chen, Eileen Fabian, Michael Hile)</p>
2:50PM	1800036	<p>Air emissions from Broilers Treated with Multiple Litter Amendment Applications Hong Li, University of Delaware, Newark, DE United States (Presenter: Hong Li) (Hong Li, Chen Zhang)</p>
3:05PM	1800966	<p>Comparison of Electrostatic Spray Charging Methods with Airborne Poultry PM Reyna Knight, The Ohio State University, Columbus, Ohio United States (Presenter: Reyna Knight) (Bo Zhang, Reyna Knight, Lingying Zhao)</p>
3:20PM	1801306	<p>Efficacy of a Trickling Wet Scrubber for Ammonia and Odor Removal Daniel Andersen, Iowa State University, Ames, Iowa United States (Presenter: Daniel Andersen) (Daniel Andersen, Steven Trabue, Yatong Zeng, Kenwood Scoggin)</p>
3:35PM		BREAK
3:45PM	1800268	<p>Efficacy of Nano Zinc Oxide on Enteric Gaseous Emission Reduction Niloy Chandra Sarker, North Dakota State University, Fargo, North Dakota United States (Presenter: Niloy Chandra Sarker) (Niloy Chandra Sarker, Faithe, Md Keomanivong Borhan, Shafiqur Rahman, Kendall Swanson)</p>
4:00PM	1800223	<p>Mitigating Particulate Matter Emissions of a Commercial Cage-free Aviary Hen House Lilong Chai, Iowa State University, Ames, IA United States (Presenter: Lilong Chai) (Lilong Chai, Hongwei Xin, Yu Wang, Jofran Oliveira, Kailao Wang, Yang Zhao)</p>
4:15PM	1801541	<p>Use of aluminum sulfate (alum) as a feedlot surface amendment to reduce ammonia emissions from beef feedlots Mindy Spiehs, USDA ARS USMARC, Clay Center, NE United States (Presenter: Mindy J Spiehs) (Bryan L. Woodbury)</p>

4:30PM	1801437	<p>Windbreak wall-vegetative strip system to reduce pollutant emissions from fan-ventilated swine and poultry barns Ali Ajmai, NC State University, Raleigh, NC United States (Presenter: Ali Ajami) (Sanjay B. Shah, Lingjuan Wang-Li, Praveen Kolar, Larry Stikeleather, Miguel Castillo, Marc Deshusses)</p>
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Monday, July 30 - 2:30PM-5:00PM

SESSION 164

DRYING, HANDLING AND STORAGE

- PART 2 – Sponsored by PRS-702

Moderator: Carol Jones, Oklahoma State University, Stillwater, OK

LOCATION: 353

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800698	<p>Effects of postharvest treatment on qualities of Camellia oleifera seed Zhu Guangfei, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zhu Guangfei) (Zhu Guangfei, Zhang Yue, Liu Yanhong, Xie Yongkang, Lin Yawen, Jiang Dalong, Xiao Honwei)</p>
2:50PM	1801413	<p>Effects of splits content on dry matter loss rates of soybeans measured using a static grain respiration measurement system Ana Beatriz Pereira da Silva, University of Illinois, Urbana, Illinois United States (Presenter: Ana Beatriz Pereira da Silva) (Thomas B. Scatolini, Mary-Grace C. Danao, Richard S. Gates, Kent D. Rausch)</p>
3:05PM	1800702	<p>Effects of various blanching methods on drying kinetics and qualities of gastrodia Zhu Guangfei, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zhu Guangfei) (Xie Yongkang, Lin Yawen, Zhu Guangfei, Li Xingyi, Jiang Dalong, Liu Yanhong, Gao Zhenjiang, Liu Dahui, Zheng Zhian)</p>
3:20PM	1800284	<p>Humulus lupulus: A Drying Review for Small-Scale Production James Roeber, University of Nebraska - Lincoln, Lincoln, NE United States (Presenter: James Roeber) (James Roeber, Santosh Pitla)</p>
3:35PM		BREAK
3:45PM	1800636	<p>Impact of fissures formed during rice drying on kernel breaking force Zeph Odek, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Zeph Odek) (Zephania Odek, Terry Siebenmorgen)</p>
4:00PM	1801635	<p>Investigation of Grain Aeration Potential in South Australian Farms Chandra B Singh, University of South Australia, Adelaide, South Australia Australia (Presenter: Chandra B Singh) (Chandra B Singh)</p>
4:15PM	1801274	<p>Phosphine Distribution During Grain Bin Fumigation Kaliramesh Silveru, Kansas State University, Manhattan, Kansas United States (Presenter: Mark Casada) (Kaliramesh Silveru, Mark Casada, Sherif Elsayed, Frank Arthur, Daniel Brabec, James Campbell, Ronaldo Maghirang, Dirk Maier, Samuel Cook, Taylor Conley, Carol Jones, Brian Adam)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 2:30PM-5:00PM

