

WEDNESDAY, AUGUST 1

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 304

ENERGY UTILIZATION AND APPLICATION IN AGRICULTURAL FACILITIES, PROCESSES AND OPERATIONS – Sponsored by ES-300,

ES-310, PAFS-40
Moderator: Scott Sanford, University of Wisconsin, Madison, WI

LOCATION: 140D

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800407	A new tool for the estimation of energy consumption for climate control of greenhouses Enrico Fabrizio, Politecnico di Torino, Energy Department, Torino, Italy (Presenter: Enrico Fabrizio) (Giacommo Sicardi, Andrea Costantino, Mark Fabrizio, Mauro Bariani)
07:50AM	1801405	Evaluation of a Landscape Fabric Based Solar Air Heater in a Pig Nursery Li Yu, North Carolina State University, Raleigh, NC United States (Presenter: Li Yu) (Li Yu, Sanjay Shah, Mark Knauer, Mike Boyette)
08:05AM	1800560	Studies on electrical energy consumption of an automatic feeding system in dairy cattle farming Rosemarie Oberschätzl-Kopp, Lely Germany GmbH, Waldstetten, Germany (Presenter: Heinz Bernhardt) (Josef Bühler, Anja Gräff, Sascha Wörz, Heinz Bernhardt)
08:20AM	1801140	Comparing multiple linear regression and support vector machine models for predicting electricity consumption on pasture based dairy farms Philip Shine, Cork Institute of Technology, Cork, Munster Ireland (Presenter: Philip Shine) (Philip Shine, John Upton, Ted Scully, Laurence Shalloo, Michael D. Murphy)
08:35AM		BREAK
08:45AM	1800855	Developing energy use and savings indices for Michigan dairy operations Benjamin VanZweden, Michigan State University, East Lansing, Michigan United States (Presenter: Benjamin VanZweden) (Benjamin VanZweden, Aluel Go, Truman Surbrook)
09:00AM	1800562	New Essential oil distillation system – Modification and testing - Year 2 Scott Sanford, University of Wisconsin-Madison, Madison, WI United States (Presenter: Scott Sanford) (Scott Sanford, David Bohnhoff)
09:15AM	1801520	Energy Efficiency Analysis of Cassava Tuber Production in South-West Nigeria Simeon Olatayo Jekayinfa, Ladoke Akintola University of Technology, Ogbomosho, Oyo State Nigeria (Presenter: Simeon Olatayo Jekayinfa) (Simeon Olatayo Jekayinfa, Joel A. Olaniran)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 305

RENEWABLE ENERGY RESOURCES AND TECHNOLOGIES - PART 2 – Sponsored by ES-210

Moderator: Hongjian Lin, University of Minnesota, St. Paul, MN

LOCATION: 140E

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800645	A Novel Horizontal Reactor Design for High Solid Biomass Conversion Haider Kadhum, Oregon State University, Corvallis, Oregon United States (Presenter: Haider Kadhum) (Ganti Murthy)

