

TUESDAY, JULY 18

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 201

FOREST BASED BIOMASS: HARVESTING, PROCESSING, TRANSPORT & STORAGE

– Sponsored by ASE-12, MS-23/7/2, ES-220
Moderator: Emily Carter, US Forest Service

Location: 102A/B

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701368	Novel Filtration Technology for Woody Biomass Combustion Systems Emmet Austin, McGill University MacDonald Campus, Beaconsfield, Quebec Canada (Emmet Austin)
9:50AM	1700018	Additives in biomass pellets for improvements in physical properties Cody Blake, Mississippi State University, Martin, TN United States (Cody Blake, Jason Street, James Wooten)
10:05AM	1700362	Soil response to machine trafficking as indicated by soil stress residuals Emily Carter, USDA FS, Auburn, AL United States (Emily Carter, Abigail Johnston, Joey Shaw, Via Brian, John Klepac)
10:20AM	1700569	A Preliminary Study of Pest Insect Detection during Paddy Storage in Small-Scale Grain Silos Chukiati Chotikasatian, Kasetsart University, Kamphaeng Saen, Nakorn Pathom Thailand (Chukiati Chotikasatian, Watcharapol Chayaprasert, Duangsamorn Suthisut, Siwalak Pathaveerat, Somnuek Chimruang)
10:35AM		BREAK
10:45AM	1701460	Customized Synthesis of Cellulose Nanoparticles from Loblolly Pine Pulp Angele Djioleu, University of Arkansas, Fayetteville, AR United States (Presenter: Kandhola Gurshagan) (Angele Djioleu, Kalavathy Rajan, Kandhola Gurshagan Danielle Julie Carrier Jin-Woo Kim)
11:00AM	1700191	Impacts of Forest Biomass Operations on Soil Erosion William Elliot, USDA Forest Service, Rocky Mountain Research Station, Moscow, ID United States (William Elliot, Hakjun Rhee, Ina Sue Miller)
11:15AM	1700087	Introduction to Rotary Shear Comminution for Bio-feedstocks Production David Lanning, Forest Concepts, Auburn, WA United States (David Lanning, James Dooley, Amie Vo)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 202

RENEWABLE ENERGY RESOURCES AND TECHNOLOGIES

- PART 1 – Sponsored by ES-210
Moderator: Xiao Wu, Univ of Idaho

Location: 102C/D

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701185	Biostimulation of rumen microorganisms by nanoparticles for increasing biogas production from manure anaerobic digestion Essam Abdelsalam, Giza, Egypt (Essam Abdelsalam, Mohamed Samer, Yasser A. Attia, Mohamed Abdel-Hadi, Helmy E. Hassan, Yahia Badr)
9:50AM	1701057	Hydrogen and methane production from swine manure and sugar beet wastewater by a two-step ASBR system Sarah (Xiao) Wu, University of Idaho, Moscow, Idaho United States (Sarah (Xiao) Wu, Shaobo Deng, Jun Zhu)

10:05AM	1700381	Anaerobic digestion of grass: effect of the harvesting period on biogas yield. Alessandro Chiumenti, University of Udine, Udine, Italy (Alessandro Chiumenti, Davide Boscaro, Francesco Da Borso, Luigi Sartori, Andrea Pezzuolo)
10:20AM	1700153	Influence of nitrogen fertilization rate and timing of harvest on giant reed (<i>Arundo donax</i> L.) biomass yield Robert Evans, North Carolina State University, Raleigh, NC United States (Robert Evans, Carl Crozier)
10:35AM		BREAK
10:45AM	1701481	Effect of Temperature and Climatic Conditions on Power Generation Capacity of Photovoltaic System Integrated to a Grain Dryer Aprajeeta Jha, Indian Institute of Technology-Kharagpur, Kharagpur, West Bengal India (Aprajeeta Jha, P.P. Tripathy)
11:00AM	1700060	Supercapacitor Electrodes Fabricated from Highly Activated Microporous Carbons Extracted from Commercial Fruit Wastes Kaushlendra Singh, West Virginia University, Morgantown, WV United States (Engin Ciftiyurek, Kaushlendra Singh, Edward Sabolsky, Litha Sivanandan)
11:15AM	1701440	Advanced Aqueous Biorefinery Platforms for Biofuels and Bioproducts bin yang, Washington State University, Richland, WA United States (Bin Yang)
11:30AM	1701039	Photobio stimulation of rumen microorganisms by laser radiation for increasing biogas production from slurry anaerobic digestion Essam Abdelsalam, Giza, Egypt (Essam Abdelsalam, Mohamed Samer, Mohamed A. Abdel-Hadi, Helmy E. Hassan, Yahia Badr)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 203

ENERGY EFFICIENCY AND USE IN AGRICULTURAL FACILITIES, PROCESSES AND OPERATIONS

– Sponsored by ES-300

Moderator: Scott Sanford, Univ of Wisconsin

Location: 201A

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700262	Energy management of automatic dairy farms with integration in regional grids Heinz Bernhardt, Technical University of Munich, Freising, Germany (Heinz Bernhardt, Anja Graeff, Sascha Woerz, Manfred Hoeld, Joern Stumpfenhausen, Martin Hoehendinger)
9:50AM	1701480	Energy Consumption Certification of Animal Housing: Results from the EPAnHaus Project Enrico Fabrizio, Politecnico di Torino - Department of Energy, Torino, Italy (Presenter: Andrea Costantino) (Enrico Fabrizio, Andrea Costantino, Lorenzo Comba, Paolo Cornale, Luca Battagliani)
10:05AM	1700150	Feasibility of optimisation of farm electrical energy based on tariffs, load management and embedded renewable energy Sven Peets, Harper Adams University, Newport, Shropshire United Kingdom (Sven Peets, Samuel Kirby-Bray, Stephen Pattenden, Jeremy Thorp, Joe Bentley, Mike Windsor)
10:20AM	1700417	Michigan Farm Energy Program Benjamin Van Zweden, Michigan State University, East Lansing, Michigan United States (Benjamin Van Zweden, Aluel Go, Truman Surbrook)
10:35AM		BREAK
10:45AM	1700109	New Essential oil distillation system – Design and construction- Year 1 Scott Sanford, University of Wisconsin, Oregon, Wisconsin United States (Scott Sanford)

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11:00AM	1700089	<p>Design of Energy Efficient Tunnel Ventilation and Evaporative Cooling Systems John Chastain, Clemson University, Clemson, SC United States (John Chastain, Patrick Anderson)</p>
11:15AM	1700116	<p>Calculation of Cost Savings for Energy Efficient Ventilation Fans John Chastain, Clemson University, Clemson, SC United States (John Chastain, Michael Vassalos, Patrick Anderson)</p>
11:30AM	1700636	<p>Design, Construction and Performance Evaluation of a Trombe Wall Poultry Brooding House Wilfred Ifeanyi Okonkwo, Nsukka, Enugu Nigeria (Wilfred Ifeanyi Okonkwo, Clement Akubuo)</p>

**Tuesday, July 18 – 9:30AM-12:00PM
SESSION 204**

SPECTROSCOPIC IMAGING –
Sponsored by ITSC-348
Moderator: Lav Khot, Washington State Univ

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700723	<p>Detection of Rape Canopy SPAD Based on Multi-spectral Images of Low Altitude Remote Sensing Simulation Platform Yang Chen, Zhejiang University, Hangzhou, China, People's Republic of (Yang Chen)</p>
9:50AM	1700780	<p>Phase profilometry combined with spacial frequency domain imaging for the nondestructive detection of bruise of pears Xueming He, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Xueming He, Xiaping Fu, Xiuqin Rao)</p>
10:05AM	1700350	<p>Exploring Spectral Responses of Different Cover Crops Potentially Beneficial to Farmers in Northeast Arkansas and the Delta Region Peter Larbi, Arkansas State University, College of Agriculture, Engineering, and Technology, State University, Arkansas United States (Peter Larbi, Chin Nee Vong, Steven Green)</p>
10:20AM	1700760	<p>LabVIEW base software for spatial frequency domain imaging system Tingwei Li, Zhejiang University, Hangzhou, China, People's Republic of (Tingwei Li)</p>
10:35AM		BREAK
10:45AM	1701259	<p>Comparison of Different Proximal Sensing Methods for prediction of Grain Yield and Leaf Area Index on Kharif Season Lowland Rice Niranjan Panigrahi, Indian Institute of Technology-Kharagpur, Kharagpur, West Bengal India (Niranjan Panigrahi, Bhabani Shankar Das)</p>
11:00AM	1700285	<p>Relating AGRI to NDVI and Chlorophyll Content in Different Crop Vegetation Chin Nee Vong, Arkansas State University, Jonesboro, Arkansas United States (Presenter: Shailaja Vemula) (Shailaja Vemula, Chin Nee Vong, Kumar Bade, Cyrus Marbaniang, Peter Larbi)</p>
11:15AM	1701129	<p>Hyperspectral reflectance imaging combined with carbohydrate metabolism analysis for detection of citrus Huanglongbing in different seasons Haiyong Weng, Zhejiang University, Hangzhou, China, People's Republic of (Haiyong Weng, Haiyan Cen, Mubin He, Yong He, Dawei Sun)</p>
11:30AM	1700537	<p>Quantification of nitrogen status in rice canopy by low-altitude hyperspectral remote sensing Wenxin Yin, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Wenxin Yin, Yong He, Haiyan Cen)</p>

**Tuesday, July 18 – 9:30AM-12:00PM
SESSION 205**

BIOSENSORS AND BIOELECTRONICS – Sponsored by ITSC-230
Moderator: Shih-Fang Chen, National Taiwan Univ
Location: 201C

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700368	<p>A Portable Impedance Immunosensing System for Rapid Detection of Salmonella Typhimurium Tao Wen, University of Arkansas, Fayetteville, Arkansas United States (Tao Wen, Ronghui Wang, Yanbin Li, America Sotero)</p>
9:50AM	1700592	<p>Modeling and Simulation of Chlorophyll Fluorescence Emission from Photosystem II as Affected by Temperature Ya Guo, Jiangnan University, Wuxi, China, People's Republic of (Qian Xia, Wang Mo Lob Sang, Siheng Chen, Jinglu Tan, Ya Guo)</p>
10:05AM	1701007	<p>A cell culture system for evaluating bacterial biosensors John March, Cornell University, Ithaca, NY United States (John March)</p>
10:20AM	1701190	<p>Immunoagglutinated particle rheology sensing on a microfluidic paper-based analytical device for pathogen detection Katie McCracken, University of Arizona, (Katie McCracken, Trinny Tat, Veronica Paz, Kelly A. Reynolds, Jeong-Yeol Yoon)</p>
10:35AM		BREAK
10:45AM	1701234	<p>Rapid and reliable norovirus assay at pg/mL level using smartphone-based fluorescence microscope and a microfluidic paper analytic device Jeong-Yeol Yoon, United States reliable University, Tucson, AZ United States (Presenter: Soo Chung) (Soo Chung, Soohee Cho, Kelly Reynolds, Jeong-Yeol Yoon)</p>
11:00AM	1701256	<p>Microelectrode array biosensors and methods for quantifying biomolecule flux. Jenna Rickus, Purdue University, West Lafayette, IN United States (Jenna Rickus, Jose Rivera-Miranda, Siddarth Vyaghrapurri Sridharan, James Nolan, David Janes, Stephen Miloro, Ashraf Alam, Xin Jin)</p>
11:15AM	1701430	<p>Clinical and Food-Safety Applications for Point-of-Care Gene-Based Diagnostics Daniel Jenkins, University of Hawaii, Honolulu, HI United States (Ryo Kubota, Kathie Berghorn, Lena Diaz, Daniel Jenkins)</p>

**Tuesday, July 18 – 9:30AM-12:00PM
SESSION 206**

INFORMATION TECHNOLOGY, SENSORS AND CONTROL SYSTEMS POSTER SESSION
– Sponsored by ITSC
Moderator: Changying Li, Univ of Georgia
Location: 111ABC

Poster#	Paper#	Title/Author
1	1700014	<p>Controller Design for an Osprey Drone to Support Precision Agriculture Research in Oil Palm Plantations Ramin Shamshiri, University of Putra Malaysia, Serdang, Malaysia (Ramin Shamshiri, Muhammad Razif Mahadi)</p>
2	1700022	<p>Development and analysis of an ISO 11783 virtual terminal for agricultural machinery Enkhbaatar Tumenjargal, Chonbuk National University, Jeonju-si, South Korea (Enkhbaatar Tumenjargal, Lee Juyeon, Woon Chul Ham, Chong Kil To, Roh Seung Kuk, Enkhbat Batbayar, Munkhtamir Ouymaa, Sodbileg Tsogt-Ochir)</p>

3	1700035	<p>Developing a Finite Element Model to Predict the Performance of the ROPS with Minor Structural Modification under the Standard Tests Farzaneh Khorsandi Kouhanestani, University of Tennessee, Knoxville, TN United States (Farzaneh Khorsandi Kouhanestani, Paul Ayers)</p>	16	1700453	<p>Classification of Chinese green tea grade using Laser induced break-down spectroscopy Qibing Zhu, Jiangnan University, Jiangsu, China, People's Republic of (Hongyang Zhang, Qibing Zhu, Min Huang, Ya Guo)</p>
4	1700042	<p>Determination and discrimination of intact white and red grape (<i>Vitis vinifera</i> L.) berries at five developmental stages based on a miniature fiber optic VIS/NIR system Leiqing Pan, Nanjing Agricultural University, Nanjing, Jiangsu China, People's Republic of (Leiqing Pan, Hui Xiao, Kang Tu)</p>	17	1700460	<p>Research on recognition of <i>Empoasca flavescens</i> based on machine vision Qibing Zhu, Jiangnan University, Wuxi, China, People's Republic of (Jing Chen, Qibing Zhu, Min Huang Ya Guo)</p>
5	1700055	<p>Monitoring System for Wheat Meteorological Disasters Using Wireless Sensor Networks Keming Du, Institute of Environment and Sustainable Development in Agriculture (IEDA), Chinese Academy of Agricultural Sciences (CAAS), Beijing, China, People's Republic of (Keming Du, Zhongfu Sun, Feixiang Zheng, Jinxiang Chu, Juncheng Ma)</p>	18	1700463	<p>Wireless Cluster Control System for Roll-machine Yu Wang, China Institute of Water Resources & Hydropower Res, Beijing, China, People's Republic of (Yu Wang, Xin Wang, Shumao Wang, Zhang Jiangjiang, Zhang Yuanyuan)</p>
6	1700056	<p>Design and implementation of monitoring system for agricultural environment based on WebGIS with Internet of Things Keming Du, Institute of Environment and Sustainable Development in Agriculture (IEDA), Chinese Academy of Agricultural Sciences (CAAS), Beijing, China, People's Republic of (Keming Du, Zhongfu Sun, Feixiang Zheng, Jinxiang Chu, Juncheng Ma)</p>	19	1700471	<p>Apple Picking Using Dual Robot Arms Operating Within an Unknown Tree Konrad Ahlin, Georgia Tech, Athens, GA United States (Konrad Ahlin)</p>
7	1700091	<p>A study on predicting slope failure through the measurement of surface ground deformations Yongseong KIM, Kangwon National University, Chuncheon, Gangwon-Do Korea, South (Yongseong Kim)</p>	20	1700476	<p>A smartphone based crop plant phenotyping device and test results Dongdong Ma, Purdue University, West Lafayette, IN United States (Dongdong Ma, Libo Zhang, Suraj Amatyia, Liangju Wang, Jialei Wang, Zhihang Song, Jian Jin)</p>
8	1700123	<p>A microfluidic fluorescent biosensor using quantum dots, magnetic nanoparticles and microfluidics for in-field detection of foodborne bacteria Jianhan Lin, China Agricultural University, Beijing, China, People's Republic of (Xinge Xi, Qi Chen, Jianhan Lin)</p>	21	1700549	<p>SmartFarm - Development of an Open-Source Decision Support System to Improve Crop Yield and Reduce Environmental Impact Caleb Fink, Cal Poly State University, San Luis Obispo, CA United States (Caleb Fink)</p>
9	1700251	<p>Optimal prediction model of cucumber photosynthesis based on neural network for growth Pingping Xin, North West Agriculture and Forestry University, Shaanxi Province, China China, People's Republic of (Pingping Xin, Jin Hu, Haihui Zhang, Juan Zhao, Lina Wang, Huiping Guo)</p>	22	1700562	<p>Multiatribute optimization of farm plans to improve economic, environmental and social conditions on the example of a farm in the Chesapeake Bay Veronika Vazhnik, Pennsylvania State University, University Park, PA United States (Veronika Vazhnik, Jason Hansen, Tom L. Richard)</p>
10	1700314	<p>Correcting air temperature measurements from a radiation-exposed sensor Doug Cobos, METER Group, Inc., Washington State University Department of Crop and Soil Sciences, Pullman, WA United States (Doug Cobos, Colin Campbell, Ryan Campbell, Gaylon Campbell)</p>	23	1700582	<p>Model updating for apple firmness prediction based on hyperspectral scattering images with semi-supervised study and auxiliary data Qibing Zhu, Jiangnan University, Jiangsu, China, People's Republic of (Dongsheng Guo, Qibing Zhu, Min Huang, Ya Guo)</p>
11	1700409	<p>Development of an Unmanned Aerial Vehicle Borne Crop-Growth Monitoring System Lili Yao, Nanjing Agricultural University, China, Jiangsu province China, People's Republic of (Jun Ni, Lili Yao, Jingchao Zhang, Yan Zhu, Weixing Cao, Xiuxiang Tai)</p>	24	1700612	<p>Design of Measuring Method and Instrument for Agricultural Soil Surface Roughness Zusongying Zhao, China Agricultural University, Beijing, China, People's Republic of (Presenter: Pengtao Li) (Zhi'an Zheng, Zusongying Zhao Ping Zhang, Zimei Zhang, Bo Lin, Jiao Zhang, Bo Lin, Jiao Wang, Pengtao Li)</p>
12	1700429	<p>Activity Analysis of the Captive Flocks Based on Machine Vision Fujie Wang, Zhejiang University, Hangzhou, China, People's Republic of (Fujie Wang, Chaoyang Wang, Xulin Liu, Huishan Lu)</p>	25	1700648	<p>Sorting System Development of Potato Blackheart Based on Light Transmission Imaging Yankun Peng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Fang Tian) (Fang Tian, Yankun Peng, Wensong Wei, Wenxiu Wang)</p>
13	1700444	<p>Development of the Control System of Seed and fertilizer variables in Ridge Corn Weiqliang Fu, , Beijing, China, People's Republic of (Presenter: Jianjun Dong) (Weiqliang Fu, Xueli Wei, You Li, Xiaofei An, Jianjun Dong, Junxiong Zhang)</p>	26	1700650	<p>Comparative study between hyperspectral imaging spectrometer and a discrete multispectral detection device for assessing meat tenderness Yankun Peng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Fang Tian) (Wensong Wei, Yankun Peng, Xiaochun Zheng, Wenxiu Wang, Fang Tian)</p>
14	1700450	<p>Hyperspectral image-based spare autoencoder network for TVB-N measurement in pork Min Huang, Jiangnan University, Wuxi, China, People's Republic of (Tengfei Guo, Min Huang, Qibing Zhu, Ya Guo)</p>	27	1700653	<p>Real-time detection of intact pork freshness based on near infrared spectroscopy Yankun Peng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongwei Sun) (Wenxiu Wang, Yankun Peng, Hongwei Sun, Long Li,)</p>
15	1700452	<p>Correction of overlapping spectra based on error compensation for laser induced breakdown spectroscopy Min Huang, Jiangnan University, Wuxi, China, People's Republic of (Bing Tan, Min Huang, Qibing Zhu, Ya Guo)</p>	28	1700746	<p>Database System Design and Analysis Model Study of Drug Resistance of Animal Origin Pathogens Yongjun Zheng, China Agricultural University, Beijing, China, People's Republic of (Yongjun Zheng, Yan Li, Xingxing Liu, Jianping Li, Baosheng Li)</p>
			29	1700754	<p>Hydroponic Nutrient Detection of Lettuce Based on ISEs Array Miao Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Jie Zheng) (Miao Zhang, Linpei Pan)</p>