SESSION 165

FOOD PROCESS AND ENGINEERING - PART 2

– Sponsored by PRS-703, PRS-701
Moderator: Akinbode Adedeji, University of Kentucky, Lexington, KY

LOCATION: 355

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800201	Development of a High Pressure Processed Pineapple (Ananas comosus) Jam Rich in Fiber Content and Antioxidants Kaunsar Jabeen Shinwari, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Kaunsar Jabeen Shinwari) (Kaunsar Jabeen Shinwari, Pavuluri Srinivasa Rao)
2:50PM	1800011	Development of a Low Glycemic Indexed Food Tridib Kumar Goswami, AgFE Dept. IIT, Kharagpur, West Bengal India (Presenter: Tridib Kumar Goswami) (Tridib Kumar Goswami, Rohit V. Sai)
3:05PM	1801220	Effect of Extrusion Processing on System Parameters and Physico-chemical Properties of Extruded Rice Chandrakant Dalbhat, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Chandrakant Dalbhat) (Chandrakant Dalbhat, Hari Niwas Mishra)
3:20PM	1801083	Effect of solar drying on heat and mass transfer parameters of carrot slices Punyadarshini Punam Tripathy, IIT, Kharagpur, Kharagpur, West Bengal India (Presenter: Punyadarshini Punam Tripathy) (Punyadarshini Punam Tripathy, Archana Mahapatra)
3:35PM		BREAK
3:45PM	1801160	Effect of spray drying on the Maillard reaction and caramelization of Ontario maple syrup Manickavasagan Annamalai, University of Guelph, Guelph, Ontario Canada (Presenter: Manickavasagan Annamalai) (Manickavasagan Annamalai, Manickavasagan Annamalai, Jiawen Wang, Dedeepya Vuppu)
4:00PM	1800817	Enzyme inactivation in fruit-based beverages using thermal assisted high-pressure processing for quality improvement Pavuluri Srinivasa Rao, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Pavuluri Srinivasa Rao) (Pavuluri Srinivasa Rao, Anu S Raj, Kakshmi E Jayachandran, Pandraju Sreedevi, Neelima Kaushik)
4:15PM	1801438	Formulation of phytase microemulsion: effect of type and concentration of surfactant on the enzyme activity Shahin Roohinejad, University of Minnesota, Saint Paul, MN United States (Presenter: Shahin Roohinejad) (Shahin Roohinejad, Ralf Walz, Elke, Gräf, Volker Greiner, Karlis Briviba, Kumar Mallikarjunan)
4:30PM	1801517	Effects of different extrusion parameters on the antinutritional factors (ANFs) in soybean Jie Yang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Jie Yang) (Jie Yang)

Monday, July 30 - 2:30PM-5:00PM

SESSION 166

MICROWAVE AND RADIO FREQUENCY ENERGY FOR PROCESSING

– Sponsored by PRS-703, ITSC 348, PRS-703
Moderators: Satyanarayan Dev, Florida A&M University, Tallahassee, FL, Griffiths Atungulu, University of Arkansas, Fayetteville, AR