07:50AM	1800923	Ammonia as a sustainable energy source and its synthesis under atmospheric conditions using non-thermal plasma (NTP) Peng Peng, University of Minnesota, St. Paul, Minnesota United States (Presenter: Peng Peng) (Peng Peng, Paul Chen, Nan Zhou, Shiyu Liu, Min Addy, Yan-ling: Zhang, Erik Anderson, Liangliang Fan, Charles Schiappacasse, Raymond Hatzenbeller, Dongjie Chen, Yuhuan Liu, Roger Ruan)
08:05AM	1801364	Modeling and Simulation of a Photosynthetic Solar Cell Sachin Bhide, Oakland University, Rochester, Michigan United States (Presenter: Sachin Bhide) (Dr. Jonathan Maisonneuve)
08:20AM	1800266	Assessment of biomass production potential from strip-mined lands (SML) and its impacts on stream water quality. Kamalakanta Sahoo, University of Georgia, Athens, Georgia United States (Presenter: Kamalakanta Sahoo) (Kamalakanta Sahoo, Sudhagar Mani, Adam M. Milewski, Nahal Hoghooghi)
08:35AM		BREAK
08:45AM	1800054	Surface Enhancement of Biomass-derived Activated Carbons for Supercapacitor Applications Kaushlendra Singh, West Virginia University, Morgantown, WV United States (Presenter: Kaushlendra Singh) (Tugrul Yumak, Kaushlendra Singh, Edward Sabolsky, Gunes Yakaboylu)
09:00AM	1800021	Design, Construction and Performance Evaluation of a Trombe Wall Poultry Chick Brooding House Ifeanyi Wilfred Okonkwo, University of Nigeria, Nsukka, Enugu Nigeria (Presenter: Wilfred Ifeanyi Okonkwo) (Ifeanyi Wilfred Okonkwo)
09:15AM	1800176	Conversion of Household Wastes from Gaborone Municipality into Useful Biogas through Anaerobic Co-Digestion with Cow Dung Kevin Nwaigwe, University of Botswana, Department of Mechanical Engineering, Gaborone Botswana (Presenter: Sabbas Asoegwu) (Kevin N. Nwaigwe, A. Agarwal, O. M. Modirelabangwe, R. R. Mbene, S. N. Asoegwu)
09:30AM	1801519	Effect of densification variables on density of corn cob briquettes produced using a uniaxial compaction biomass briquetting press Simeon Olatayo Jekayinfa, Ladoke Akintola University of Technology, Ogbomosho, Oyo State Nigeria (Presenter: Jekayinfa, Simeon Olatayo) (Joseph I. Orisaleye)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 306

ADVANCES IN BIOMASS PREPROCESSING AND PRETREATMENT - PART 2

– Sponsored by ES-220, ASE-12
Moderator: Lalatendu Das, University of Kentucky, Lexington, KY

LOCATION: 140F

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801398	Microwave-assisted torrefaction of biomass: Effect of biochar and recycled polymer plastic (HDPE) on the physical quality of fuel pellets Lope Tabil, University of Saskatchewan, Saskatoon, Saskatchewan Canada (Presenter: Lope Tabil or Obiora S. Agu) (Obiora S. Agu, Lope G. Tabil, Bagher Emadi, Edmund Mupondwa)
07:50AM	1800796	Properties of Corn Straw Biochar and Hydrochar Produced Under Different Carbonization Temperatures and Its Sorption Capability to Pb Yanfei Li, China Agriculture University, Beijing, China, People's Republic of (Presenter: Yanfei Li) (Yanfei Li, Lujia Han, Xian Liu)

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

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08:05AM	1801445	<p>Nutrient recovery in hydrothermal process water of corn residue Subhash Paul, University of Guelph, Guelph, Ontario Canada (Presenter: Subhash Paul) (Subhash Paul)</p>
08:20AM	1801149	<p>Using Air Separation to Control Particle Size and Reduce Total Ash Content During Corn Stover Processing Neal Yancey, Idaho National Laboratory, Idaho Falls, Idaho United States (Presenter: Neal Yancey) (Neal Yancey, Jaya Tumuluru, William Smith)</p>
08:35AM		BREAK
08:45AM	1800035	<p>Effect of Impregnation Route on Activated Carbon Properties from Herbaceous Biomass Oluwatosin Oginni, West Virginia University, Morgantown, WV United States (Presenter: Oluwatosin Oginni) (Kaushlendra Singh)</p>
09:00AM	1801156	<p>Automation in Controlling Particle Size in Corn Stover Grinding Neal Yancey, Idaho National Laboratory, Idaho Falls, Idaho United States (Presenter: Neal Yancey) (Neal Yancey, Jaya Tumuluru, Patrick Bonebright, Quang Nguyen)</p>

09:30AM	1800656	<p>Design of grain loss monitoring system based on piezoelectric polyvinylidene fluoride impact-type sensor Rui Cao, ZheJiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Rui Cao) (Rui Cao)</p>
09:45AM	1801642	<p>Challenges on motivating BAE students to learn electronics and programming Ning Wang, Oklahoma State University, Stillwater, OK United States (Presenter: Ning Wang) (Ning Wang)</p>
10:00AM	1801665	<p>Teaching In-Vehicle Networking for Off-Road and Heavy Duty Systems Paul Weckler, Oklahoma State University, Stillwater, OK United States (Presenter: Paul Weckler) (Paul Weckler, John Long, Ning Wang)</p>