30	1700768	Non-destructive quick detection model based on Vis-NIR spectra for TVB-N of chilled beef Xiuying Tang, China Agricultural University, Beijing, Beijing China, People's Republic of (Xiuying Tang, Muyu Suyang, Xiaotong Zhu, Yankin Peng, Yongyu Li)	44	1700906	Low-cost Fabrication of Fully Enclosed Microfluidic Paper-based Analytical Sensors for Diagnosing Drought Stress Kyeong-Hwan Lee, Chonnam National University, Gwangju, South Korea (Presenter: Min Kyu Im) (Min Kyu Im, Mi Rha Lee, Sumaiya Islam, Young-Soo Choi, Kyeong-Hwan Lee)
31	1700776	Modeling and Simulation of Photosynthetic Activities in Plants as Affected by CO₂ Ya Guo, University of Missouri, Columbia, MO United States (Sheng Wang, Shaopeng Feng, Yiyang Qi, Yichen Qiu, Ya Guo)	45	1700908	The Analysis of Transplant Characteristic using Hough Transform and Hierarchical Clustering in Paddy Field Kyeong-Hwan Lee, Chonnam National University, Gwangju, South Korea (Presenter: Sun Wook Baek) (Sun-Wook Baek, Inseop Na, Kyeong-Hwan Lee)
32	1700778	Monitoring the Effect of Thermotherapy on Plant Health Using Sap Flow and Ambient Temperature Information Arash Toudeshki, University of Florida, Lake Alfred, FL United States (Arash Toudeshki, Reza Ehsani, Kati W. Migliaccio, Azadeh Alizadeh)	46	1700909	Research on Differential Trench Depth Detection Based on Inertial Sensor Technology Miao Xu, China Agricultural University, Beijing, China, People's Republic of (Miao Xu, Xin Wang, Jingkai Zhang, Hao Zeng, Shumao Wang)
33	1700783	Monitoring and Controlling System of Maize Precision Sowing and Fertilization Based on Embedded Technology Yu Tan, China Agricultural University, Beijing, China (Presenter: Yongjun Zheng) (Yu Tan, Zijun Wang, Xingxing Liu, Gang Wu, Yongjun Zheng, Yan Li, Shixiong Li)	47	1700919	Design and Test of Automatic Feed and Send System for Combined Trays Seedlings Transplanter Yongjun Zheng, China Agricultural University, Beijing, China, People's Republic of (Xiao Zhang, Wu Gang, Zheng Yongjun, Tan Yu, Lyu Haotun, Wang Zijun)
34	1700785	B/S Network technology-based Biogas production monitoring system Yu Tan, China Agricultural University, Beijing, China (Presenter: Yongjun Zheng) (Yu Tan, Zhenyan Zhao, Haotun Lyu, Zhenyan Zhao, Yu Tan, Yongjun Zheng, Zhang Xiao, Jianjun Huang)	48	1700922	Research of Exploring the Hard Objects in the Superficial Farmland Soil Yunzhi Guo, South China Agricultural University, Beijing, China, People's Republic of (Yunzhi Guo, Zuoxi Zhao, Kun Song)
35	1700791	A Wireless Sensor Network for Strawberry Monitoring Thiago Borba Onofre, University of Florida, Gainesville, Florida United States (Thiago Borba Onofre, Clyde Fraise, Janise McNair, Natalia Peres, Lincoln Zotarelli Vinicius Cerbaro, Fred Williams)	49	1700933	Study on Water-efficient Sensing Method of Soil Profile in Paddy Field Zhenran Gao, Nanjing Agricultural University, Nanjing, Jiangsu Province China, People's Republic of (Zhenran Gao, Jun Ni, Hongzhou Qian, Jiang Qi, Qihan Meng, Xize Zhao, Yan Zhu, Weixing Cao)
36	1700799	A Device for elasticity detection of beef Xiuying Tang, China Agricultural University, Beijing, Beijing China, People's Republic of (Xilong Kang, Xiuying Tang, Lu Qiao, Huanru Shi, Yang Xu)	50	1700937	Models for estimating yield of japonica rice by combining UAV RGB image in Northeast China Yu Fenghua, (Xu Tongyu, Zheng Wei, Chen Chunling, Li Ang, Yu Fenghua)
37	1700800	Nondestructive detection of water content of ju-jubes based on visible-near infrared spectroscopy Xiuying Tang, China Agricultural University, Beijing, Beijing China, People's Republic of (Xiuying Tang, Xiaotong Zhu, Can Hu, Yankun Peng, Wei Wang)	51	1700938	Design and Implementation of Facilities Agriculture Environment Monitoring System based on Single-Chip Mengnan Li, China (Presenter: Jie Ma) (Mengnan Li, Jie Ma, Wenshen Jia, Hengzhi Zhang)
38	1700806	Development of a Multispectral Imaging System for NDVI Estimation Duke Bulanon, Northwest Nazarene University, Nampa, ID United States (Clayton Barrows, Duke Bulanon)	52	1700939	Application of Electronic Nose System Modes Based on Genetic Algorithm and Particle Swarm Algorithm Mengnan Li, China (Presenter: Jie Ma) (Mengnan Li, Nanjing Wu, Jie Ma, Wenshen Jia)
39	1700809	Dynamic High-Precision Field Shape Generation via Combine GPS Tracks Yaguang Zhang, Purdue University, West Lafayette, IN United States (Yaguang Zhang, Andrew Balmos, James Krogmeier, Dennis Buckmaster)	53	1700952	Monitoring and Controlling System of Working Condition about Wheat Precision Sowing and Fertilization Yongjun Zheng, China Agricultural University, Beijing, China, People's Republic of (Yongjun Zheng, Anzhao Shi)
40	1700882	A new activation function for convolutional neural networks Min Huang, Jiangnan University, Wuxi, China, People's Republic of (Sheng Jiang, Min Huang, Qibing Zhu, Ya Guo)	54	1700955	Improving the Performance and Reliability of a Multi-Chamber Crop Sample Drying Room with a Microprocessor Control System Trevor Stevenson, Iowa State University, Ames, IA United States (Trevor Stevenson, Dirk Maier, Steven Hoff)
41	1700888	Nondestructive assessment of eggshell thickness by VIS/NIR spectroscopy Xiaoguang Dong, China Agricultural University, Beijing, China, People's Republic of (Xiaoguang Dong) (Xiaoguang Dong, Xiuying Tang, Yankun Peng, Jun Dong)	55	1700998	Development of Agricultural Mechanization Mobile Applications and Analysis of Farmers' Requirement Huang Huang, Huazhong Agricultural University, Wuhan, China, People's Republic of (Huang Huang, Lina Zhang, Chun Ye, Xuejian Han, Yang Zhou)
42	1700891	Detection and Control of Intelligent Maize Planter Yu Tan, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yongjun Zheng) (Haotun Lyu, Baosheng Li, Yu Tan, Zhenyan Zhao, Yongjun Zheng, Jianjun Huang)	56	1701022	An Open-Source Infrastructure for Real-Time Automatic Machine Data Processing Yang Wang, Purdue University, West Lafayette, Indiana United States (Presenter: Sam Noel) (Yang Wang, Andrew Balmos, Alexander Layton, Sam Noel, Aaron Ault, James Krogmeier, Dennis Buckmaster)
43	1700900	Color Based Image Segmentation to Predict Rice Yield using Low Altitude UAV Images Kyeong-Hwan Lee, Chonnam National University, Gwangju, South Korea (Md Nasim Reza, Inseop Na, Sun-Wook Baek, Kyeong-Hwan Lee)	57	1701069	Solar Induced Fluorescence: A More Affordable and More Accurate Proxy for Plant Stress Anton Schuster, Oregon State University, Corvallis, Oregon United States (Anton Schuster) (Anton Schuster)

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58	1701286	Develop a low-cost remote monitoring and control system for poultry barn Jianfeng Zhou, University of Missouri, Columbia, MO United States (Jianfeng Zhou, Alexander K. Beattie, Jing Zhou, Leon Schumacher)
59	1701315	The Trials Tracker App – scalable, mobile geospatial data analysis of on-farm trials using a geohash-based data structure, OADA APIs, cloud storage, and microservices Samuel Noel, Purdue University, West Lafayette, IN United States (Samuel Noel, Andrew Balmos, Alexander Layton, Yang Wang, Aason Ault, Dennis Buckmaster, James Krogmeier)
60	1701387	Using Interception of Photosynthetically Active Radiation to Assess Dormant Pruning Severity in a Planar Sweet Cherry Orchard Jingjin Zhang, Shanghai Jiao Tong University, Shanghai, China, People's Republic of (Jingjin Zhang, Matthew Whiting, Qin Zhang)
61	1701394	Design and Performance Evaluation of a Linear Motion System for Remote Sensing Instrument Testing Michael Sama, University of Kentucky, Lexington, KY United States (Presenter: Saket Dasika) (Saket Dasika, Michael Sama, Felipe Pampolini, Christopher Good, Joseph Dvorak)
62	1701405	Semi-Automated Thermotherapy for Citrus Trees with HLB Disease Emmanuel Garcia, University of Central Florida, Orlando, Florida United States (Emmanuel Garcia, Andong Dai, Yunjun Xu, Reza Ehsani)
63	1701419	Development of a low-cost sensor-based automation system for subsurface drip irrigation A Mn'irzakhani Nafchi (Jose Payero, A. Mirzakhani Nafchi, Rebecca Davis)
64	1701441	Web-enabled sensor for autonomously reporting trap catches of Coconut Rhinoceros Beetle on Oahu Daniel Jenkins, University of Hawaii, Honolulu, HI United States (Mitchel McLean, John Allen, Hans Ramm, Daniel Jenkins)
65	1701588	Quantification of sorghum sugarcane aphids at leaf level using machine vision in visible band Yeyin Shi, University of Nebraska - Lincoln, Lincoln, NE United States (Xiaoling Deng, Yeyin Shi, Alex Thomason, Mike Brewer, Weiyue Xu, Ace Pugh, William Rooney)

10:35AM	1701621	Effect of Ginning Treatments on Length Uniformity and Short Fiber Content Brandee Haney, USDA ARS, Leland, MS United States (Brandee Haney)
10:50AM		BREAK
11:00AM	1700685	Impact of Variety on Cotton Yield Monitor Calibration Earl Vories, USDA ARS, Portageville, MO United States (Earl Vories, Andrea Jones, Ken Sudduth)
11:15AM	1700864	Evaluation of Field Cleaner Designs for Use on Cotton Stripper Harvesters John Wanjura, USDA ARS, Lubbock, TX United States (John Wanjura, John Rumohr, Kevin Goering, Jeff Wigdahl, Greg Holt, Mathew Pelletier)
11:30AM	1700121	Field Based Plastic Contamination Sensing Mathew Pelletier, USDA ARS, Lubbock, TX United States (Mathew Pelletier)
11:45AM	1701393	Development of Different Image Segmentation Methods to Recognize Cotton Bolls in Natural Conditions Naseeb Singh, Indian Institute of Technology-Kharagpur, Kharagpur, West Bengal India (Naseeb Singh, V K Tewari, P K Biswas, C M Pareek)
12:00PM	1701307	Design of Seeding System for Rice Seed Rope Twisting Machine Teng Li, Beijing, China, People's Republic of (Presenters: Jinkui Feng; Xiaopeng Bai) (Huijuan Bai, Shuai Li, Decheng Wang, Xianfa Fang, Guanghui Wang, Jinkui Feng, Xiaopeng Bai, Teng Li)

Tuesday, July 18 – 9:30AM-12:00PM SESSION 208

ADVANCES IN COTTON ENGINEERING – Sponsored by MS-23/7/3, PAFS-50, MS-49, MS-54
Moderator: Christohper Delhom, USDA ARS
Location: 202B

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700661	Prototype Near-Infrared Measurement of Ginned Lint for Improved Logistics Christopher Delhom, USDA, New Orleans, LA United States (Christopher Delhom, Thomas Miller, James Rodgers)
9:50AM	1700239	Evaluation of Pressure-Compressed Acoustic Absorbers Grown on Natural Fiber Substrates Greg Holt, USDA ARS, Lubbock, TX United States (Greg Holt)
10:05AM	1701520	Cotton Gin Drying Systems - Patterns in Fuel Energy Use Paul Funk, USDA ARS, Mesilla Park, New Mexico United States (Paul Funk, Bobby Hardin)
10:20AM	1701620	Effect of Fiber Friction on Energy Use and fiber Quality in the Gin: 2nd Year Bobby Hardin, USDA ARS, Stoneville, MS United States (Bobby Hardin)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 209 **AUTOMATION AND ROBOTICS FOR FRUIT, VEGETABLES AND OTHER SPECIALTY CROPS - PART 1**

– Sponsored by MS-48
Moderator: Stavros Vougioukas, Univ of California Davis

Location: 202C

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701208	Automatic Picking Reel Height Control for the Mechanical Wild Blueberry Harvester Young Chang, Dalhousie University, Truro, NS Canada (Young Chang, Qamar Zaman Tanzeel Rehman, Travis Esau)
9:50AM	1700515	Optimal design and experiment on vibratory fruit harvesting mechanism with three-dimensional excitation Xiaoqiang Du, Zhejiang Sci-Tech University, China, People's Republic of (Xiaoqiang Du, Songtao Li, Qi Gao, Dangwei Li, Jianxiang Du)
10:05AM	1700686	Assessment of the mechanization of row covers for cucurbit crops Mark Hanna, Iowa State University, Ames, IA United States (Presenter: Rachel L. Herzberg) (Rachel Herzberg, Mark Hanna, Brian Steward, Kurt Rosen-trater)
10:20PM	1701109	Orchard Sprayer with Intelligent Automatic Target Spray System Based on Machine Vision zhao xueguan, National Engineering Research Center Information Technology in Agricultural, Beijing, China, People's Republic of (zhao xueguan) (Zhao Xueguan, Wang Xiu)
10:35AM		BREAK
10:45AM	1700567	Dual Robot Coordination for Apple Harvesting Joseph Davidson, (Presenter: Manoj Karkee) (Joseph Davidson, Cameron Hohimer, Changki Mo, Manoj Kar-kee)
11:00AM	1700178	Development of a Grapefruit Picking End Effector and Its Operation Controller Kyu Suk You, University of Florida, Gainesville, FL United States (Presenter: Dr. Thomas F. Burks) (Kyu Suk You)