LOCATION: 357

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800653	Microwave assisted soaking of paddy: An effect study Brajesh Kumar Panda, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Brajesh Kumar Panda) (Brajesh Kumar Panda, Shanker Lal Shrivastava)
2:50PM	1800018	RF Electrical Seed Treatment to Improve Germination Stuart Nelson, U. S. Department of Agriculture, ARS, Athens, Georgia United States (Presenter: Kurt Lawrence) (Stuart Nelson)
3:05PM	1800595	Effect of Electric Field Strength on Drying Uniformity of Germinated Brown Rice in a Continuous Microwave Dryer Xianzhe Zheng, Northeast Agricultural University, Harbin, Heilongjiang China, People's Republic of (Presenter: Xianzhe Zheng) (Xianzhe Zheng)
3:20PM	1801009	Principles and guidelines for installation of 50-ohm RF heating system for disinfestation of insect pests in stored grains Roland Macana, University of Saskatchewan, Saskatoon City, Saskatchewan Canada (Presenter: Roland Macana) (Tolen T. Moirangthem, Oon-Doo Baik)
3:35PM	1801011	50-ohm RF technology based applicator design and fabrication for disinfestation of insect pests in stored grains Roland Macana, University of Saskatchewan, Saskatoon City, Saskatchewan Canada (Presenter: Roland Macana) (Tolen T. Moirangthem, Oon-Doo Baik)
3:50PM		BREAK
4:00PM	1801004	Shielding effectiveness of electromagnetic energy from 50-ohm radio frequency heating system for disinfestation of stored grains Roland Macana, University of Saskatchewan, Saskatoon City, Saskatchewan Canada (Presenter: Roland Macana) (Tolen T. Moirangthem, Oon-Doo Baik)
4:15PM	1801243	Microwave Osmotic Dehydration of Mango Cubes: Influence of solute mixtures Hosahalli Ramaswamy, McGill University, Montreal, Quebec Canada (Presenter: Hosahalli Ramaswamy) (Bhakti Shinde, Hosahalli Ramaswamy)
4:30PM	1801322	Plasma Arcing in Domestic Microwave Oven: Multi-physics Modeling Christian Bainchi, University of Padua, Padua, Italy (Presenter: Ashim Datta) (Christian Bianchi, Ashim Datta, Fabrizio Dughiero)
4:45PM	1801697	Effect of Pulsed Microwave treatment on storage as well as qualitative and quantitative aspects of anthocyanin biosynthesis in Blueberries Satyanarayan Dev, Florida A&M University, Tallahassee, FL United States (Presenter: Satyanarayan Dev) (Satyanarayan Dev)
5:00PM	1800701	Quality of powdered infant formula milk by radio frequency versus hot water treatments Zhu Guangfei, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zhu Guangfei) (Zhu Guangfei, Xie, Applicant 3: Liu Yongkang, Applicant 3: Yanhong, Zhu Guangfei, Gao Zhenjiang)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

MONDAY, JULY 30

Monday, July 30 - 2:30PM-5:00PM

SESSION 167

MODELING CROP AND FEED DRYING, HANDLING AND STORAGE

– Sponsored by PRS-702, ITSC-217
Moderator: John Lawrence, Kansas State University, Manhattan, KS