Wednesday, August 1 - 7:30AM-10:00AM SESSION 307

ADVANCES IN INSTRUMENTATION AND CONTROLS – Sponsored by

ITSC-353, MS-54
Moderator: Joseph Dvorak, University of Kentucky, Lexington, KY

LOCATION: 140G

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801391	<p>Design of an In-Canopy Sprinkler Monitoring System for Center Pivot Irrigation Aaron Akin, Kansas State University, Manhattan, Kansas United States (Presenter: Aaron Akin) (Aaron Akin)</p>
07:50AM	1801691	<p>Preliminary tests of sensors to detect sewer network blockages Thomas Curran, University College Dublin, Dublin, Ireland (Presenter: Thomas P. Curran) (Thomas P. Curran, Conor Broderick, Joel Ducoste)</p>
08:05AM	1800757	<p>A Dynamic Weighing Method for Eggs Sorting Based on Digital Signal Processor (DSP) Xiaotian Chen, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Xiaotian Chen) (Hongping Tian, Liming Zou, Jianping Wang)</p>
08:20AM	1801602	<p>Measuring the Sharpness of Knives in Agricultural Machinery with a Mobile Device Karl Wild, University of Applied Sciences Dresden, Dresden, Germany (Presenter: John K. Schueller) (Karl J. Wild, Torsten Schmiedel, John K. Schueller)</p>
08:35AM	1801024	<p>Modeling and Simulation of Agricultural Tractor Three-Poin Hitch Control System Sanjeev Kumar, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Sanjeev Kumar) (Virendra Kumar Tewari)</p>
08:50AM		BREAK
09:00AM	1801680	<p>Model-based hydrostatic transmission testing using real-time simulation of a traction system Brian Steward, Iowa State University, Ames, Iowa United States (Presenter: Brian Steward) (Brian L. Steward, Dillon Wirth)</p>
09:15AM	1801214	<p>Bio-Inspired Visual Servoing Algorithm in Leaf Picking Sinem Defterli, University of Central Florida, Orlando, FL United States (Presenter: Sinem Defterli) (Sinem Defterli, Yunjun Xu)</p>

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 308 BIOSENSORS FOR AGRO-DEFENSE: ENSURING AGRI-FOOD SAFETY – Sponsored by ITSC-230, ITSC-353

Moderator: Suresh Neethirajan, University of Guelph, Guelph, ON Canada

LOCATION: 141

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800703	<p>A nanomaterials-based biosensor for rapid detection of enrofloxacin in chicken products Yafang Shen, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Yafang Shen) (Yafang Shen, Yawen He, Yingchun Fu, Jianping Wang, Jianmin Zhang, Ming Liao, Yanbin Li)</p>
07:50AM	1801492	<p>A novel electrochemical biosensor based on magnetic-separation/concentration-signal-amplification in-one method for chloramphenicol detection Yingchun Fu, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Yingchun Fu) (Lulu Cao, Yingchun Fu, Qi Zhang, Huang Dai, Yanbin Li)</p>
08:05AM	1800074	<p>Detection of the Adulteration of Extra Virgin Olive Oil by Near Infrared Spectroscopy and Chemometric Techniques Nick Vanstone, University of Guelph, Guelph, Ontario Canada (Presenter: Nick Vanstone) (Nick Vanstone, Suresh Neethirajan)</p>
08:20AM	1800088	<p>Early diagnosis of John's disease using black phosphorus – gold nanocomposite based aptameric INF-γ sensor Saipriya Ramalingam, University of Guelph, Guelph, Ontario Canada (Presenter: Saipriya Ramalingam) (Saipriya Ramalingam, Rohit Chand, Suresh Neethirajan)</p>
08:35AM		BREAK
08:45AM	1800098	<p>Paper based Biosensor for On-Site Food Allergen Detection Amit Tah, University of Guelph, Guelph, Ontario Canada (Presenter: Amit Tah) (Amit Tah)</p>
09:00AM	1800406	<p>Paper based colorimetric sensor for highly selective and sensitive detection of H2O2 Vasanth Ragavan Krishnamoorthy, University of Guelph, Guelph, Ontario Canada (Presenter: Vasanth Ragavan Krishnamoorthy) (Vasanth Ragavan Krishnamoorthy, Patrick Egan, Suresh Neethirajan)</p>
09:15AM	1800139	<p>Paper-based colorimetric nanosensor for the detection of opioids Patrick Egan, University of Guelph, Guelph, Ontario Canada (Presenter: Patrick Egan) (Patrick Egan)</p>