TUESDAY, JULY 18

11:15AM 1700812 **A Study of the Influence of Pruning Strategy Effect on Vibrational Harvesting of Apples**
Xin Zhang, Washington State University, Prosser, WA
United States (Xin Zhang, Long He, Yaqoob Majeed, Manoj Karkee, Qin Zhang)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 210

MACHINERY DATA AND TASK

OPTIMIZATION PART 2 – Sponsored by MS-49

Moderator: Santosh Pitla, Univ of Nebraska

Location: 203

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701416	Non-Stationary Traveling Salesman Problem for Robotic Vehicles in Agricultural Fields Austin Schmitz, Kansas State University, Manhattan, KS United States (Austin Schmitz, Daniel Flippo)
9:50AM	1701014	Optimized perimeter cut to improve headland space for maneuvering equipment and reduced turn time Magen Shedden, Oak Ridge Associated University, Oak Ridge, TN United States (Magen Shedden, Erin Webb, Tim Riels, Devon Bryant)
10:05AM	1701169	Modeling to improve harvest and collection efficiencies for willow and poplar plantations Shahab Sokhansanj, Univ of British Columbia, Vancouver, BC Canada (Mahmood Ebadian, Shahab Sokhansanj, Erin Webb, Magen Shedden, Mark Eisenbies, Timothy Volk)
10:20AM		BREAK
10:30AM	1700204	Grain Harvest Cycle Analysis Based on Precision Agriculture Data Aaron Turner, University of Kentucky Department of Biosystems and Agricultural Engineering, Lexington, KY United States (Presenter: Michael Montross) (Aaron Turner, Michael Montross, Michael Sama, Joseph Dvorak, Tyler Mark, Ben Martin)
10:45AM	1701610	Investigation on Combustion and Emissions Characteristics of Ethanol-Diesel LiHua Ye, Jiangsu University, Zhenjiang, Zhenjiang China, People's Republic of (LiHua Ye)
11:00AM	1700451	Study on Steering Ability of Articulated Vehicles under Complex Road Conditions Jianjun Dong, NERCITA, Beijing, China, People's Republic of (Jianjun Dong, Guangwei Wu, Zhijun Meng, Caiyun Lu, Weiqiang Fu, Nana Gao)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 211

UAV IN PRECISION AGRICULTURE

– Sponsored by MS-60, MS-54

Moderator: Randy Price, Louisiana State Univ

Location: 205

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701511	Comparison of aerial and ground remote sensing to quantify sudden death syndrome in soybeans Nicholle Hatton, Kansas State University, Manhattan, KS United States (Nicholle Hatton, Ethan Menke, Ajay Sharda, Deon van der Merwe, William Schapaugh Jr)
9:50AM	1701133	Low altitude multispectral sensing based evaluation of retrofitted center pivot irrigation systems for site specific adoption in mint production Lav Khot, Washington State University, Pullman, WA United States (Lav R. Khot, Azeem Khan, R. Troy Peters, Rajeev Sinha, Momtanu Chakraborty)
10:05AM	1701454	A Survey of Agricultural Image Processing for Unmanned Aircraft Systems Mitch Maguire, University of Nebraska Lincoln, Lincoln, NE United States (Mitch Maguire, Wayne Woldt, Christopher Neale, George Meyer, Eric Frew)

10:20AM 1701415 **Aerial Validation of a Logistics Model for Area Coverage in Agriculture**

Hasan Seyyedhasani, University of Kentucky, Lexington, Kentucky United States (Hasan Seyyedhasani, Joseph Dvorak, Michael Sama)

10:35AM 1701573 **Comparison of Aerial and Ground Remote Sensing to Quantify Sudden Death Syndrome in Soybean**

Ajay Sharda, Kansas State University, Manhattan, Kansas United States (Ajay Sharda, Nicholle Hatton, Ethan Menke, Deon van der Merwe, William Schapaugh Jr.)

10:50AM 1700233 **Evaluation of UAV Imagery for Agriculture Applications**

Simerjeet Virk, University of Georgia, Tifton, GA United States (Simerjeet Virk, Wesley Porter, Christian Brodbeck, Greg Pate)

11:05AM **BREAK**

11:15AM 1700956 **Crop Health Algorithm**

Christopher Wiegman, The Ohio State University, Columbus, OH United States (Christopher Wiegman)

11:30AM 1700334 **Concept for Using Unmanned Aerial Vehicles for a Continuous Provision of Information for Online Application in Precision Farming**

Karl Wild, University of Applied Sciences, Dresden, Germany (Presenter: John K. Schueller) (Karl J. Wild, Torsten Schmiedel, John K. Schueller)

11:45AM 1701455 **Thermal Infrared and Multi-spectral Dual Sensor Integration for Unmanned Aircraft Systems**

Mitch Maguire, University of Nebraska Lincoln, Lincoln, NE United States (Mitch Maguire, Wayne Woldt, Christopher Neale, George Meyer, Eric Frew)

12:00PM 1700865 **Developing Protocols for Using a UAV to Monitor Herd Health**

Sandy Mehlhorn, University of Tennessee at Martin, Martin, TN United States (Presenter: Patton Webb) (Patton Webb, Sandy Mehlhorn, Philip Smartt)

12:15PM 1700668 **Enhancing Invasive Species Control with Unmanned Aerial Systems and Herbicide Ballistic Technology**

Roberto Rodriguez, University of Hawaii at Manoa, Honolulu, HI United States (Roberto Rodriguez) (Roberto Rodriguez, Daniel Jenkins, James Leary)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 212

WATER ENERGY NEXUS

– Sponsored by NRES-21

Moderator: Rabi Mohtar, Texas A&M Univ

Location: 206A

Time	Paper#	Title/Author
9:39AM		Introduction
9:35AM	1701587	How environmental factors affects solar power efficiency? Elnaz Hassanpour Adeh, Oregon State University, Corvallis, Oregon United States (Elnaz Hassanpour Adeh, Chad Higgins)
9:50AM	1700863	Water-Energy Nexus in the South Central Texas Region Jordan Muell, Texas A&M University, College Station, TX United States (Jordan Muell, Ahmed Mroue, Rabi H. Mohtar)
10:05AM	1701263	Categorical Environmental Implications of Food Miles on Major Imported Crops in South Korea Chanwoo Kim, Seoul National University, Gangwon-do, South Korea (Chanwoo Kim, Jinseon Park, Solhee Kim Chanhoon Jung, Kyo Suh)
10:20AM	1700114	Designing a bioenergy landscape with respect to stream health Matthew Herman, Michigan State University, Saint Joseph, Michigan United States (Matthew Herman, A. Pouyan Nejadhashemi, Fariborz Daneshvar, Mohammad Abouali, Dennis Ross, Sean Woznicki, Zhen Zhang)

TUESDAY, JULY 18

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 213 ANAEROBIC DIGESTION PART 1

– Sponsored by NRES-27, PRS-707
Moderator: Rebecca Larson, Univ of Wisconsin
Location: 206B

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700258	Integrating Anaerobic Digesters in Uganda: Assessment of Performance, Impact of Digestate Application to Crop Yields, and an Evaluation of Air Quality with Conversion to Biogas Stoves Rebecca Larson, University of Wisconsin-Madison, Madison, WI United States (Rebecca, Larson, Aleia McCord, Vianney Tumwesige, Dorothy Lsota, Josephat Musinguzi, Sarah Stefanos, Doreen Nampamya)
9:50AM	1700354	Anaerobic Digestion in Developing Regions for Household Applications Horacio Aguirre-Villegas, University of Wisconsin-Madison, Madison, Wisconsin United States (Horacio Aguirre-Villegas, Rebecca Larson)
10:05AM	1700177	Effects of Coffee Processing Residues on Anaerobic Microorganisms and Corresponding Digestion Performance Juan Pablo Rojas-Sossa, Michigan State University, East Lansing, Michigan United States (Juan Pablo Rojas-Sossa)
10:20AM	1701518	Liquid Biofertilizer Production from Anaerobic Digestate for Growing Tomatoes Tyler Barzee, University of California Davis, Davis, CA United States (Tyler Barzee, Abdolhossein Edalati, Hamed El-Mashad, Joshua Rapport, Kate Scow, Ruihong Zhang)
10:35AM		BREAK
10:45AM	1701110	Treatment of Domestic Sewage by Using 3D Printing Anaerobic Bio-carriers Yung-Chieh Chang, China, Republic of (Taiwan) Domestic University, Taipei, Taiwan China, Republic of (Taiwan)(Yung-Chieh Chang, Chu-Yang Chou, An-Chi Liu)
11:00AM	1701544	Solid Pelletized Biofertilizer Production from Anaerobic Digestate for Growing Corn Abdolhossein Edalati, University of California, Davis, California United States (Abdolhossein Edalati, Tyler Barzee, Hamed El-Masha, Joshua Rapport, Kate Scow, Ruihong Zhang)
11:15AM	1700048	Effects of Agricultural Wastes and Energy Crops Anaerobic Co-digestion on Anaerobic Microbes and Corresponding Digestion Performance Yuan Zhong, Michigan State University, East Lansing, Michigan United States (Yuan Zhong, Juan Rojas, Wei Liao)
11:30AM	1700489	Effect of Adsorbents on Methane Generation via Anaerobic Digestion of Glucose using Mixed Anaerobic Cultures: Evaluation of Microbial Community Dynamics Saravanan Ramiah Shanmugam, Auburn University, Auburn, Alabama United States (Saravanan Ramiah Shanmugam, Sushil Adhikari, Hyungseok Nam, Sourov Kar Sajib)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 214 CLIMATE VARIABILITY & CLIMATE CHANGE IMPACTS ON AGRICULTURE, WATER & NATURAL RESOURCES PART 1

– Sponsored by NRES-21
Moderator: Joel Paz, Mississippi State Univ
Location: 206C

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700147	A diagnostic-predictive framework for assessing agricultural drought risk in the continental US in response to large-scale circulation anomalies Elizabeth Carter, Cornell University, Ithaca, NY United States (Elizabeth Carter)
9:50AM	1700074	Probabilistic Assessment of Projected Climatological Drought Characteristics over the Southeast United States Subhasis Mitra, Auburn University, Auburn, AL United States (Subhasis Mitra, Puneet Srivastava)
10:05AM	1700828	Assessing and Quantifying Changes in Precipitation Patterns using an Event Driven Approach Jorge A Guzman, University of Oklahoma, Norman, Oklahoma United States (Presenter: Maria L. Chu) (Jorge A Guzman, Maria L. Chu, Jean L. Steiner, Patrick J. Starks)
10:20AM	1700209	Intra-Annual Variability and ENSO Driven Impacts on Erosion Index (EI) in the Southeastern United States for Climate Resilient BMP Strategies Ryan McGehee, Auburn University, Auburn, AL United States (Ryan McGehee)
10:35AM	1700969	Projected climate and their agronomic implications for silage corn production in the Northeastern U.S. Rishi Prasad, United States Department of Agriculture, Penn State University, State College, PA United States (Presenter: Stephan Gunn) (Rishi Prasad, Stephan Gunn, C. Alan Rotz, Heather Karsten, Anne M.K. Stoner)
10:50AM		BREAK
11:00AM	1701412	Impact of environmental factors on variability of crop yields in the Ogallala Aquifer Region Vaishali Sharda, Auburn University, Auburn, AL United States (Vaishali Sharda, Chittaranjan Ray, Prasanna Gowda)
11:15AM	1701328	Evaluating streamflow depletion due to anthropogenic and natural variables in a changing climate Shima Soleimani, Kansas State University, Manhattan, Kansas United States (Shima Soleimani, Vahid Rahmani)
11:30AM	1701336	Estimating Paddy Rice Yield Change Considering Climate Change Impact on Cropping System Pureun Yoon, Seoul National University, Seoul, South Korea (Pureun Yoon) (Pureun Yoon, JinYong Choi)
11:45AM	1700270	Impact of Climate Change on Water Requirement and Rice Production in India Ranjeet Jha, University of Illinois, Urbana, Illinois United States (Ranjeet Jha, Prasanta Kalita, Rajkumar Jat)

TUESDAY, JULY 18

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 215

MICROBIAL AND EMERGING CONTAMINANTS IN WATER/ECOLOGICAL ENGINEERING EDUCATION AND OUTREACH – Sponsored by NRES-28, NRES-22

Moderator: Leigh-Anne Krometis, Virginia Tech

Location: 206D

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700255	Pharmaceuticals at Penn State's Living Filter: From Wastewater to Groundwater Heather Gall, The Pennsylvania State University, University Park, PA (Brittany Ayers, Faith Kibuye, Kyle Elkin, Heather Gall)
9:50AM	1700979	Persistence of Pharmaceutical Compounds in Drinking Water Treatment Processes Faith Kibuye, Pennsylvania State University, University Park, PA United States (Faith Kibuye, Bryan Swistock, Kyle Elkin, Herschel Elliott, Jack Watson, Heather Gall)
10:05AM	1700674	The influence of the feed water chemical composition on the Bacteriophage MS2 removal by bio-sand filter Chunhwa Jang, University of Illinois at Urbana-Champaign, Urbana, IL United States (Chunhwa Jang, Rabin Bhattarai, Thanh H Nguyen)
10:20AM	1701540	Roles of cell-cell communication in the formation of algal blooms Sebastian Jusuf, Cornell University, Los Altos Hills, California United States (Sebastian Jusuf, Samuel Reffsin, Beum Jun Kim, Lubna Richter, Beth Ahner, Stephen Winans, Mingming Wu)
10:35AM	1700377	Beyond the Traditional Classroom: Creating Outdoor Learning Environments Carmen Agouridis, University of Kentucky, Lexington, KY United States (Carmen Agouridis)
10:50AM		BREAK
11:00AM	1700013	Current State of Climate Education in the United States: Are Graduate Students Being Adequately Prepared to Address Climate Issues? Garey Fox, North Carolina State University, Raleigh, NC United States (Garey Fox, Emma Kuster)
11:15AM	1700857	A Review of Agricultural Engineering Journals Available for Publishing Research by Members of the ASABE Natural Resource and Environmental System Technical Community Philip Gassman, Iowa State University, Ames, IA United States (Philip Gassman, Yingkuan Wang)
11:30AM	1701187	A Review of ASABE Journals in the Context of Relevant Journal Metrics and Natural Resource and Environmental System (NRES) Competing Journals Philip Gassman, Iowa State University, Ames, IA United States (Philip Gassman, Yingkuan Wang)
11:45AM	1701466	Engineering Extension Efforts in North Carolina Aquaculture Steven Hall, North Carolina State University, Raleigh, NC United States (Steven Hall, Matt Campbell, Alexander Geddie, Melody Thomas, Mike Burchell)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 216

MODELING OF WATER QUALITY AND HYDROLOGY PART 1 –

Sponsored by NRES-21

Moderator: Derek Schlea, Limno Tech

Location: 207

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700853	New modules of EPIC/APEX for soil moisture and temperature Susan Wang, TAMUS BRC, (Xiuying Wang)

9:50AM 1700240

Estimation of Watershed Responses to Anthropogenic Stressors Considering Spatial and Temporal Variations

Alejandra Botero, University of Illinois, Champaign, Illinois United States (Alejandra Botero, Maria Librada Chu)

10:05AM 1701510

Supporting the Development of an Online Water Quality Calculator Through the Use of the Soil and Water Assessment Tool

Chelsie Boles, LimnoTech, Ann Arbor, Michigan United States (Chelsie Boles, Todd Redder, Wendy Larson)

10:20AM 1700053

Applying the Latest HEC-RAS Water Quality Model to the Minnesota River in Support of TMDL Development.