LOCATION: 358

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801577	Discrete Element Method Simulation of Wheat Bulk Density Determination Marvin Petingco, Kansas State University, Manhattan, KS United States (Presenter: Marvin Petingco) (Marvin Petingco, Mark Casada, Ronaldo Maghirang, Sidney Thompson, Samuel McNeill, Michael Montross, Aaron Turner)
2:50PM	1800929	Moving-Bed Dryer Control System Tuning via Model Implementation in MATLAB Christopher Lanning, Forest Concepts LLC, Auburn, Washington United States (Presenter: Christopher Lanning) (Christopher Lanning, James Slosson, Jordan Whitt)
3:05PM	1801493	Prediction of air temperature and relative humidity in a solar greenhouse dryer using neuro-fuzzy models Alejandro Guerrero Santana, Chapingo Autonomous University, Texcoco, Estado de Méxicio Mexico (Presenter: Alejandro Guerrero-Santana) (Irineo Lopez-Cruz, Agustin Ruiz-Garcia, Efren Fitz-Rodriguez, Raquel Salazar-Moreno)
3:20PM		BREAK
3:30PM	1800206	Single-parameter thin-layer drying equations for long-grain rice Bhagwati Prakash, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Bhagwati Prakash) (Bhagwati Prakash, Terry Siebenmorgen)
3:45PM	1801809	New Approach in Determination of Moisture Diffusivity for Rough Rice Components in Combined Far-Infrared Drying by Finite Element Method Dariush Zare, Shiraz University, Shiraz, Iran (Presenter: Dariush Zare) (Dariush Zare, Zare)
4:00PM	1800023	Dynamic mathematical modelling of a solar dryer José Francisco Marin, University of Chapingo, chapingo, state of Mexico Mexico (Presenter: Marin Camacho Jose Francisco) (Jose Francisco Marin)

3:05PM	1801572	Mechanical Properties of Tigernut (<i>Cyperus Esculentus</i>) as influenced by moisture content Mobolaji Omobowale, University of Ibadan, Oyo Nigeria (Presenter: Mobolaji Omobowale) (Mobalaji Omobowale, Paul Omale)
3:20PM	1800031	Physical Properties of Upper Midwest USA Grown Hybrid Hazelnuts David Bohnhoff, University of Wisconsin-Madison, Madison, WI United States (Presenter: Kenneth S F Lawson) (David Bohnhoff, Kenneth Lawson, Jason Fischbach)
3:35PM	1800500	Studies on Jamun (<i>Syzygium cumini</i> L.): Effect of Drying Air Velocity on the Functionalities of Microwave-Convective Hot Air Dried Pulp Powder and its Fortification with Seed Kernel Powder Indira Dey Paul, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Indira Dey Paul) (Indira De Paul, Madhusweta Das)
3:50PM		BREAK
4:00PM	1800599	Developing radio frequency-vacuum drying for kiwifruits Xu Zhou, Northwest A&F University, Yangling, Shaanxi China, People's Republic of (Presenter: Xu Zhou) (Rui Li, Lihui Zhang, Shaojin Wang)
4:15PM	1800143	Kinetic modelling of enzymes inactivation and anthocyanin degradation of grape pomace juice (<i>Vitis vinifera</i> L.) using catalytic infrared dry-blanching (CIRDB) technique. Frederick Sarpong, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Frederick Sarpong) (Frederick Sarpong)
4:30PM	1801760	Meta-analysis in agricultural research: a case study for the effect of grain particle size on performance of finishing swine Patrick Murphy, Iowa State University, Ames, Iowa United States (Presenter: Patrick Murphy) (Patrick Murphy)
4:45PM	1801808	Investigation of Fine Material Distribution in a Center Filled Silo and an Innovate Filling Method for Uniform Distribution of Fines Dariush Zare, Shiraz University, Shiraz, Iran (Presenter: Dariush Zare) (Dariush Zare, Zare)

Monday, July 30 - 2:30PM-5:00PM

SESSION 168

PHYSICAL PROPERTIES RELATED TO DRYING AND STORAGE

– Sponsored by PRS-702, PRS-701
Moderators: Ben Plumier, Kansas State University, Manhattan, KS; Griffiths Atungulu, University of Arkansas, Fayetteville, AR

LOCATION: 359

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800951	Effect of pretreatment on allicin degradation and color change in the dehydration of garlic Zusongying Zhao, Purdue University, West Lafayette, Indiana United States (Presenter: Zusongying Zhao) (Zusongying Zhao, Klein Illeleji, Diana Ramirez Gutierrez, Zhian Zheng)
2:50PM	1801668	Impacts of Pre-harvest Fungicide Application on Head Rice Yield and Functional Properties of Long Grain Rice in Storage Soraya Shafiekhani, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Soraya Shafiekhani) (Soraya Shafiekhani, Rebecca Bruce, Griffiths Atungulu)

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