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- 09:30AM 1800092 Paratuberculosis specific miRNAs detection employing functionalized MoS2 nanocomposites and nanoprobe**
Rohit Chand, University of Guelph, Guelph, Ontario Canada (Presenter: Rohit Chand) (Rohit Chand, Saipriya Ramalingam, Suresh Neethirajan)
- 09:45AM 1800078 Sweat Based Wearable Diagnostic Biosensor for Bilirubin for Livestock Health**
Josephine Yee, University of Guelph, Guelph, Ontario Canada (Presenter: Josephine Yee) (Josephine Yee, Suresh Neethirajan)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 309

DISCRETE ELEMENT MODELING (DEM) APPLICATIONS IN AGRICULTURE – Sponsored by ITSC-217, MS-45
Moderator: John Fielke, University of South Australia, Mawson Lakes, Australia
LOCATION: 142A

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800165	Industry Needs for Leading Innovation in Soil & Crop Systems Carol Plouffe, Deere & Co., Moline, IL United States (Presenter: Carol Plouffe) (Carol Plouffe)
07:50AM	1800596	Discrete Element Modeling of Seed Metering as Affected by Roller Speed and Damping Coefficient Leno Guzman, University of Manitoba, Winnipeg, Manitoba Canada (Presenter: Leno Guzman) (Leno Guzman, Ying Chen)
08:05AM	1801249	Effect of moisture content of corn on discrete element modeling input parameters estimation Mohammad Mousaviraad, Iowa State University, Ames, Iowa United States (Presenter: Mohammad Mousaviraad) (Mohammad Mousaviraad, Mehari Tekeste)
08:20AM	1801382	Discrete Element Simulation of Uniaxial Compression of Wheat Straw Matthew Schramm, Iowa State University, Ames, Iowa United States (Presenter: Matt Schramm) (Mehari Tekeste, Matthew Schramm, Carol Plouffe, Donald Harby)
08:35AM	1801115	Comparative research on fertilizer performance of different outer groove-wheel structures based on discrete element method Qingzhen Zhu, Northwest A&F University, Yangling, Shaanxi Province China, People's Republic of (Presenter: Qingzhen Zhu) (Qingzhen Zhu, Guangwei Wu, Zhi-jun Meng, Xiaofei An, Weiqiang Fu)
08:50AM		BREAK
09:00AM	1800402	A discrete element model of soil-tool-residue interaction for tillage operation Zhiwei Zeng, University of Manitoba, Winnipeg, Manitoba Canada (Presenter: Zhiwei Zeng) (Zhiwei Zeng, Ying Chen)
09:15AM	1800309	Comparison on soil disturbance and cutting resistance of rotary and plain-straight blade using DEM Hongbo Zhao, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongbo Zhao) (Hongbo Zhao, Jin He, Hongwen Li, Wanzhi Chen, Hongnan Hu, Qi Niu)
09:30AM	1800457	Discrete element modeling of soil displacement resulting from hoe openers Ying Chen, University of Manitoba, Winnipeg, Manitoba Canada (Presenter: Ying Chen) (Ying Chen, Steven Murray)
09:45AM	1800577	Discrete element modelling (DEM) of soil cutting forces of vertical tillage disc (Soilrazor) Mohammad Sadek, Buhler Industries Inc, Winnipeg, Manitoba Canada (Presenter: Mohammad Sadek) (Mohammad Sadek, Ying Chen)

- 10:00AM 1800625 Investigating the top-down burial capability of a cultivator using discrete element method (DEM)**
Mustafa Ucgul, University of South Australia, Adelaide, South Australia Australia (Presenter: John M. Fielke) (Mustafa Ucgul, Chris Saunders, John M Fielke)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 310