Zhonglong Zhang, ERDC - LimnoTech, Davis, CA United States (Zhonglong Zhang)

10:35AM

10:45AM 1700179

BREAK Modeling runoff and sediment dynamics of a mountainous watershed using the HYSTAR model

Younggu Her, University of Florida, Homestead, FL United States (Younggu Her, João Batista Dias Paiva, Conrad Heatwole)

11:00AM 1700745

Development and Application of universal SDR-equation based on domestic watersheds

Seoro Lee, Kangwon National University, Kangwon-do, Chun Cheon (Seoro Lee, Donghyuk Kum, Jong-Gun Kim, Kyoungjae Lim)

11:15AM 1700182

Assessing Model Parameter Sensitivity and Uncertainty of Streamflow, Sediment, and Nutrient Transport in the Mississippi Delta Using SWAT

Prem Parajuli, Mississippi State University, Mississippi State, MS United States (Prem Parajuli, Abdullah Dakhllalla)

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 217

ADVANCES IN IRRIGATION MANAGEMENT – Sponsored by NRES-24, NRES-245

Moderator: Michele Reba, USDA ARS

Location: 302A

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701041	Innovation in rice irrigation in the Mid-South Michele Reba, USDA ARS, Jonesboro, Arkansas United States (Michele Reba, Christopher Henry, Joseph H Massey)
9:50AM	1701024	iCrop: A model-driven decision support tool for optimizing water use in agriculture Isaya Kisekka, Kansas State University, Garden City, Kansas United States (Isaya Kisekka, Mazdak Arabi, Jae Kim, Prasanna Gowda, P.V.V. Prasad, Jonathan Aguilar, Danny Rogers)
10:05AM	1701296	Nitrate-N trends in irrigation return flow from a southern Idaho watershed. Dave Bjorneberg, USDA ARS, Kimberly, ID United States (Dave Bjorneberg, Anita Koehn, Jim Ippolito)
10:20AM	1701570	Improving the Application Efficiency of Border Check Irrigation on Sandy Soils in California Marsha Campbell, UCCE, Modesto, CA United States (Marsha Campbell, Khaled Bali, Eduardo Bautista)
10:35AM		BREAK
10:45AM	1701265	Differential Corn Hybrid Response to Irrigation Management Freddie Lamm, Kansas State University Northwest Res Ext Center, Colby, KS United States (Freddie Lamm)
11:00AM	1701625	Evaluating Furrow Irrigation Efficiencies for Surge Irrigation and Tail Water Recovery in Rice Vaishali Kandpal, University of Arkansas, Fayetteville, AR United States (Vaishali Kandpal)

TUESDAY, JULY 18

11:15AM	1701590	<p>Irrigation management for red pepper using high resolution weather data Yong-Hoon Shin, Seoul National University, Seoul, South Korea (Yong-Hoon Shin, Jin-Yong Choi, Sung-Hack Lee, Seung-Jae Lee)</p>
11:30AM	1700457	<p>Analysis of the Spatial Effect of Irrigation Return Flow in Irrigated Area Yitong Wang, Zhejiang university, hangzhou, zhejiang China, People's Republic of (Yitong Wang, Zonglou Guo, Yang Yang, Dingwang Zhou)</p>

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 219

WATERSHED MANAGEMENT AND WATER AVAILABILITY: FLOOD VERSUS DROUGHT – Sponsored by

NRES-25
Moderator: Sherry Hunt, USDA ARS

Location: 302B

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701701	<p>The Columbia Basin Project: Recipient of Irrigation Water Supply from Grand Coulee Dam Toni Turner, US Bureau of Reclamation, Ephrata, Washington United States (Toni Turner)</p>
10:00AM	1701679	<p>History of USDA-assisted Dams Stephen Durgin, USDA NRCS, Washington, District of Columbia United States (Stephen Durgin)</p>
10:20AM	1701680	<p>What a Mess! - Sedimentation Issues in Reservoirs Jon Fripp, USDA NRCS, Arlington, Texas United States (Jon Fripp, Tom Brown)</p>
10:40AM	1701653	<p>From Detention to Retention - Dam Rehabilitation Issues when Water Storage is added to Flood Control Dam Thomas Brown, NRCS NDCSMC, Fort Worth, Texas United States (Thomas Brown)</p>
11:00AM		BREAK
11:10AM	1700837	<p>Converging Stepped Chutes for Embankment Dams Sherry Hunt, USDA ARS, Stillwater, OK United States (Sherry Hunt, Kem C Kadavy)</p>
11:25AM	1701681	<p>Evolution of USDA Hydrology Claudia Hoeft, USDA NRCS, Washington, District of Columbia United States (Claudia Hoeft)</p>
11:40AM	1701492	<p>Spatial Evaluation of Lost Water Holding Capacity of Watersheds Bhavna Sharma, Oak Ridge National Laboratory, Oak Ridge, TN United States (Bhavna Sharma, B. Miller, R. Cruse)</p>
11:55AM	1700512	<p>A simulation model for optimal sizing of water harvesting structures in rainfed agricultural regions Vamsikrishna Vema, Indian Institute of Technology Madras, Chennai, Tamil Nadu India (Vamsikrishna Vema, KP Sudheer, Indrajeet Chaubey)</p>

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 220

MEASUREMENT, MITIGATION AND MODELING OF AIR POLLUTANTION FROM LIVESTOCK AND POULTRY FACILITIES – Sponsored by PAFS-50

Moderator: Ken Casey, Texas A&M Univ

Location: 303A

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701356	<p>Iron oxide as manure additive to reduce hydrogen sulfide gas risk and odor from gypsum bedded dairies Eileen Fabian, Pennsylvania State University, University Park, PA United States (Eileen Fabian, Michael Hile, Long Chen)</p>

9:50AM	1700401	<p>Windbreak wall-vegetative strip system to reduce pollutant emissions from tunnel-ventilated poultry and swine barns Ali Ajami, North Carolina State University, Raleigh, NC United States (Ali Ajami, Sanjay Shah, Larry Stikeleather, Miguel Castillo)</p>
10:05AM	1700275	<p>Achieving a Greater Reduction of Airborne Emissions from Swine Buildings by the Combination of Different Technologies Matthieu Girard, IRDA, Quebec, Quebec Canada (Presenter: Ariane Lévesque) (Matthieu Girard, Ariane Lévesque, Valérie Létourneau, Jonathan Pilote, Caroline Duchaine, Stéphane Godbout, Stéphane Lemay)</p>
10:20AM	1700279	<p>Mitigating Ammonia Emissions from Liquid-Sprayed Litter of Cage-Free Hen House with a Solid Litter Additive Lilong Chai, Iowa State University, Ames, IA United States (Lilong Chai, Hongwei Xin, Yang Zhao, Tong Wang, Michelle Soupir, Kai Liu)</p>
10:35AM		BREAK
10:45AM	1701135	<p>Reduction of Air Pollutants From Commercial Fattening Pig Building By Ozone-Slightly Acidic Electrolyzed Water Spraying System Shengyan Dai, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Shengyan Dai, Xiaoyang Zhao, Ailun Wang)</p>
11:00AM	1700363	<p>Effects of dietary supplementation with potato and grocery store residues on the zootechnical performance and odour and gas emissions of growing-finishing pigs Stephane Godbout, IRDA, Quebec, Quebec Canada (Stephane Godbout, Caroline Côté, Christine Landry, Yan Pilote, Hanen Mannai, Patrick Dube, F. X. Phillippe, Frederic Pelletier, Cedric Morin)</p>
11:15AM	1701197	<p>Sampling duration and frequency to obtain credible emission factors for naturally ventilated dairy barns Gopi Kafle, Washington State University, Pullman, WA United States (Gopi Kafle, Hung Joo, Pius Ndegwa)</p>
11:30AM	1700543	<p>Improved Ammonia Emission Inventory for Concentrated Animal Feeding Operations in NC Lingjuan Li, North Carolina State Univ, Raleigh, NC United States (Yijia Zhao, Xiao Zhang, Lingjuan Li)</p>

Tuesday, July 18 – 9:30AM-12:00PM

SESSION 221

GREENHOUSE AND NURSERY TECHNOLOGY - INNOVATIVE SYSTEMS FOR CONTROLLED ENVIRONMENTS – Sponsored by PAFS-30

Moderator: Lucas McCartney, McGill Univ

Location: 303B

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701609	<p>Automated Nutrient Sensing and Recycling Ryan Knight, McGill University, Baie D'Urfe, Quebec Canada (Ryan Knight, Mark Lefsrud)</p>
9:50AM	1700974	<p>The natural ventilation augmented cooling (NVAC) greenhouse: a greenhouse design for tropical and hot climates. Lucas McCartney, McGill University, Ste-Anne-De-Belleuve, Canada (Lucas McCartney, Mark Lefsrud)</p>
10:05AM	1701047	<p>Gaseous Pollutants Measured in Enrichment Flue-Gas With A Focus on Ethylene Emmet Austin, McGill University MacDonald Campus, Beaconsfield, Quebec Canada (Emmet Austin, Antoine Malouin, Mark Lefsrud, Hamid Akbarzadeh)</p>
10:20AM	1701577	<p>Guidance on the Design and Implementation of Sandbed (Sub-irrigation) Watering Systems for Nursery System Teresa Morales, USDA- USFS, Missoula,, MT United States (Teresa Morales)</p>

TUESDAY, JULY 18

10:35AM	1700311	<p>Systemic Sustainability Indicators for Selected Greenhouse Production Facilities in North America Jaime Thissen, University of Illinois, Champaign, IL United States (Jaime Thissen, Paul Davidson)</p> <p>BREAK</p> <p>Review: Economic and Environmental Analysis of Greenhouse Crop Production with Special Reference to Low Cost Greenhouses Harishchandra Jadhav, Unirreenho Atys Environmental lastatees An, Ames, IA United States (Harishchandra Jadhav, Kurt Rosentrater)</p> <p>11:15AM 1701181 Economic and Environmental Impact Analysis of Vegetable Production in Bamboo Polyhouse Vs Galvanized Iron Pipe Polyhouse Harishchandra Jadhav, Iowa State University, Ames, IA United States (Harishchandra Jadhav, Kurt Rosentrater)</p> <p>11:30AM 1701375 Effectiveness and Safety of using Post-Hydrothermal-Liquefaction Wastewater to grow Lettuce Hydroponically Samuel Jesse, University of Illinois Urbana-Champaign, Urbana, IL United States (Samuel Jesse)</p> <p>11:45AM 1701398 Management and Modeling of Winter-time Basil Cultivars Grown with a Cap MAT System George Meyer, University of Nebraska - Lincoln, Lincoln, NE United States (George E Meyer) (George Meyer, Ellen Paparozzi, M. Elizabeth Conley)</p>
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Tuesday, July 18 – 9:30AM-12:00PM
SESSION 222 **CHALLENGES AND OPPORTUNITIES FOR FOOD PROCESS ENGINEERS - PANEL DISCUSSION**
– Sponsored by PRS-01
Moderator: Juming Tang, Washington State Univ
Chris Butts, USDA ARS
Litha Sivanandan, West Virginia Univ

Location: 300B

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1701683	Historical Challenges and Potential Opportunities for Food Engineers Yrjo Roos, University College Cork, Cork Ireland (Yrjo Roos)
10:10AM	1701684	Challenges in Food Engineering Education and Research Bradley Marks, Michigan State University, East Lansing, Michigan United States (Bradley Marks)
10:35AM	1701685	Challenges and Opportunities in Sensing and Measurement in Food Processing Brady Carter, Decagon Devices, METER Group, Pullman, Washington United States (Brady Carter)
11:00AM		New Funding Opportunities for Food Engineering Program Hongda CHen, Ph.D. USDA National Institute of Food and Agriculture, Washington, DC
11:25AM		Panel Discussion

Tuesday, July 18 – 2:30PM-5:00PM
SESSION 223 **FOSTERING AFRICAN-CHINESE AND INDIAN PARTNERSHIPS TOWARD DELIVERING MUTUALLY BENEFICIAL SOLUTIONS IN AGRICULTURE – PANEL DISCUSSION**
– Sponsored by E-2050
Moderator: Klein Ileleji, Purdue Univ
Nourredine Abdoulmoumine, Univ of Tennessee

Location: 300A

Panelists:

Dr. Gajendra Singh, Formerly with Asian Institute of Technology, Bangkok, Thailand
Dr. Joseph Mpagalile, FAO, Rome, Italy
Dr. Xiongkui He, China Agricultural University, Beijing, China
Dr. Alan Hansen, University of Illinois, Urbana-Champaign, Illinois

Tuesday, July 18 – 2:30PM-5:00PM
SESSION 224 **RENEWABLE ENERGY RESOURCES AND TECHNOLOGIES - PART 2** – Sponsored by ES-210
Moderator: Xiao Wu
Location: 102C/D

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700079	No-load performance testing of an arduino-primed hybrid solar-electric crop dryer Nnaemekan Nwakuba, Federal Univ of Technology, Umuahia, Abia State Nigeria (Prof. S.N. Asoegwu) (Nnaemeka Nwakuba, Collins Chukwuezie, Sabbas Asoegwu, Kevin Nwaigwe)
2:50PM	1701484	Production and Combustion of Wood Pyrolysis Oil Emulsions, Part: Pyrolysis Oil Properties and Design of a Combustion System Joahnn H. Palacios, IRDA, Quebec, QC Canada (Patrice Seers, Annabelle Hospital, Salha Elcadhi, Romain Lemaire, Patrick Brassard, Joahnn H. Palacios, Stephane Godbout, Brenda J. Alvarez)
3:05PM	1700984	Vistas in Renewable Energy Exploitation: Essential Updates, Problems and Solutions Babajide Adelekan, Federal College of Agriculture, Ibadan, Oyo Nigeria (Babajide Adelekan)
3:20PM	1701277	The Expanding World of Solar Cooking Paul Funk, USDA-ARS, Mesilla Park, NM United States (Paul Funk)
3:35PM		BREAK
3:45PM	1700433	The design and experiment of low-cost solar collector system for recirculation aquaculture Xiangyi He, Zhejiang University, Hangzhou, zhejiang China, People's Republic of (Xiangyi He, Jianping Li, Song Ming Zhu, Dongdong Li)
4:00PM	1701317	Evaluation and strategies to improve bioethanol production from fermentation of de-germed corn Ankita Juneja, University of Illinois, Urbana, IL United States (Ankita Juneja, Deepak Kumar, Vijay Singh)
4:15PM	1701237	Renewable Energy in Nigeria: Prospects and Challenges Mohammed Khalid Othman, Nigerian University, Samaru Zaria, Kaduna Nigeria (Mohammed Khalid Othman)
4:30PM	1701011	Low Cost Solar Heater for Agricultural Applications Mark Poole, North Carolina State Univeristy, Raleigh, NC United States (Mark Poole, Sanjay Shah, Michael Boyette)

TUESDAY, JULY 18

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 225

BIOMASS FEEDSTOCK SUPPLY LOGISTICS AND MODELING

– Sponsored by ES-220

Moderator: Igathinathane Cannayen, North Dakota State Univ

Jaya Shankar Tumuluro, Idaho National Lab

Location: 102A/B

Time	Paper#	Title/Author
9:30AM		Introduction
9:35AM	1700322	Biomass harvest and base aggregation logistics in pivot irrigated fields Igathinathane Cannayen, North Dakota State University, Bismarck, ND United States (Igathinathane Cannayen)
9:50AM	1700598	Biomass Bale infield logistics scenario using Automatic Bale Picker Subhashree Navaneetha Srinivasagan, North Dakota State University, Fargo, North Dakota United States (Subhashree Navaneetha Srinivasagan, Igathinathane Cannayen)
10:05AM	1700599	Equipment Track Impacted Field Areas during Harvesting, Baling, and Infield Bale Logistics Subhashree Navaneetha Srinivasagan, North Dakota State University, Fargo, North Dakota United States (Subhashree Navaneetha Srinivasagan, Igathinathane Cannayen)
10:20AM	1700841	Spatial multi-feedstock biomass supply chain modeling framework for the U.S. Bhavna Sharma, Oak Ridge National Laboratory, Oak Ridge, TN United States (Bhavna Sharma, Craig Brandt, Devita Amal, Erin Webb, Laurence Eaton)
10:35AM	1701054	Pipeline Hydro transport of Wheat Straw Biomass in Vertical Pipes Amit Kumar, University of Alberta, Edmonton, Alberta Canada (Kashif Javed, Mahdi Vaezi, Amit Kumar)
10:50AM		BREAK
11:00AM	1701073	Comparative Assessment of Pipeline Hydro-transport of Biomass Feedstock – An Overview of 8 Years Experimental and Techno-economic Studies Mahdi Vaezi, University of Alberta, Edmonton, Alberta Canada (Mahdi Vaezi, Amit Kumar)
11:15AM	1701156	Evaluating impacts of corn stover collection on nutrients, organic matter and soil erosion levels Asmita Khanal, Ohio State University, Wooster, Ohio United States (Asmita Khanal, Ashish Manandhar, Ajay Shah, Yangyang Li)
11:30AM	1701188	The emerging wood pellet industry as a model for advanced feedstock logistics Shahab Sokhansanj, Univ of British Columbia, Vancouver, BC Canada (Ryan Jacobson, Shahab Sokhansanj, Erin Webb, Mahmood Ebadian)
11:45AM	1701216	Biomass Supply Chain Risk: A Systematic Review Devita Amal, Virginia Tech, Blacksburg, VA United States (Devita Amal, Alejandro Salado, Erin Webb)
12:00PM	1701320	Computational study for investigating ring hydroxylation mechanism in termite based biological pre-treatment of biomass Sujala Bhattarai, Washington State University, Pullman, WA United States (Sujala Bhattarai, Shulin Chen, Aurora Clark)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 227

3D MACHINE VISION FOR SENSING AND AUTOMATION

– Sponsored by

ITSC-312

Moderator: Seung-Chul Yoon, USDA ARS

Location: 201A

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700427	Stereo Vision Based Branch Recognition in Trellis Trained Apple Trees for Autonomous Vibration Harvesting Jing Zhang, Washington State University, Prosser, WA United States (Jing Zhang, Long He, Manoj Karkee, Qin Zhang)
2:50PM	1700588	An Automatic Segmentation and Recognition Method of Apple Tree Point clouds in the Real Scene Based on the Fusion of Color and 3D Feature Yongting Tao, Nanjing Agricultural University, Marietta, GA United States (Yongting Tao, Jun Zhou)
3:05PM	1700916	Experimental Comparison Investigation on Emission Spectra of Collinear Double and Single Pulses Laser-Induced K Plasmas in Soil Yangyang Lv, Zhejiang University, Hangzhou, China, People's Republic of (Yangyang Lv)
3:20PM	1701417	Automated High-Speed 3D Imaging Oyster Grading and Sorting System Yang Tao, University of Maryland, College Park, MD United States (Yang Tao, Robert Vinson, Maxwell Holmes)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 228