HYPERSPECTRAL IMAGING APPLICATIONS - PART 1 – Sponsored by ITSC-348
Moderator: Haiyan Cen, Zhejiang University, Hangzhou, Zhejiang China
LOCATION: 142B

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801489	Fully convolutional networks for blueberry bruising and calyx segmentation using hyperspectral transmittance imaging Mengyun Zhang, the University of Georgia, Athens, Georgia United States (Presenter: Mengyun Zhang) (Changying Li)
07:50AM	1801681	Deep learning of hyperspectral images for evaluation of blueberry buds cold hardiness Zongmei Gao, Washington State University, Prosser, Washington United States (Presenter: Zongmei Gao) (Zongmei Gao, Gwen-Alyn Hoheisel, Qin Zhang, Lav Khot)
8:05AM	1800853	Hyperspectral Imaging for identification of powdery mildew and stripe rust in wheat Yao Zhifeng, Northwest A&F University, Yangling, Shaanxi China, People's Republic of (Presenter: Zhifeng Yao, Yu Lei) (Zhifeng Yao, Dongjian He, Yu Lei)
8:20AM	1800915	Hyperspectral imaging to phenotype Aphanomyces root rot disease resistance in lentil Afeef Marzougui, Washington State University, Pullman, Washington United States (Presenter: Afeef Marzougui) (Afeef Marzougui, Yu Ma, Rebecca McGee, Sindhuja Sankaran)
8:35AM	1801804	Appropriate "dead pixels" Estimation Techniques for Multivariate Analysis of Hyperspectral Imaging Data Olutoyin Adegbenjo Adegemi, McGill University, Ste-Anne-de-Bellevue, Quebec Canada (Presenter: Olutoyin Adegbenjo Adegemi) (Olutoyin Adegbenjo Adegemi, Michael Ngadi)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 311

IMAGING TECHNOLOGIES FOR HIGH THROUGHPUT PHENOTYPING - PART 3 – Sponsored by ITSC-312, ITSC-348, MS-48
Moderator: Shih-Fang Chen, National Taiwan University, Taipei, Taiwan
LOCATION: 142C

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801074	3D reconstruction of hyperspectral images and artificial intelligence techniques for plant phenotyping Myongkyoon Yang, Seoul National University, Seoul, Korea, South (Presenter: Myongkyoon Yang) (Myongkyoon Yang, Jinshi Cui, Seongmin Park, Daesik Son, Seong In Cho)

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07:50AM	1800390	Automatically Identifying floral contours and vascular bundles in 3D images Yi-Hsiang Wang, National Taiwan University, China, Republic of (Taiwan) (Presenter: Yi-Hsiang Wang) (Yi-Hsiang Wang, Hao-Chun Hsu, Wen-Chieh Chou, Yan-Fu Kuo)	5	1800900	Design and Experiment of Adaptive Leveling System for Corn Harvester's Body Jiangtao Qi, Jilin University, Changchun, Jilin China, People's Republic of (Presenter: Jiangtao Qi) (Deyi Zhou, Dongbo Jin, Xin Shi, Hongli Tian, Jiangtao Qi)
08:05AM	1800740	Hyperspectral imaging and multivariate modeling allow nondestructive analysis of cell wall composition in sorghum Yufeng Ge, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Yufeng Ge) (Piyush Pandey, Yufeng Ge)	6	1800793	Design and experimental study of corn comb-brush-plate ear-picking test bench Huijuan Bai, China Agricultural University, BeiJing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Huijuan Bai, Shuai Li, Decheng Wang, Xianfa Fang, Yalei Wu, Yan Li)
08:20AM	1800869	Diurnal variation of crop canopy temperature measured by a field high throughput phenotyping platform Geng Bai, University of Nebraska - Lincoln, Lincoln, Nebraska United States (Presenter: Geng Bai) (Geng Bai, Yufeng Ge, Suat Irmak, George Graef, David Scoby, Tala Awada)	7	1800795	Research progress and prospect on corn precision metering technology Huijuan Bai, China Agricultural University, BeiJing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Huijuan Bai, Shuai Li, Decheng Wang, Xianfa Fang, Yanwei Yuan, Liming Zhou, Kang Niu, Yalei Wu, Yan Li)
08:35AM		BREAK	8	1800252	Evaluation of NEXEN™ stabilized nitrogen applied to overhead irrigated cotton (Gossypium hirsutum L.) Diogenes Antille, University of Southern Queensland, Toowoomba, Queensland Australia (Presenter: Diogenes L. Antille) (Diogenes L. Antille, Tai Nguyen-Ky, Kojo Atta Aikins, Mahmood A. H. Hussein, Sawtenterpreet Singh, Adnan A. A. Luhaib, Amrit Singh)
08:45AM	1800305	Deep learning for thermal image segmentation to measure canopy temperature of Brassica oleracea in the field Yu Jiang, University of Georgia, Athens, GA United States (Presenter: Yu Jiang) (Yu Jiang, Lanshuan Shuang, Changying Li, Andrew H. Paterson, Jon Robertson)	9	1800974	Experimental study on mechanical and physical properties of mini-tuber Wenpeng Ma, China Agricultural University, BeiJing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Wenpeng Ma, Decheng Wang, Bingnan Ye, Yalei Wu, Yan Li)
09:00AM	1800271	The Prospect of Thermal Imaging to Estimate Stomatal Conductance through Energy Balance Modeling Keith Halcro, University of Saskatchewan, Saskatoon, Saskatchewan Canada (Presenter: Keith A Halcro) (Scott D Noble)	10	1800632	Experimental study on the water uniformity of aeration impact sprinkler irrigation Qingjiang Xiang, Jiangsu University, Zhen Jiang City, Jiangsu Province China, People's Republic of (Presenter: Qingjiang Xiang) (Qingjiang Xiang, Zhengdian Xu, Ahmed Qureshi Waqar)
09:15AM	1800256	Using thermal imaging to detect lameness in sheep in an agricultural environment Tom Byrne, Teagasc, Moorepark, Fermoy, Co.Cork Ireland (Presenter: Tom Byrne) (Tom Byrne, Fiona McGovern, Harold Esmonde, Noirin McHugh)	11	1800441	The Design and Test of Cleaning Device for Double-channel Vibratory Corn Seed Harvester Chenlong Fan, China Agricultural University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Chenlong Fan, Tao Cui, Li Yang, Dongxing Zhang, Xiangjun Zhong, Yanwei Liu)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 312

PRECISION AGRICULTURE POSTER SESSION – Sponsored by MS-54

Moderator: Joe D. Luck, University of Nebraska, Lincoln, NE

LOCATION: Atrium

Poster #	Paper #	Title/Author
1	1800607	A novel adjustable air-assisted spraying unit for orchard sprayer Longlong Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: He Xiongkui) (Longlong Li, Jianli Song, Yang Liu, Xiongkui He, Yajia Liu, Aijun Zeng)
2	1800608	Airflow decision-making model to match the canopy characteristics Longlong Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: He Xiongkui) (Longlong Li, Xiongkui He, Jianli Song, Yang Liu, Yajia Liu, Aijun Zeng)
3	1800310	CFD prototyping of a self-propelled air-assisted greenhouse sprayer adapted for precision horticulture: effect of air speed and deposition assessments in tomato canopies Chunhua Gao, China Agriculture University, Beijing, China, People's Republic of (Presenter: Yalei Wu) (Chunhua Gao, Lijun Qi, Yalei Wu)
4	1801611	Comparison of different spray sample collectors for the evaluation of pesticide spray assessment in grapevine Haitham Bahlol, Prosser, Washington United States (Presenter: Haitham Bahlol) (Haitham Bahlol, Margret McCoy, Gwen-Alyn Hoheisel, Lav Khot)