ADVANCES IN INSTRUMENTATION AND CONTROLS

– Sponsored by

ITSC-353, MS-54

Moderator: Joe Dvorak, Univ of Kentucky

Location: 201B

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700097	Reconceiving Instrumentation I Rapid Prototyping, 3D Printing, and the Openly Published Environmental Sensing Lab Chet Udell, Oregon State University, Corvallis, OR United States (Chet Udell, John Selker)
2:50PM	1700120	Simplified Through-Transmission Test Method for Determination of a Material's Acoustic Properties Mathew Pelletier, USDA ARS, Lubbock, TX United States (Mathew Pelletier)
3:05PM	1700139	Sensor network technology commercialization for specialty crops Michael Delwiche, University of California Davis, Davis, CA United States (Michael Delwiche, Robert Coates)
3:20PM	1700281	Development and Preliminary Prototype Testing of An Agricultural Nozzle Clog Detection Device Chin Nee Vong, Arkansas State University, Jonesboro, Arkansas United States (Chin Nee Vong, Peter Larbi)
3:35PM	1700579	Application of Discriminant Analysis to Classify Pangola Hay with Digital Images and NIR Spectra Ching-Lu Hsieh, National Pingtung University of Science & Technology, Taiwan, China, People's Republic of (Ching-Lu Hsieh, Didi Widjanarko, Jhen-Jia Guo)
3:50PM		BREAK
4:00PM	1700767	Simulation of Effect of Tractor Travelling Speed on Tire Slip Yeon Soo Kim, Chungnam National University, Daejeon, South Korea (Yeon Soo Kim, Chang-Hyun Choi, Kyeong-Hwan Lee, Young-Joo Kim, Sang-Dae Lee, Yong-Joo Kim)

TUESDAY, JULY 18

4:15AM	1701074	<p>Measuring Agricultural Residue and Woodchips Biomass Slurry Flows Critical Velocity in Pipelines Using High-Frequency Impedancemetry Approach Mahdi Vaezi, University of Alberta, Edmonton, Alberta Canada (Mahdi Vaezi, Amit Kumar, Shubham Verma)</p>
4:30PM	1701118	<p>Development of Environment Monitoring System for Crop Growth Measurement Kim DuHan, Chungnam National University, Daejeon, South Korea (Du-Han Kim, Kyeong-Hwan Lee, Chang-Hyun Choi, Yong-Joo Kim)</p>
4:45PM	1701429	<p>Real-time Transmission Testing Utilizing a Transient, Torque-Loading Hydrostatic Dynamometer Dillon Wirth, Iowa State University, Ames, IA United States (Dillon Wirth, Brian Steward)</p>

**Tuesday, July 18 – 2:30PM-5:00PM
SESSION 229**
MACHINE VISION AND SENSORS FOR AUTONOMOUS VEHICLES AND ROBOTICS – Sponsored by ITSC-312
 Moderator: Yufeng Ge, Univ of Nebraska
Location: 201C

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700300	<p>Bird Detection, Tracking and Counting in Wine Grapes Santosh Bhusal, Washington State University, Prosser, WA United States (Santosh Bhusal, Shivam Goel, Kapil Khanal, Manoj Karkee, Matthew Taylor)</p>
2:50PM	1700646	<p>Determination of tea plant plucking position based on computer vision technology Yuzhen Wei, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Yuzhen Wei, Xiaoli Li, Yong He)</p>
3:05PM	1700821	<p>A deep learning based machine vision system for robotic apple harvesting Abhishesh Silwal, Washington State University, Pullman, WA United States (Abhishesh Silwal, Manoj Karkee, Qin Zhang)</p>
3:20PM	1701246	<p>Identification of split and whole cashew nuts based on machine vision Sunoj Shajahan, North Dakota State University, Fargo, ND United States (Sunoj Shajahan, Igathinathane Canrayen, Jenicka S)</p>
3:35PM		BREAK
3:45PM	1701347	<p>Sliding Mode Control for an Agricultural Robot with Vision Feedback Douglas Freese, University of Central Florida, Orlando, FL United States (Douglas Freese, Yunjun Xu)</p>
4:00PM	1701444	<p>Image Based Visual Servo Control of a 6-DoF Leaf Picking Mechanism Sinem Gozde Defterli, University of Central Florida, Orlando, FL United States (Sinem Gozde Defterli, Yunjun Xu)</p>
4:15PM	1701121	<p>Vision-based guidance control scheme for autonomous navigation of 4WDS agricultural vehicle in a narrow space environment Chung-Liang Chang, National Pingtung University of Science and Technology, Pingtung County, Taiwan, R.O.C. China, Republic of (Taiwan) (Chung-Liang Chang, Gong-Bo Song)</p>

**Tuesday, July 18 – 2:30PM-5:00PM
SESSION 230**
ROBOTICS AND CO-ROBOTICS FOR AGRICULTURE – Sponsored by ITSC-318
 Moderator: Weilan Wang, Monsanto
Location: 202A

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1701053	<p>Development of a robotic system to grasp leaves for plant phenotyping Abbas Atefi, University of Nebraska - Lincoln, Lincoln, NE United States (Abbas Atefi, Yufeng Ge, Santosh Pitla)</p>
2:50PM	1700369	<p>Robotic 3D Plant Perception and Leaf Probing with Collision-Free Motion Planning for Automated Indoor Plant Phenotyping Yin Bao, Iowa State University, Ames, IA United States (Yin Bao) (Yin Bao, Lie Tang, Dylan Shah)</p>
3:05PM	1700804	<p>A Navigation System for an Unmanned Ground Vehicle Using Radio Frequency Identification Tags Duke Bulanon, Northwest Nazarene University, Nampa, ID United States (Lucas Pomeroy, Richie Grindstaff, Joshua Griffin, Duke Bulanon)</p>
3:20PM	1700700	<p>Robotic Intra-row Weed Control using 3D Computer Vision Jingyao Gai, Iowa State University, Ames, IA United States (Jingyao Gai, Lie Tang, Brian Steward)</p>
3:35PM		BREAK
3:45PM	1701402	<p>Evaluation of dynamic robot dispatching strategies using a strawberry-harvesting simulator Wei-jiunn Jang, University of California Davis, Davis, CA United States (Wei-jiunn Jang, Farangis Khosro Anjom, Stavros Vougioukas)</p>
4:00PM	1701566	<p>Trajectory controller design for precisely positioning a mechanical weeding mechanism Safal Kshetri, Iowa State University, Ames, IA United States (Safal Kshetri, Brian Steward, Lie Tang, Jingyao Gai)</p>
4:15PM	1701418	<p>Row Crop Navigation by Autonomous Ground Vehicle for Crop Scouting Austin Schmitz, Kansas State University, Manhattan, KS United States (Austin Schmitz) (Austin Schmitz, Daniel Flippo)</p>
4:30PM	1701346	<p>Development of an Autonomous Field Robotics Platform: Systems and Control Perspective Tyler Troyer, University of Nebraska - Lincoln, Lincoln, Ne United States (Sanotsh Pitla, Troyer Tyler)</p>

**Tuesday, July 18 – 2:30PM-5:00PM
SESSION 231**
ADVANCES IN TILLAGE, SEEDING AND TRANSPLANT TECHNOLOGY PART 2 – Sponsored by MS-49, MS-45
 Moderator: Ajay Sharda, Kansas State Univ
Location: 202B

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700059	<p>Adhesion of Talc and Graphite with Seed Corn Kingsly Ambrose, Purdue University, West Lafayette, IN United States (VaibhavPathak, Mishank Shah, Kingsly Ambrose)</p>
<p>231 Advances in Tillage, Seeding and Transplant Technology Part 2 Tuesday, July 18 – 2:30PM-5:00PM</p>		
2:50PM	1700419	<p>Design on peanut no-tillage planter under coverage of the wheat stubble Yuanyuan Shao, Washington State University, Pullman, WA United States (Yuanyuan Shao, Guantao Xuan, Hongxing Peng, Zhichao Hu, Youqing Chen, Feng Wu)</p>
<p>231 Advances in Tillage, Seeding and Transplant Technology Part 2</p>		

TUESDAY, JULY 18

3:05PM	1700770	<p>Seedling Raising Techniques at Farmers' Level for Mechanical Transplanting Muhammad Ashik-E-Rabbani, Bangladesh Agricultural University, Mymensingh Sadar, Mymensingh Bangladesh (Presenter: Chayan Kumer Saha) (Muhammad Ashik-E-Rabbani, Mohammad Mosharraf Hossain, Surajit Sarkar, Chayan Kumar Saha, Md. Monjurul Alam, Prasanta Kalita, Alan C Hansen)</p>
3:20PM	1701191	<p>Morphological and mechanical characteristics of sweet potato seedlings transplanted mechanically Guantao Xuan, Northwest A&F University, Tai An, Shandong China, People's Republic of (Jialin Hou, Zhaoqin Lu, Chunyu Shi, Guantao Xuan, Yuanyuan Shao)</p>
3:35PM		BREAK
3:45PM	1701279	<p>Evaluation of Remote Sensing to Optimize Corn and Soybean Placement within the Soil Landscape Andrew A Klopfenstein, The Ohio State University, Columbus, OH United States (Andrew A Klopfenstein, Sami Khanal, Brittany A Schroeder, John P Fulton, Scott A Shearer)</p>
4:00PM	1701309	<p>Field Validation of Seed Meter Performance at Varying Seeding Rates and Ground Speeds Simerjeet Virk, University of Georgia, Tifton, GA United States (Simerjeet Virk, John Fulton, Wesley Porter, Greg Pate)</p>
4:15PM	1701311	<p>Understanding and Evaluating As-Planted Data Accuracy during Variable-rate Seeding Operations Simerjeet Virk, University of Georgia, Tifton, GA United States (Simerjeet Virk, John Fulton, Greg Pate)</p>

4:15PM	1700145	<p>System design and the economics for Controlled Traffic Farming (CTF) in grass silage production Sven Peets, Harper Adams University, Newport, Shropshire United Kingdom (Sven Peets) (Sven Peets, Tim Chamen, Dick Godwin, David White, Paula Misiewicz, Paul Hargreaves)</p>
4:30PM	1701458	<p>Soil stresses beneath tire traffic as affected by stress state transducer burial method Thomas Way, USDA ARS, Auburn, AL United States (Thomas Way)</p>
4:45PM	1700146	<p>Modelling the Influence of Incorporating Inorganic Fertilizer on the Recovery Pattern of Two Agricultural Soils After Load Application Eli Mamman, University of Maiduguri, Maiduguri, Borno Nigeria (Eli Mamman)</p>
5:00PM	1700136	<p>Mechanics of a Model Chisel Furrower Eli Mamman, University of Maiduguri, Maiduguri, Borno Nigeria (Eli Mamman) (Eli Mamman)</p>

Tuesday, July 18 – 2:30PM-5:00PM
SESSION 232
WILLIAM J. CHANCELLOR MEMORIAL SESSION ON SOIL TILLAGE, TRACTION, AND COMPACTION - INVITED SPEAKERS
 – Sponsored by MS-45, MS-54, ITSC-254
 Moderator: Richard Godwin, Dick Godwin Associates Ltd

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1701698	<p>Prof. William J. Chancellor Memorial Session on Soil Tillage, Traction and Compaction Shrinivasa Upadhyaya, University of California, Davis, California United States (Shrinivasa Upadhyaya)</p>
3:05PM	1700218	<p>Laboratory Investigations on Draft and Power Requirements of a Combined Offset Disc Harrow Ganesh Upadhyay, Agricultural and Food Engineering Department, Indian Institute of Technology, Kharagpur, West Bengal India (Ganesh Upadhyay) (Ganesh Upadhyay, Hifjur Raheman)</p>
3:20PM	1701258	<p>Operational analyses of walking tractors fitted with rubber tracks and pneumatic wheels Showkat Rasool, Indian Institute of Technology-Kharagpur, Kharagpur, West Bengal India (Showkat Rasool) (Showkat Rasool, Hifjur Raheman)</p>
3:35PM	1701004	<p>Impact of Machine Mass on Agricultural Productivity Compared to Soil Cone Penetrometer Data Andrew A Klopfenstein, The Ohio State University, Columbus, OH United States (Andrew A Klopfenstein, Brittany A Schroeder, Scott A Shearer)</p>
3:50PM		BREAK
4:00PM	1700380	<p>An investigation into the effect of traffic and tillage on soil properties using X-ray computed tomography William Millington, Harper Adams University, Telford, Shropshire United Kingdom (William Millington) (William Millington, Paula Misiewica, David White, Edward Dickin, Richard Godwin, Sacha Mooney)</p>

Tuesday, July 18 – 2:30PM-5:00PM
SESSION 233/234-INNOVATIONS IN PRECISION AGRICULTURE PART 2/PRECISION APPLICATION OF CHEMICALS
 – Sponsored by MS-54, MS-23/6
 Moderator: Dan Martin, USDA ARS
Location: 202C

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700910	<p>Estimating moisture content of paddy rice and wheat kernel on the combine using acoustic spectrum Koichi Shoji, Kobe University, Kobe, Hyogo Japan (Koichi Shoji)</p>
2:50PM	1700441	<p>Wolfberry tree dual-model detection method and orchard target-oriented fertilization system based on photoelectric sensors Changyuan Zhai, Northwest A&F University, Oklahoma State University, Yangling, Shaanxi, China, People's Republic of (Changyuan Zhai, Shuo Yang, John Long, Bo Zhang, Hanzhe Li, Shuo Yang)</p>
3:05PM	1701380	<p>Techno-economic analysis of implementing the intelligent pesticide sprayer for specialty crop production Ashish Manandhar, The Ohio State University, Wooster, Ohio United States (Ashish Manandhar, Ajay Shah, Heping Zhu, Erdal Ozkan)</p>
3:20PM		BREAK
3:30PM	1701314	<p>Development of Sprayer Performance Diagnostic Tool Using Improved Mapping and Error Quantification Practices Aaron Shearer, University of Nebraska-Lincoln, Lincoln, NE United States (Aaron Shearer, Joe Luck, John Evans)</p>
3:45PM	1700497	<p>Optimization of solid set canopy delivery system for efficient delivery of agrochemicals to grapevines in Washington state Rajeev Sinha, Washington State University, Prosser, WA United States (Rajeev Sinha, Lav Khot, Gwen Hoheisel, Elizabeth Beers, Matthew Brieshop)</p>
4:00PM	1701623	<p>Aerial Electrostatic Spray Application of Cotton Defoliant Dan Martin, USDA ARS, College Station, Texas United States (Dan Martin)</p>

TUESDAY, JULY 18

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 235

MODELING OF WATER QUALITY AND HYDROLOGY PART 2 –

Sponsored by NRES-21
Moderator: Gurdeep Singh, The Climate Group

Location: 203

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1701591	Flood stage analysis considering the uncertainty of roughness coefficients and discharge for Cheongmi watershed Sat-Byeol Shin, Seoul National University, Seoul, Korea, South (Sat-Byeol Shin, Moon Seong Kang, Jung-Hun Song, Jihoon Park)
2:50PM	1700207	Estimating nitrate retention in a large constructed wetland using high-frequency, continuous monitoring and hydrologic modeling Chad Drake, University of Iowa, Iowa City, Iowa United States (Chris Jones, Keith Schilling, Antonio Arenas Amado, Larry Weber)
3:05PM	1700684	Bayesian Variable Selection for Stream Health Modeling Juan Sebastian Hernandez-Suarez, Michigan State University, East Lansing, Michigan United States (J. Sebastian Hernandez-Suarez, A. Pouyan Nejadhashemi, Fariborz Daneshvar, Matthew R. Herman, Mohammad Abouali)
3:20PM	1700344	Critical nitrogen load in small-scale watershed: an analysis of natural and anthropogenic factors Congyu Hou, University of Illinois, Urbana, IL United States (Congyu Hou, Maria Chu)
3:35PM		BREAK
3:45PM	1701166	Does manure roll downhill? Estimating the potential contribution of manure to river nutrient loads Rebecca Muenich, University of Michigan, Ann Arbor, MI United States (Rebecca Muenich, Colleen Long, Margaret Kalcic, Donald Scavia)
4:00PM	1701603	A Module-Based Hydrologic Analysis System for Agricultural Watersheds Including Reservoirs and Irrigation Districts Jung-Hun Song, Korea, South Based University, , Korea, South (Jung-Hun Song, Moon-Seong Kang)
4:15PM	1700294	Development of a Multiple Regression Model to Predict Nitrate Concentrations in Nebraska Surface Waters Aaron Mittelstet, University of Nebraska-Lincoln, Lincoln, NE United States (Aaron Mittelstet, Troy Gilmore, Daran Rudnick)
4:30PM	1700541	Comparing soil hydrology schemes in watershed-scale ecohydrologic modeling Garett Pignotti, Purdue University, West Lafayette, IN United States (Garett Pignotti, Indrajeet Chaubey, Melba Crawford)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 236