12	1801561	Incorporating Unmanned Aircraft Imaging with Ground-Penetrating Radar (GPR) and Real-Time Kinematics (RTK) for Efficient Mapping of Agricultural Drainage Tile Systems Robert Freeland, University of Tennessee, Knoxville, TN United States (Presenter: Robert Freeland) (Barry Allred, Neal Eash, Robert Freeland, Luis Martinez, DeBonne Wishart)
13	1800254	Influence of UAV Rotor Down-wash Airflow For Droplet Penetration Yang Zhilun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Wu Yalei) (Qi Lijun, Wu Yalei)
14	1801476	A Contrast Experiment on Load Sensors of Planting Downforce Control System Huirong Jing, China Agricultural University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Huirong Jing, Tao Cui, Dongxing Zhang, Li Yang, Xiangjun Zhong, Chenlong Fan, Yanwei Liu)
15	1801067	Effect of air pressure on the performance of a centralized pneumatic metering system for rice direct seeding Zhendong Wang, China Agriculture University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Bing Qi, Tao Cui, Wenyi Zhang, Zhendong Wang, Yao Ji, Kai Hu)

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16	1801073	<p>Research on operation area determination method of automatic navigation agricultural machine in a polygon field block Xueyan Zhao, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xueyan Zhao) (Xueyan Zhao, Changqing Liu, Chao Cao, Enrong Mao, Zhongxiang Zhu)</p>			<p>chronously rotating seed plate and vacuum chamber Bingxin Yan, China Agricultural University, Beijing, China, People's Republic of (Presenter: Bingxin Yan) (Bingxin Yan)</p>
17	1801021	<p>Research on the influence factors of alkali hydrolysable nitrogen in coco-peat is determined by alkali N-proliferation method Yanlei Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yanlei Li) (Bing Lu, Nihong Liu, Zhengxuan Li, Hubo Xu, Yanlei Li, Xiuying Tang)</p>	27	1800159	<p>Design, fabrication and evaluation of Corn Sheller Shirin Ghatrehsamani, University of Florida, Gainesville, FL United States (Presenter: Shirin Ghatrehsamani) (Shirin Ghatrehsamani, Yiannis Ampatzidis, Behzad Sadeghi, Sahar Ghatrehsamani)</p>
18	1800973	<p>Simulation test on seed metering performance based on DEM Wenpeng Ma, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Wenpeng Ma, Decheng Wang, Bingnan Ye, Yalei Wu, Yan Li)</p>	28	1800741	<p>Development of a Small-sized Chinese Cabbage Harvesting Machine Seongjin Park, Suncheon National University, Suncheon, Jeolla Province Korea, South (Presenter: Seongjin Park) (Seong-Jin Park, Kyu-Won Yang, Gwang-Shim Kim, Mohammad Ali, Hoon Seonwoo, Hyuck-Joo Kim)</p>
19	1801239	<p>Spatial variability analysis of a coffee field using Landsat images Daniel Queiroz, Universidade Federal de Vicosa, Vicosa, MG Brazil (Presenter: Daniel Queiroz) (Amelia Nascimento, Daniel Queiroz, Domingos Valente, Francisco Pinto)</p>	29	1800484	<p>Development of Performance Evaluation Methods Considering Work Loads for Riding Type Vegetable Transplanter Yeonsoo Kim, KITECH/Chungnam National University, Daejeon, Korea, South (Presenter: Kim Yeon Soo) (Yeonsoo Kim, Sangdae Lee, Youngjoo Kim, Yongjoo Kim, Hyogeol Kim)</p>
20	1800602	<p>Design of Control System of Cotton Round Molding Device Based on CAN Bus He Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (He Li, Liangdong Liu, Decheng Wang, Yalei Wu, Yan Li, Kuihua Zheng, Zhifei Gu, Chen Cai)</p>	30	1801087	<p>Effect of crack on dynamic characteristics of corn combine harvester frame Xueyan Zhao, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xueyan Zhao) (Xueyan Zhao, Jun Fu, Chao Cao, Dehao Wu, Yanchun Yao, Zhenghe Song)</p>

Wednesday, August 1 - 7:30AM-10:00AM
SESSION 313 MACHINERY SYSTEMS POSTER SESSION – Sponsored by MS