CLIMATE VARIABILITY & CLIMATE CHANGE IMPACTS ON AGRICULTURE, WATER & NATURAL RESOURCES PART 2 –

Sponsored by NRES-21
Moderator: Subasis Mitra, Auburn, Univ

Location: 401A

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1701403	Assessing the Impacts of Historic and Future Climate Variability on Grain Sorghum Production in the Texas High Plains Kritika Kothari, Texas A&M University, College Station, Texas United States (Kritika Kothari, Srinivasulu Ale, James Bordovsky, Kelly Thorp, Dana Porter, Clyde Munster)

2:50PM	1700517	Climate-Driven Crop Yield Variability and Impacts on Crop Production in The United States Great Plains Meetpal Kukal, University of Nebraska, Lincoln, NE United States (Meetpal Kukal, Suat Irmak)
3:05PM	1700447	Evaluating impact of climate variability induced drought on corn production and environmental sustainability Sarmistha Singh, Auburn University, Auburn, AL United States (Sarmistha Singh, Indrajeet Chaubey)
3:20PM	1700184	Evaluation and Comparison of Gridded Rainfall Products PRISM and RTMA with Interpolated FAWN Rainfall Data in Florida Meijing Zhang, University of Florida, Homestead, Florida United States (Meijing Zhang, Cnorado Leon, Kati Miglaccio)
3:35PM	1700206	Weather generator performance in representing statistical characteristics of observed data Sushant Mehan, Purdue University, West Lafayette, Indiana United States (Sushant Mehan, Tian Guo, Margaret W. Gitau, Dennis C. Flanagan)
3:50PM		BREAK
4:00PM	1700031	Climate Change Impacts Analysis of Grazing Dairy Production Melissa Rojas Downing, Michigan State University, East Lansing, MI United States (Melissa Rojas Downing, A Pouyan Nejadhashemi, Mohammad Abouali, Fariborz Daneshvar, Matthew Herman, Sabah Al Masraf, Timothy Harrigan, Zhen Zhang)
4:15PM	1701184	Northeast U.S. dairy production: climate related challenges and opportunities explored via extremes Kpoti Gunn, USDA ARS, State College, PA United States (Kpoti Gunn)
4:30PM	1700990	Analysis of the Impacts of Climate and Land Use changes on the Hydrological Regime of Illinois watersheds Vaskar Dahal, University of Illinois at Urbana-Champaign, Urbana, IL United States (Vaskar Dahal, Rabin Bhattacharai)
4:45PM	1700639	Climate Change Impact Assessment and Adaptation Strategy for Narmada basin in Central India KP Sudheer, IIT Madras, Chennai, Tamil Nadu India (T Thomas, NC Ghosh, KP Sudheer)
5:00PM	1701586	Spatio-temporal Changes in Rainfall and Temperature of the Bhima River basin (India) Asmita Murumkar, Ohio State University, Columbus, Ohio United States (Asmita Murumkar, Dhyan Singh Arya)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 237

BMPS AND WATER QUALITY: CONSERVATION SYSTEMS

– Sponsored by NRES-22, NRES-21, NRES-28
Moderator: Margaret Gitau, Purdue Univ

Location: 205

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700619	Towards an efficient watershed-specific management plan using a variable source area hydrology watershed model M G Mostofa Amin, Pennsylvania State University, University Park, Pennsylvania United States (Presenter: Tamie L. Veith) (M G Mostofa Amin, Tamie Veith, James Shortle, Peter Kleinman, Heather Karsten, Douglas Beegle)
2:50PM	1700788	Water quality assessment and crop performance under true no-till, conventional and vertical tillage practices in Southern Ontario Chin Tan, Agriculture & Agri-Food Canada, Harrow, Ontario Canada (Chin Tna, Tiequan Zhang, Katie Stammeler, Michael Dick)

TUESDAY, JULY 18

3:05PM	1700620	<p>Effects of dairy cropping conservation practices on water quality for a karst watershed in northeastern USA M G Mostofa Amin, Pennsylvania State University, University Park, Pennsylvania United States (Presenter: Tamie L. Veith) (M G Mostofa Amin, Heather Karsten, Tamie Veith, Douglas Beegle, Peter Kleinman)</p>
3:20PM	1701028	<p>Assessing Shallow Groundwater Quality in Roadside Ditches Alex Boger, South Dakota State University, Brookings, SD United States (Alex Boger, Laurent Ahiablame, Dwayne Beck)</p>
3:35PM		Break
3:45PM	1700997	<p>Using hydrogeomorphic characteristics to improve a phosphorus loss index Tamie Veith, USDA ARS, University Park, PA United States (Tamie Veith, Sarah Goslee)</p>
4:00PM	1701335	<p>Irrigation scheduling using real-time data for water use efficiency in corn Maria I. Zamora Re, University of Florida, Gainesville, Florida United States (Maria I. Zamora Re, Michael D Dukes)</p>
4:15PM	1701316	<p>Designing Erosion and Nutrient Control Practices in Watersheds in Humid Regions: Lessons Learned Tammo Steenhuis, Cornell University, Bahir Dar University, Ithaca, NY United States (Tammo Steenhuis, Fasikaw Zimale, Jan Boll, Seifu Tilahun, Erin Brooks, Christian Guzman, Iinh Hoang, Elliot Schneiderman, Rajith Mukundan, Eddy Langendoen)</p>

4:30PM	1700667	<p>Water Quality Monitoring to Support Development of a Comprehensive Plan for PCBs in the Spokane River Basin Derek Schlea, Limno Tech, Britton, Michigan United States (Derek Schlea, David Dilks)</p>
4:45PM	1700106	<p>Stage-discharge relation in non-uniform flow based on Strickler-Manning Equation on Amazon Basin Demetrius Silva, Universidade Federal de Vicosa, Viçosa, Minas Gerais Brazil (Luna Alves, Demetrius Silva, Naziano Filizola, Fernando Pruski)</p>
5:00PM	1700470	<p>A procedure to simulate water quality data collection and analysis methods to establish impairments using high-frequency water quality datasets in a piedmont region lake Debabrata Sahoo, Woolpert Inc, West Columbia, South Carolina United States (Debabrata Sahoo, Frances Ellerbe, Benjamin Hammon, James Riddle)</p>

**Tuesday, July 18 – 2:30PM-5:00PM
SESSION 238
INNOVATIVE HYDROLOGY AND
WATER QUALITY MONITORING**
– Sponsored by NRES-21, NRES-23, NRES-25, NRES-28
Moderator: Deb Sahoo, Woodpert
Location: 206A

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700238	<p>Continuous turbidity monitoring in two agricultural watersheds using anti-fouling and self-cleaning sensors Niroj Aryal, Jonesboro, AR United States (Niroj Aryal, Michele L. Reba)</p>
2:50PM	1701295	<p>In situ moisture release curves to determine soil water characteristics Colin Campbell, METER Group, Inc, Pullman, WA United States (Colin Campbell)</p>
3:05PM	1700156	<p>Kayak-based geospatial water quality Paul Ayers, University of Tennessee, Knoxville, TN United States (Paul Ayers, Hayden Jordan)</p>
3:20PM	1701196	<p>Nanoscale Dynamics of Water Retention in Organo-Mineral Matrices Revealed by X-ray Diffraction Sabrina Kelch, Cornell University, Ithaca, NY United States (Sabrina Kelch, Ludmilla Aristilde)</p>
3:35PM	1701275	<p>Multi-point Continuous Monitoring and Increasing our Understanding of Black Box Natural Systems Bryan Maxwell, North Carolina State University, Raleigh, NC United States (Bryan Maxwell, Francois Birgand)</p>
3:50PM		BREAK
4:00PM	1700130	<p>Smartphone-based Fluorescence Detection of Bisphenol A from Water Samples Katie McCracken, University of Arizona, Tucson, AZ United States (Katie McCracken, Trinny Tat, Veronica Paz, Jeong-Yeol Yoon)</p>
4:15PM	1701036	<p>Photodegradation of Imidacloprid in Southeastern Rivers Tiffany Messer, University of Nebraska - Lincoln, Lincoln, NE United States (Tiffany Messer, Lee Ferguson, Martin Doyle)</p>

**Tuesday, July 18 – 2:30PM-5:00PM
SESSION 239
LOW IMPACT DEVELOPMENT AND
ECOHYDROLOGY** – Sponsored by
NRES-28, NRES-22
Moderator: Jason Vogel, Oklahoma State Univ
Location: 206B

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700702	<p>Advances in Bioretention: Suspended Pavement Systems and Future Directions for DRAINMOD Modeling Whitney Lisenbee, University of Tennessee, Knoxville, TN United States (Whitney Lisenbee, Jon Hathaway)</p>
2:50PM	1701255	<p>Assessing the Effectiveness of a Constructed Wetland in a Complex Suburban Environment Daniel Buhr, Michigan State University, Pewamo, MI United States (Daniel Buhr, Steven Safferman, Younsuk Dong, Dawn Reinhold, Ruth Kline-Robach, Steve Miller, Rebecca Bender)</p>
3:05PM	1701032	<p>Preliminary Study of Winter Performance Assessment of Three Pavement Systems: Snow Events Observation Lu-Ming Chen, University of Illinois at Urbana-Champaign, Urbana, IL United States (Paul Davidson, Lu-Ming Chen)</p>
3:20PM	1700742	<p>Performance of rain garden mesocosms and porous pavements under controlled conditions in Western Washington Anand Jayakaran, Washington State University, Puyallup, WA United States (Anand Jayakaran, Thorsten Knappenberger, John Stark)</p>
3:35PM		BREAK
3:45PM	1701612	<p>Evaluating Undersized LID Retrofits in the SE US Coastal Plain Eban Bean, University of Florida, Gainesville, FL United States (Eban Bean)</p>
4:00PM	1700144	<p>Modeling long-term impacts of low impact development on groundwater and baseflow in Deer Creek watershed, Missouri Esther Mosase, South Dakota State University, Brookings, South Dakota United States (Esther Mosase, Laurent Ahiablame)</p>
4:15PM	1701086	<p>Building a Landscape-scale Geographic Information System for Determining Areas for Placing Green Stormwater Infrastructure Nannette Huber, Washington State University, Puyallup, WA United States (Nannette Huber, Joan Wu, Anand D. Jayakaran)</p>
4:30PM	1700065	<p>Optimal implementation of green infrastructure practices to reduce adverse impacts of land use and climate change on hydrology and water quality Yaoze Liu, Purdue University, West Lafayette, IN United States (Yaoze Liu, Bernard Engel, Paris Collingsworth, Bryan Pijanowski)</p>

TUESDAY, JULY 18

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 240

MICROIRRIGATION TECHNOLOGIES

– Sponsored by

NRES-24

Moderator: Freddie Lamm, Kansas State Univ

Location: 206C

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1701494	Effect of Mobile Drip Irrigation on Corn Yield, Biomass and Water Productivity Tobias Oker, Kansas State University, Garden City, Kansas United States (Tobias Oker, Isaya Kisekka)
2:50PM	1700277	Evaluating Center Pivot Dragline Drip Irrigation Systems Charles Swanson, Texas A&M AgriLife Extension Service, College Station, Texas United States (Charles Swanson, Guy Fipps, Charles Hillyer)
3:05PM	1701105	Effects of phosphorus fertigation and lateral depths on distribution of Olsen-P in soil and yield of maize under subsurface drip irrigation Jiusheng Li, China Institute of Water Resources & Hydropower Res, Beijing, China, People's Republic of (Jiusheng Li) (Jiusheng Li, Zhen Wang, Fengzhen Hao, Yanfeng Li)
3:20PM	1701578	Evaluation of Water Management Methods for Onion and Melon Production in California Low Desert Region Jairo Diaz-Ramirez, University of California, Holtville, California United States (Jairo Diaz-Ramirez)
3:35PM		BREAK
3:45PM	1701627	Evaluating Rice Cultivars using Subsurface Drip Irrigation (SDI) Christopher Henry, University of Arkansas, Stuttgart, AR United States (Christopher Henry)
4:00PM	1700194	Deficit irrigation of subsurface drip-irrigated grape tomato Claudinei Souza, Federal University of Sao Carlos - UFSCar, Araras, Sao Paulo Brazil (Claudinei Fonseca Souza) (Thais Mendonça, Marília Silva, Claudinei Souza)
4:15PM	1701568	Analysis of Head Loss in Disk Filters Due to Geometry of Disk Filter Media in Drip Irrigation System Seung Yeon Jung, Seoul National University, Seoul, South Korea (Seung-Yeon Jung) (Seung Yoon Jung, Won Choi, Jin-Yong Choi)
4:30PM	1701579	Yield Response of Drip-Irrigated Tomato with Rainwater Harvesting in High Tunnels in Mississippi Jairo Diaz-Ramirez, University of California, Holtville, California United States (Jairo Diaz-Ramirez, William Evans, Andra Johnson)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 241

ADVANCES IN DRAINAGE AND DRAINAGE WATER QUALITY

– Sponsored by NRES-23

Moderator: Srinivasulu Ale, Texas A&M Univ

Location: 303B

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1700575	Nitrate-nitrogen and dissolved phosphorus losses from Midwestern cropping systems via subsurface drainage water Brian Dougherty, Iowa State University, Ames, Iowa United States (Carl Pederson, Matt Helmers, Michelle L. Soupir, Ramesh Kanwar, Antonio Mallarino, Brian Dougherty)
2:50PM	1700797	Efficacy of bromide tracers for evaluating the hydraulic performance of denitrification beds Ehsan Ghane, Michigan State University, East Lansing, MI United States (Ehsan Ghane, Gary Feyereisen, Carl Rosen)

3:05PM	1701525	Removing Atrazine from agricultural drainage water using woodchips bioreactors; effect of biochar amendment Bahareh Hassanpour, Cornell University, Ithaca, NY United States (Bahareh Hassanpour, Christian D. Guzman, Larry D. Geohring, Tammo S. Steenhuis)
3:20PM	1700670	Impact of Rainfall Intensity and Duration on Woodchip Bioreactor Performance Md Sami Bin Shokrana, South Dakota State University, Brookings, South Dakota United States (Md Sami Bin Shokrana, Laurent Ahiablame, Rachel McDaniel, Todd Trooien, Guanghui Hua, David Kringen)
3:35PM	1700198	Increasing infiltration into Saturated Buffers by adding a second distribution pipe. Dan Jaynes, USDA ARS, Ames, IA United States (Dan Jaynes, Tom Isenhart)
3:50PM		BREAK
4:00PM	1701343	Water quality monitoring of subsurface drainage systems in Iowa Christopher Hay, Iowa Soybean Association, Ankeny, IA United States (Christopher Hay, Adam Kiel, Anthony Seeman, Peter Kyveryga)
4:15PM	1701575	Edge-of-Field phosphorus loss in surface and subsurface discharge in relation to binational loading targets for the Western Lake Erie Basin Lindsay Pease, USDA ARS, Columbus, OH United States (Lindsay Pease, Kevin King, Emily Duncan, Mark Williams, Norm Fausey)
4:30PM	1701145	Effect of fertilizer placement on phosphorus leaching in fine-textured soils Mark Williams, USDA ARS, West Lafayette, Indiana United States (Mark Williams, Kevin King, Emily Duncan, Lindsay Pease)
4:45PM	1701542	DRAINMOD-P, a model for simulating phosphorus fate and transport in drained agricultural land Manal Askar, Biological and Agricultural Engineering, NC State University, Raleigh, NC United States (Manal Askar)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 242

MANURE AND LIABILITY ISSUES IN PNW - INVITED SPEAKERS

– Sponsored by NRES-27

Moderator: Joseph Harrison, Washington State Univ

Teng Teeh Lim, Univ of Missouri

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM		AIR
		What are Major Concerns Pius Ndegwa, Washington State University, Pullman, WA
2:55PM		Outreach – Engagement Bill Wavrin, Sunny Dene Ranch, Mabton, WA
3:15PM		Yakima Air Quality Authority Hasan tahat, Yakima Regional Clean Air Authority, Yakima, WA
3:30PM		BREAK
3:45PM		WATER
		Defining the Issue Ginny Prest, Washington Dept of Agriculture, Olympia, WA
4:05PM		Industry Perspective Jay Gordon, Washington State Dairy Federation, Elma, WA
4:25PM		Addressing the Issue ñ GWMA David Bowen, Water Quality Section Manager, Dept of Ecology, Union Gap, WA
4:45PM		Group question / Discussion

TUESDAY, JULY 18

Tuesday, July 18 – 5:00PM-7:00PM

SESSION 243 FINALIZING MODEL CALIBRATION AND VALIDATION GUIDELINES - RAP SESSION

– Sponsored by NRES-21
Moderator: Claire Bauffaut, USDA ARS

Location: 207

Time	Paper#	Title/Author
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Tuesday, July 18 – 2:30PM-5:00PM

SESSION 245 PRECISION ANIMAL MANAGEMENT AND ENVIRONMENTAL CONTROL

– Sponsored by PAFS-40, PAFS-234, PAFS-50, PAFS-403/1, PAFS-20, PAFS-20/4
Moderator: John Linhoss, Mississippi State Univ

Location: 301

Time	Paper#	Title/Author
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2:30PM		Introduction
2:35PM	1700196	Measurement and Comparison of Building Envelope Heat Conduction for Broiler Houses of Different Age Gary Chesser, Mississippi State University, Mississippi State, Mississippi United States (Gary Chesser, Joseph Purswell, Jeremiah Davis, Jason Ward, Tom Tabler) States (Benjamin Joffe) (Benjamin Joffe, Colin Usher)
2:50PM	1701257	Near Field Communication (NFC) based cattle ear tags for cattle management Joshua Jackson, University of Kentucky, Lexington, Kentucky United States (Joshua Jackson)
3:05PM	1700550	Quantification of Dynamic Space Requirements for Sows Suzanne Leonard, Iowa State University, Ames, IA United States (Suzanne Leonard, Hongwei Xin, Tami Brown-Brandl, John Stinn, Anna Johnson, Kai Liu)
3:20PM	1700175	Trailer Thermal Environment during Commercial Broiler Transportation Yi Liang, University of Arkansas, Fayetteville, AR United States (Yi Liang, Kaushik Luthra, Douglas Aldridge, Susan Watkins, Karen Christensen, Yvonne Thaxton)
3:35PM	1701486	Implementation of Aerial and Thermal Imagery in Livestock Management Mohammademehdi Maharlooei, Shahid Bahonar Univ of Kerman, Kerman, Kerman Iran (Presenter: Alimohammad Shirzadifar) (Mohammademehdi Maharlooei, Sreekala Bajwa, Alimohammad Shirzadifar, Carl Dahlen, John Nowatzki)
3:50PM		BREAK
4:00PM	1700379	Development and Evaluation of an Evaporation Model for Predicting Sprinkler Interval Time Brett Ramirez, Iowa State University, Ames, IA (Brett Ramirez, Steven Hoff, Jay Harmon, John Patience)
4:15PM	1700397	Autonomous robotic system for picking up floor eggs in poultry houses Benjamin Joffe, Georgia Tech, Atlanta, GA United States (Colin Usher, Georgia Tech Research Institute, Atlanta, GA United States (Colin Usher, Wayne Daley, Aneri Muni, Benjamin Joffe)
4:30PM	1701103	Robotics in Poultry House Management
4:45PM	1701519	Modelling bio-aerosol concentration in commercial poultry houses Alberto Pena Fernandez, Kuleuven Lrd, Leuven, Belgium (Alberto Pena Fernandez, Ali Youssef, Theo Demmers, Daniel Berckmans)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 246/247 AGRI-INDUSTRIAL FACILITY DESIGN AND OPERATION/DESIGN, ANALYSIS, TESTING AND ASSEMBLY OF STRUCTURES

– Sponsored by PAFS-20
Moderator Gregory Williams, Facility Engineering Services

Location: 302A

Time	Paper#	Title/Author
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2:30PM		Introduction
2:35PM	1700851	Developing strategies to reduce the risk of fire spread in biomass bale storage yards Erin Webb, Oak Ridge National Laboratory, Oak Ridge, TN United States (Erin Webb)
2:50PM	1700593	Eccentric Flow Lateral Pressures - A Survey and Comparison of Methods Gregory Williams, Facility Engineering Services, Springdale, Arkansas United States (Gregory Williams, Tom Gettings)
3:05PM	1701207	Building Code and Standards for the Design and Construction of Grain Elevator Facilities Gregory Williams, Facility Engineering Services, Springdale, Arkansas United States (Gregory Williams)
3:20PM	1700665	Post and Pier Foundation Design Aid David Bohnhoff, University of Wisconsin, Madison, WI United States (David Bohnhoff)
3:35PM	1701355	Current housing trends unintended impacts on animal welfare and environment Eileen Fabian, Pennsylvania State University, University Park, PA United States (Eileen Fabian)
3:50PM		BREAK
4:00PM	1700779	Determining Discharge Coefficient of Large Openings of Wind-driven Cross Ventilation Barns by Wind Tunnel Tests Qianying Yi, Aarhus University, Viborg, Denmark (Qianying Yi, Guoqiang Zhang, Marcel König, David Janke, Thomas Amon, Sabrina Hempel)
4:15PM	1701527	Belt slip in slant-wall exhaust fans Brian Luck, University of Wisconsin-Madison, Madison, WI United States (Joseph Purswell, Brian Luck)
4:30PM	1701583	Economic Returns for Cooling Systems for Dairy Cattle in Different Climates Kristen Perano, Cornell University, Ithaca, NY United States (Kristen Perano, Kifle Gebremedhin)
4:45PM	1700795	Multi-criteria analysis to select the most appropriate rearing environment for broiler production Irenilza Nääs, FEAGRI, Campinas, Sao Paulo Brazil (Karla Lima, Irenilza Naas, Daniella Moura, Rodrigo Garcia)
5:00PM	1701235	A New and Innovative Technical Approach to an Aquaponics System in China Daoling Li, China Agricultural University, Beijing, China (Daoling Li)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 248 PROCESSING SYSTEMS POSTER SESSION

– Sponsored by PRS
Moderator: Deepak Keshwani, Univ of Nebraska

Location: 111ABC

Poster#	Paper#	Title/Author
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1	1700037	Microalgae Cultivation Using a High-efficiency Photobioreactor System for Flue Gas Carbon Dioxide Sequestration Yan Liu, Michigan State University, East Lansing, Michigan United States (Yan Liu, Wei Liao, David Pavlik, Bill Clary)
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TUESDAY, JULY 18

2	1700075	<p>Comparison of Respiration Rates from Static and Dynamic Measurement Systems from Soybeans at 18% Moisture and 35C</p> <p>Richard Gates, University of Illinois at Urbana-Champaign, Urbana, IL (Presenter: Ana Beatriz Pereira da Silva) (Ana B. Pereira da Silva, Marcio Januario Brantis Junior, Lucas R. Trevisan, Mary Grace C. Danao, Richard S. Gates, Kent D. Rausch)</p>	15	1700395	<p>The practical limitations of dilute acid hydrolysis for producing soluble, functional MBM protein</p> <p>Rafael Garcia, USDA ARS, Dresher, PA United States (Rafael Garcia, Matthew Essandoh, Christine Neiman, Lorelie Bumanlag, Congmu Zhang)</p>
3	1700103	<p>Identification, optimization, functional evaluation of esterification microorganism from Kinmen Kaoliang yellow water</p> <p>Kuan-Chen Cheng, National Taiwan University, Taipei, Taiwan China, Republic of (Taiwan) (Yen-Tso Lai, Ying-Jang Lai, Kuan Chen Cheng)</p>	16	1700412	<p>A Nondestructive Method to Evaluate Carrot Quality Using Visible-Near Infrared Spectroscopy</p> <p>Akinbode Adededeji, University of Kentucky, Lexington, Kentucky United States (Ahmed Rady, Shinta Sugi-harto, Akinbode Adededeji)</p>
4	1700104	<p>Study on fungal isolation and changes of antioxidant activities in miso fermentation with different soybean varieties</p> <p>Kuan-Chen Cheng, National Taiwan University, Taipei, Taiwan China, Republic of (Taiwan) (Nessie Wen, Kuan-Chen Cheng)</p>	17	1700585	<p>Apparatus to disperse crushed grains evenly into a flexible container bag</p> <p>Tetsuo Kawaide, Institute of Livestock and Grassland Science, NARO, Nasushiobara-shi, Tochigi-ken Japan (Tetsuo Kawaide, Hidehiko Inoue, Shuji Urakawa, Kazuhisa Nonaka)</p>
5	1700107	<p>Characteristics of Liquid Smoke Infused Osmotically Dehydrated Apples</p> <p>Kaushlendra Singh, West Virginia University, Morgantown, WV United States (Presenter: Litha Sivanandan) (Felix Akharume, Kaushlendra Singh, Litha Sivanandan, Jacek Jaczynski, Winifred McGee)</p>	18	1700603	<p>Prediction of Soluble Solids for Complete Orange Based on Visible/Near Infrared Transmission Spectroscopy</p> <p>Fan Wang, China, People's Republic of (Fang Tian) (Fan Wang, Yongyu Li, Xiaochun Zheng, Xiaoqian Fang, Xiaopu Bu, Fang Tian)</p>
6	1700108	<p>Improving and Modeling Microbial Shelf Stability and Quality of Dried Apple Snacks</p> <p>Litha Sivanandan, West Virginia University, Morgantown, West Virginia United States (Felix Akharume, Kaushlendra Singh, Jacek Jaczynski, Litha Sivanandan, Winifred McGee)</p>	19	1700632	<p>Challenges Facing Small Scale Grain Fortification in Tanzania: A Case of Morogoro Municipality</p> <p>Kurt Rosentrater, Iowa State University, Ames, Iowa United States (Kurt Rosentrater) (Kurt Rosentrater, Rashid Suleiman)</p>
7	1700128	<p>Effect of heating temperature on barley forming process as pellet feed</p> <p>Xiao Chen, China Agricultural University, Beijing, Beijing China, People's Republic of (Xiao Chen, Hongying Wang, Dandan Kong, Peng Fang, Nan Jin, Enze Duan, Zhongxian Qi)</p>	20	1700634	<p>Postharvest Practices and Mycotoxins of Maize in Three Agro-Ecological Zones in Tanzania</p> <p>Kurt Rosentrater, Iowa State University, Ames, Iowa United States (Kurt Rosentrater)</p>
8	1700129	<p>Study of compression characteristic of cassava influenced by temperature basing on forming apparatus</p> <p>Xiao Chen, China Agricultural University, Beijing, Beijing China, People's Republic of (Xiao Chen, Dandan Kong, Hongying Wang, Peng Fang, Nan Jin, Enze Duan, Zhongxian Qi)</p>	21	1700658	<p>Equilibrium Moisture Content of Hazelnut Husks, Shells and Kernels</p> <p>David Bohnhoff, University of Wisconsin, Madison, WI United States (David Bohnhoff, Rhonda Bohnhoff)</p>
9	1700131	<p>A dynamic model for predicting survival of <i>Tribolium castaneum</i> adults to elevated temperatures during heat treatment of grain-processing facilities</p> <p>Jennifer Lovely, University of Kentucky, Lexington, KY United States (Jennifer Lovely)</p>	22	1700676	<p>Physical properties of corn flour from the roller milling effect.</p> <p>Noor Intan Shafinas Muhammad, Iowa State University, Ames, IA United States (Presenter: Kurt A. Rosentrater) (Noor Intan Shafinas Muhammad, Bernard Darfour, Nazira Mahmud, Kurt A. Rosentrater)</p>
10	1700248	<p>Theoretical Modeling Research of Grain Yield Monitor Based on Single Particle Method</p> <p>Xiaofei An, NERCITA, Beijing, China, People's Republic of (Presenter: Dong Jianjun) (Xiaofei An, Xinlan Fu, Jianjun Dong, Yanxin Yin)</p>	23	1700680	<p>Life cycle assessment and techno-economic analysis of ethanol production: A review</p> <p>Maria Oliveira, Iowa State University, Ames, Iowa United States (Maria Oliveira, Kurt Rosentrater)</p>
11	1700312	<p>Novel Metabolic Routes for Mixed-Sugar Metabolism in <i>Pseudomonas protegens</i> and Implications for Biotechnology</p> <p>Rebecca Wilkes, Cornell University, Ithaca, NY United States (Rebecca Wilkes, Ludmilla Aristilde)</p>	24	1700681	<p>Environmental and economic feasibility study of flocculation process as a treatment of wastewater in ethanol production</p> <p>Maria Oliveira, Iowa State University, Ames, Iowa United States (Maria Oliveira, Kurt Rosentrater)</p>
12	1700332	<p>Surface Modification to Improve Milk Cleanability of Stainless Steel Tubes</p> <p>John Schueller, University of Florida, Gainesville, FL United States (Eduardo Moreno, John Schueller, Ikko Ihara, Hitomi Yamaguchi)</p>	25	1700682	<p>Environmental impact and economic evaluation of low moisture anhydrous ammonia pretreatment (LMAA) for biobutanol production from oil palm fronds</p> <p>Nazira Mahmud, Iowa State University, Ames, Iowa United States (Presenter: Kurt A. Rosentrater) (Nazira Mahmud, Kurt Rosentrater)</p>
13	1700340	<p>Moisture Meter: An Effective Tool for Post-harvest Loss Reduction in Grain</p> <p>Abdul Awal, Bangladesh Agricultural University, Mymensingh, Bangladesh (Md Abdul Awal, Mohammed Afzal Hossain, Md Rostom Ali, Md Monjurul Alam, Prasanta Kumer Kalita)</p>	26	1700683	<p>The potential of low moisture anhydrous ammonia (LMAA) pretreatment on different biomass</p> <p>Nazira Mahmud, Iowa State University, Ames, Iowa United States (Presenter: Kurt A. Rosentrater) (Nazira Mahmud, Kurt Rosentrater)</p>
14	1700370	<p>An Organoleptic Evaluation to Determine Consumer Acceptance of Millet Based Gluten Free Breads</p> <p>Akinbode Adededeji, University of Kentucky, Lexington, Kentucky United States (Presenter: Joseph Woomer) (Joseph Woomer, Manjot Singh, Akinbode Adededeji)</p>	27	1700718	<p>Detection of moldy corn kernels using image processing technique based on the Android operating system</p> <p>Xuan Chu, China Agricultural University, Beijing, China, People's Republic of (Xiwei Bai, Wei Wang, Xuan Chu, Hongzhe Jiang, Beibei Jia, Yi Yang, Daniel Kimuli)</p>
			28	1700720	<p>Optical detection and sorting equipment design for moldy peanuts based on FPGA</p> <p>Xuan Chu, China Agricultural University, Beijing, China, People's Republic of (Bo Wang, Wei Wang, Xin Zhao, Xuan Chu, Hongzhe Jiang, Daniel Kimuli)</p>

29	1700728	Prediction of Quality attributes of Chicken Breast Fillets by Using Vis/NIR Spectroscopy Combined with Factor Analysis Method Yi Yang, China Agricultural University, Beijing, China, People's Republic of (Yi Yang, SeungChul Yoon, Hong Zhuang, Wei Wang, Hongzhe Jiang, Beibei Jia)	42	1700847	Influence of kernel shape and size distribution on wheat compaction in storage Marvin Petingco, Kansas State University, Cagayan State University, Manhattan, Kansas United States (Marvin Petingco, Rumela Bhadra, Mark Casada, Ronaldo Maghirang, Michael Montross, Sidney Thompson, Samuel McNeill, Aaron Turner)
30	1700732	Predicting water-holding capacity of intact chicken broiler breast fillets with Vis/NIR spectroscopy Yi Yang, China Agricultural University, Beijing, China, People's Republic of ((Hongzhe Jiang, Seungchul Yoon, Hong Zhuang, Wei Wang, Yi Yang, Xuan Chu)	43	1700866	Effect of irrigation on physicochemical properties and bioethanol yield of drought tolerant and conventional corn Bairen Pang, Kansas State University, Manhattan, KS United States (Ke Zhang, Bairen Pang, Isaya Kisekka, Danny Rogers, Donghai Wang, Meng Zhang)
31	1700733	Application of VNIR hyperspectral imaging for non-destructive prediction of pH, color and drip loss of chicken breast fillets Yi Yang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xin Zhao) (Beibei Jia, Seungchul Yoon, Hong Zhuang, Wei Wang, Yi Yang, Hongzhe Jiang, Xuan Chu, Xin Zhao, Daniel Kimuli)	44	1700877	Assessment of sterilization methods on by-products used in Total Mixed Ration for safe feed production Daniel Dooyum Uyeh, Kyungpook National University, Bukgu, Daegu Korea, South (Daniel Dooyum Uyeh, Seungmin Woo, Yushin Ha, Jun Hee Kim)
32	1700738	The DFT Studies of Ethane Reforming with Carbon Dioxide on Ni (111) Catalyst Surface Yayun Zhang, Washington State University, Richland, WA United States (Yayun Zhang, Hanwu Lei, Zixu Yang, Elmar Villota, Gayatri Yadavalli, Moriko Qian, Lei Zhu)	45	1700879	Milling quality of parboiled rice under various drying conditions Daniel Dooyum Uyeh, Kyungpook National University, Bukgu, Daegu Korea, South (Daniel Dooyum Uyeh, Seungmin Woo, Yushin Ha, Jun Hee Kim)
33	1700762	Evaluation of growth characteristics of Aspergillus parasiticus by shortwave infrared (SWIR) hyperspectral imaging Xin Zhao, China Agricultural University, Beijing, China, People's Republic of (Xuan Chu, Wei Wang, Xin Zhao, Haitao Zheng, Daniel Kimuli, Hongzhe Jiang, Beibei Jia, Yi Yang)	46	1700898	Contact Stress Analyses of Accelerate Impact and Damage Predication for Clam Hubo Xu, Beijing, China, People's Republic of (Hubo Xu, Lihua Liu, Xiuying Tang, Fangqi Chen, Ji Zhang)
34	1700764	A SWIR hyperspectral imaging method for classifying Aflatoxin B1 contaminated maize kernels Xin Zhao, China Agricultural University, Beijing, China, People's Republic of (Daniel Kimuli, Kurt Lawrence, Seung-Chul Yoon, Wei Wang, Gerald Heitschmidt, Xin Zhao)	47	1700899	Development on Nondestructive Detection device for viscoelasticity of beef hubo xu, Beijing, China, People's Republic of (Hubo Xu, Xiuying Tang, Yankun Peng, Yuan Long, Yanlei Li)
35	1700766	Variety classification of Maize kernels using near infrared (NIR) hyperspectral imaging Xin Zhao, China Agricultural University, Beijing, China, People's Republic of (Xin Zhao, Wei Wang, Xuan Chu, Hongzhe Jiang, Beibei Jian, Yi Yang, Daniel Kimuli)	48	1700973	Effect of power ultrasound on sodium chloride diffusion during marinating rabbit meat Maria E Sosa-Morales, Mexico power University, Irapuato, Guanajuato Mexico (Diana Ochoa-Montes, Maria E. Sosa-Morales, Abel Cerón-García, Julian A. Gómez-Salazar)
36	1700793	Change in oil extraction process from solvent based to enzyme assisted aqueous extraction- A review Varsha Gaonkar, Iowa State University, Ames, Iowa United States (Varsha Gaonkar, Kurt Rosentrater)	49	1700982	Physicochemical, sensory and nutritional evaluation of gluten-free bread based on rice and soybean flour Maria E Sosa-Morales, Universidade De Las Americas, Irapuato, Guanajuato Mexico (Presenter: Maria de la Luz Guerrero-Elizarraraz) (María de la Luz Guerrero-Elizarrarás, Everardo Mares-Mares, María E. Sosa-Morales)
37	1700794	Testing the efficacy of preservatives in distiller's wet grains (Ethanol co-product) Varsha Gaonkar, Iowa State University, Ames, Iowa United States (Varsha Gaonkar, Kurt Rosentrater)	50	1701119	Modelling of rice bran oil extraction kinetics under the influence of microwave pre-treatment Ruby Pandey, ITT Kharagpur, Kharagpur, West Bengal India (Ruby Pandey, Shanker Lal Shrivastava)
38	1700808	Determination of Safe Grain Storage Time – A Review Richard Gates, University of Illinois at Urbana-Champaign, Urbana, IL United States (Presenter: Mary-Grace Danao) (Mary-Grace Danao, Lucas R Trevisan, Ana B. Pereira da Silva, Richard S. Gates, Kent D. Rausch)	51	1701124	Optimization of the pre-conditioning process for microwave puffing of pressure-parboiled brown rice Ajay Kumar Swarnakar, ITT Kharagpur, Kharagpur, West Bengal India (Ajay Kumar Swarnakar, Susanta Kumar Das)
39	1700824	Evaluation of deficit irrigation strategies on sorghum grain attributes and biofuel production Bairen Pang, Kansas State University, Manhattan, KS United States (Bairen Pang, Ke Zhang, Isaya Kisekka, Danny Rogers, Scott, Bean, Donghai Wang, Meng Zhang)	52	1701136	Simulation of picking-ear process based on Adams Shuai Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xiaopeng Bai; Jinkui Feng) (Huijuan Bai, Shuai Li, Decheng Wang, Xianfa Fang, Guanghui Wang, Jinkui Feng, Xiaopeng Bai)
40	1700827	Pre-Harvest and Post-Harvest Farmer Experiences and Practices in Five Maize Growing Regions in Ghana Bernard Darfour, Iowa State University, Ames, Iowa United States (Presenter: Kurt A. Rosentrater) (Bernard Darfour, Kurt A. Rosentrater)	53	1701173	Finite element modeling of wheat tempering/conditioning process Johnselvakumar Lawrence, Kansas State University, Hesston, KS United States (Johnselvakumar Lawrence)
41	1700829	Storability of Organic and Conventional Sorghum Grains at a Constant Relative Humidity, and Varied Temperatures Bernard Darfour, Iowa State University, Ames, Iowa United States (Presenter: Kurt A. Rosentrater) (Bernard Darfour, Kurt A. Rosentrater)	54	1701182	Release Kinetics of Encapsulated Aloe Vera Gel in PLGA NP and its Physicochemical Characteristics and Thermal Stability Lamin Kassama, Alabama A&M University, Normal, Alabama United States (Lamin Kassama, Jawad Misir)
			55	1701183	The kinetics of dephosphorylated phytic acid release from enzymatic hydrolyzed Red Kidney Beans (Phaseolus Vulgaris L) Lamin Kassama, Alabama A&M University, Normal, Alabama United States (Lamin Kassama, Ogechukwu Tasie)

TUESDAY, JULY 18

- 56 1701247 **Mathematical modelling and thin-layer drying characteristics of black pepper**
Sunoj Shajahan, North Dakota State University, Fargo, ND United States (Sunoj Shajahan, Igathinathane Cananayen, Visvanathan Rangaraju)
- 57 1701252 **Molecular characterization of primary and secondary lactoserics proteins of whey coming from different cheeses**
Everardo Mares, Universidad de Guanajuato, Irapuato, Guanajuato Mexico (Presenter: Mares-Mares E. and Sosa-Morales, M. E) (Everardo Mares Mares, Maria Elena Sosa, Jose Eleazar Barboza, Ma. Fabiola León, F.L.M. Herrera-Castillo, R. Navarro-Mendoza, A. A. Ferrigno-Pérez)
- 58 1701278 **Impact of moisture content on the density and durability of alfalfa pellets**
Jaya Shankar Tumuluru, Idaho National Laboratory, Idaho Falls, Idaho United States (Jaya Shankar Tumuluru, Neal Yancey, Craig Conner, Matt Dee)
- 59 1701305 **The study on friction test between cotton fiber, cotton ,cotton seed and steel surface**
Teng Li, Beijing, China, People's Republic of (Presenter: Jinkui Feng) (Teng Li, Xianfa Fang, Decheng Wang, Binbin Zhang, Jinkui Feng)
- 60 1701329 **Acetone-butanol-ethanol (ABE) production from Apple Pomace by Anaerobic Fermentation**
Qing Jin, Virginia Polytechnic Institute and State University, Blacksburg, VA United States (Qing Jin, Haibo Huang)
- 61 1701383 **Antihypertensive and antioxidant capacity of a high protein beverage (walnut-sesame seeds- oat-soy-bean)**
Everardo Mares, Universidad de Guanajuato, Irapuato, Guanajuato Mexico (Presenter: Mares-Mares, E. and Sosa-Morales, M. E) (Everardo Mares, C. Aguilar-Bravo, F. L. M. Herrera-Castillo, M.F.León-Galvan, M.C. Del Rincón-Castro, M.E. Sosa-Morales,)
- 62 1701384 **Selection of processing temperature for a functional beverage with antihypertensive activity in order to preserve its proteomic profile**
Everardo Mares, Universidad de Guanajuato, Irapuato, Guanajuato Mexico (Everardo Mares, N.Z. Ramirez-Rojas, F.L.M. Herrera-Castillo, S. Gutierrez-Vargas, M.C. Del Rincón-Castro, M.E. Sosa-Morales, M.F. León-Galván)
- 63 1701449 **Ultrasound-Assisted Enzymatic Transesterification of Waste Cooking Oil**
Wenqi Li, University of Kentucky, Lexington, KY United States (Wenqi Li, Joseph Woome, Akinbode Adedeji, Jian Shi)
- 64 1701467 **Experimental research on mechanical properties of braided grass**
Shuai Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xiaopeng Bai; Jinkui Feng) (Shuai Li, Huijuan Bai, Guanghui Wang, Decheng Wang, Xianfa Fang, Jinkui Feng, Xiaopeng Bai)
- 65 1701507 **Comparison of bacterial and algal protein expression, A bioprocessing perspective**
Ayswarya Ravi, Texas A&M University, College Station, Texas United States (Ayswarya Ravi, Shengchun Guo, Zivko Nikolov, Beth Rasala, Stephen Mayfield)
- 66 1701533 **Prediction of heat treatment temperature of selected dairy ingredients using Vis-NIR spectroscopy and chemometrics.**
Colm O'Donnell, University of Dublin, Belfield, Ireland (Xiao Wang, Carlos Esquerre, Gerard Downey, Colm O'Donnell)
- 67 1701549 **Evaluation of prototype process analytical technology tool to monitor acid induced milk coagulation kinetics**
Colm O'Donnell, University of Dublin, Belfield, Ireland (Bhavya Panikuttira, Brijesh K Tiwari, John Tobin, Donal J O'Callaghan, Carlos Esquerre, Colm O'Donnell)
- 68 1701629 **Effects of Bin Partial Unloading and Refilling on Stored Wheat Packing**
Marvin Petingco, Kansas State University, Manhattan, Kansas United States (Marvin Petingco)

- 69 1701638 **Post-Harvest Grain Storage and Handling - Improved Grain Bin Fumigation to Control Phosphine-Resistant Pests**
Taylor Conley, Oklahoma State University, Stillwater, Oklahoma United States (Taylor Conley)
- 70 1701640 **Effect of Time in Storage on the Quality of Animal Feed Pellets**
Sagar Gautam, University of Missouri, Columbia, MO United States (Sagar Guatam)
- 71 1701699 **Temperature Dependent Flow and Viscoelastic Properties of Desi Ghee - A Clarified Butter of Indian Origin**
Jatindra Kumar Sahu, India Flow University, New Delhi, Delhi India (Jatindra Kumar Sahu)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 249 **VULNERABILITY ASSESSMENT OF LAND RESOURCES FOR SUSTAINABLE DEVELOPMENT - INVITED SPEAKERS**

– Sponsored by NRES-26
Moderator: Aavudai Anandhi Swamy, Florida Agr & Mechanical Univ

Location: 207

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM	1701659	Vulnerability Assessment of Land Resources for Sustainable Development: Overview of the Lessons Learned and Next Steps Aavudai Anandhi, Florida A&M University, Tallahassee, FL United States (Aavudai Anandhi)
2:50PM	1701660	Modeling of the Integrated Water Cycle: Insights on the Energy-Water-Land Nexus Ruby Leung, Pacific Northwest National Laboratory, Richland, Washington United States (Ruby Leung)
3:05PM	1701661	Winter Wheat Yield Responses to Climate Variation in the U.S. Central Great Plains Robert Aiken, Kansas State University, Manhattan, Kansas United States (Robert Aiken, Xiaomao Lin)
3:20PM	1701662	Climate-Induced Vulnerability of Land Resources and Approaches for Sustainable Development Puneet Srivastava, Auburn University, Auburn, Alabama United States (Puneet Srivastava)
3:35PM		BREAK
3:45PM	1701663	Adaptation Strategies and Tools to Increase the Climate Resilience of the Agricultural Industry in the Southeastern U.S. Clyde Fraisse, University of Florida, Gainesville, Florida United States (Clyde Fraisse)
4:00PM	1701664	Crop Consumptive Use - A Complex Link Between Climate Change and Crop Productivity George Paul, Formation Environmental, LLC, Sacramento, California United States (George Paul, Brian Schmid)
4:15PM	1701665	Ecohydrological Modeling Can Measure Surface Hydrological and Ecological Response to Land Use and Climate Change Kyle Douglas-Mankin, USGS New Mexico Water Science Center, Albuquerque, New Mexico United States (Kyle Douglas-Mankin)
4:30PM	1701666	To come Indrajeet Chaubey, Purdue University, West Lafayette, Indiana United States (Indrajeet Chaubey)

TUESDAY, JULY 18 – WEDNESDAY, JULY 19

Tuesday, July 18 – 5:00PM-7:00PM

SESSION 250 TECHNICAL TRENDS AND CAREER OPPORTUNITIES, AKABFE INVITED PRESENTATIONS; STUDENT COMPETITION; BUSINESS MEETING – Sponsored by E-2050
Moderator:

Location: 300B

Time	Paper#	Title/Author
5:00PM		Introduction
5:05PM	1701678	Bio/Nano Technology for Advanced Hybrid Materials and Devices Jin-Woo Kim, University of Arkansas, Fayetteville, Arkansas United States (Jin-Woo Kim)
5:25PM	1701677	Trends of Precision Agriculture in Korea Sun-ok Chung, Chungnam National University, Daejeon, South Korea (Sun-ok Chung)
5:45PM	1701676	Research and Development Direction and Prospect of Korean Agricultural Tractor Yu Ji-Hun, LS Mtron, Anyang-Si, South Korea (Yu Ji-Hun)

Tuesday, July 18 – 2:30PM-5:00PM

SESSION 252 BROCK FAULKNER MEMORIAL SESSION ON AGRICULTURAL AIR QUALITY – INVITED SPEAKERS
– Sponsored by PAFS-50, MS-23/7/3
Moderator: Russell McGee, Texas A&M Univ

Location: 302B

Time	Paper#	Title/Author
2:30PM		Introduction
2:35PM		Career in Review Bryan Shaw, Texas Commission on Environmental Quality, Austin, TX
2:50PM		Personal Remembrances John Wanjura, USDA ARS, Lubbock, TX
3:05PM		Professional Impact: - Air Quality Research Kelley Green, Texas Cotton Ginners Assoc, Austin TX - USDA AAQTF Bill Norman, National Cotton Council, Cordova, TN - Teaching Russell McGee, Texas A&M Univ, College Station, TX - Cotton Research Derek Whitelock, USDA ARS Southwestern Cotton Ginning Research Laboratory, Mesilla Park, NM
4:30PM		Mentoring Impact: Selected former grad students (Lauren Hazelrigs, Raleigh Smith, etc.)
4:50PM		Wrap up Russell McGee, Texas A&M Univ, College Station, TX

Wednesday, July 19 – 7:30AM-10:00AM

SESSION 301 ADVANCES AND DROP-IN BIOFUELS PRODUCTION - BIOCHEMICAL APPROACH
– Sponsored by ES-220
Moderator: Nourredine Abdoulmoumine, Univ of Kentucky
Oluwafemi Oyed, Univ of Kentucky

Location 102A/B

Time	Paper#	Title/Author
7:30AM		Introduction
7:35AM	1700117	Unveiling new insights of enzymatic hydrolysis affected by cellulose reactivity and lignin Xiang Li, Clemson University, Anderson, South Carolina United States (Xiang Li, Yi Zheng)
7:50AM	1700318	Development of a comprehensive computational fluid dynamic and discrete element model of biomass fast pyrolysis in a bubbling fluidized bed reactor Ross Houston, University of Tennessee, Knoxville, TN United States (Ross Houston, Nourredine Abdoulmoumine, Oluwafemi Oyedeji)
8:05AM	1700320	Enhanced Syngas Fermentation for Ethanol Production Using Activated Carbon Hasan Atiyeh, Oklahoma State University, Stillwater, OK United States (Hasan Atiyeh, John R. Phillips, Ray Huhnke, Randy Lewis)
8:20AM	1700487	Synthesis and Evaluation of Sorbents for Hot Gas Cleanup of Hydrogen Chloride in Producer Gas Qiaoming Liu, University of Tennessee, Knoxville, TN United States (Qiaoming Liu, Stephen Chmely, Nicole Labbe, Nourredine Abdoulmoumine)
8:35AM	1700918	Design, Testing, and Evaluation of a Hydrous Bioethanol Distiller for the Production of Fuel-Grade Alcohol from Nipa Sap (Nypa fruticans) Manuel Jose Regalado, Philippine Rice Research Institute, Munoz Science City, Nueva Ecija Philippines (Manuel Jose Regalado, Alexis Belonio, Marvelin Rafael, Katherine Villota, Phoebe Reyes, Eden Gagelonia)
8:50AM	1701238	Transforming the Nigerian Energy Sector: Role of Agricultural and Biological Engineers Mohammed Khalid Othman, Nigerian University, Samaru Zaria, Kaduna Nigeria (Mohammed Khalid Othman)
9:05AM	1701338	Advanced Biofuels: Challenges and Opportunities Kasiviswanathan Muthukumarappan, South Dakota State University, Brookings, SD United States (Kasiviswanathan Muthukumarappan)
9:20AM	1701501	Develop CRISPR-Cas Genome Engineering Tool-sand Engineer Solventogenic Clostridia for Enhanced Biofuel and Biochemical Production Yi Wang, Auburn University, Auburn, Alabama United States (Yi Wang)

Wednesday, July 19 – 7:30AM-10:00AM

SESSION 302 ADVANCES IN BIOMASS PREPROCESSING AND PRETREATMENT – Sponsored by ES-220
Moderator: Jaya Shankar Tumuluru, Idaho National Lab
Lalatendu Das, Univ of Kentucky

Location: 102C/D

Time	Paper#	Title/Author
7:30AM		Introduction
7:35AM	1700058	Torrefaction of Timothy Hay: Optimization using response surface methodology (RSM) Daya Ram Nhuchhen, University of New Brunswick, Fredericton, New Brunswick Canada (Muhammad T. Afzal) (Daya Ram Nhuchhen, Muhammad T. Afzal)