Moderator: Chenghai Yang, USDA ARS, College Station, TX

LOCATION: Atrium

Poster #	Paper #	Title/Author
21	1800250	<p>Agronomic performance of sorghum (Sorghum bicolor (L.) Moench) and fertilizer use efficiency as affected by controlled and non-controlled traffic of farm machinery Diogenes Antille, University of Southern Queensland, Toowoomba, Queensland Australia (Presenter: Diogenes L. Antille) (Mahmood A. H. Hussein, Diogenes L. Antille, Guangnan Chen, Shreevatsa Kodur, Jeff N. Tullberg)</p>
22	1800943	<p>An automatic bin handling system for apple harvest and in-filed sorting Anand Pothula, USDA Sugar beet and Bean Research Unit, East Lansing, MI United States (Presenter: Anand Pothula) (Anand Pothula, Zhao Zhang, Renfu Lu)</p>
23	1801100	<p>Analysis of normal force of permanent magnet linear synchronous motor for machine tools Yiyong yin, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zhang Wenqiang) (Yin Yiyong, Jin Jianzhou, Du Yuefeng, Zhang Wenqiang, Liu Binhui)</p>
24	1800372	<p>Comparison of the rate of the picked cotton of Artificial Picking and Two Picking Machines Teng Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Teng Li) (Teng Li)</p>
25	1801086	<p>The Comparative Test for Maize Stalk Breaking Resistance Tester Xiangjun Zhong, China Agriculture University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Xiangjun Zhong, Xiaohui Bian, Dongxing Zhang, Li Yang, Tao Cui, Chenlong Fan, Yanwei Liu)</p>
26	1800430	<p>Design of precision seed-metering device with syn-</p>

		<p>Development of a Performance Evaluation Methods Considering Work Loads for Riding Type Vegetable Transplanter Yeonsoo Kim, KITECH/Chungnam National University, Daejeon, Korea, South (Presenter: Kim Yeon Soo) (Yeonsoo Kim, Sangdae Lee, Youngjoo Kim, Yongjoo Kim, Hyogeol Kim)</p>			<p>Effects of damaged seedlings on the growth and yield of sweet potato Xuan Guantao, United States (Presenter: Guantao Xuan) (Guantao Xuan, Yuanyuan Shao, Yi Liu, Yongxian Wang)</p>
31	1801316	<p>Effects of damaged seedlings on the growth and yield of sweet potato Xuan Guantao, United States (Presenter: Guantao Xuan) (Guantao Xuan, Yuanyuan Shao, Yi Liu, Yongxian Wang)</p>	32	1800887	<p>Evaluation of equipment developed for cover crops management in vegetable no-till system Ted Kornecki, USDA - ARS, National Soil Dynamics Lab., Auburn, Alabama United States (Presenter: Ted S. Kornecki) (Ted Kornecki)</p>
32	1800887	<p>Evaluation of equipment developed for cover crops management in vegetable no-till system Ted Kornecki, USDA - ARS, National Soil Dynamics Lab., Auburn, Alabama United States (Presenter: Ted S. Kornecki) (Ted Kornecki)</p>	33	1801068	<p>Study on Ear Snapping Performance Test of Corn Stripping Mechanism Yunxia Wang, China, People's Republic of (Presenter: Tao Cui) (Zhilong Zhang, Tao Cui, Aijun Geng, Ji Zhang, Jialin Hou)</p>
33	1801068	<p>Study on Ear Snapping Performance Test of Corn Stripping Mechanism Yunxia Wang, China, People's Republic of (Presenter: Tao Cui) (Zhilong Zhang, Tao Cui, Aijun Geng, Ji Zhang, Jialin Hou)</p>	34	1800481	<p>Experimental Research on Sugarcane Under-the-Ground Basecting Shaochun Ma, China Agricultural University, Beijing, China, People's Republic of (Presenter: Shaochun Ma) (Wenli Ke, Fenglei Wang, Guangyou Yang, Haiqian Xing, Shaochun Ma, Yingchun Pan, Bin Guo)</p>
34	1800481	<p>Experimental Research on Sugarcane Under-the-Ground Basecting Shaochun Ma, China Agricultural University, Beijing, China, People's Republic of (Presenter: Shaochun Ma) (Wenli Ke, Fenglei Wang, Guangyou Yang, Haiqian Xing, Shaochun Ma, Yingchun Pan, Bin Guo)</p>	35	1800025	<p>Field Performance Evaluation of Indigenous Tractor Mounted Reaper Muhammad Adnan, University of Agriculture, Faisalabad, Punjab Pakistan (Presenter: Muhammad Adnan) (Muhammad Iqbal)</p>
35	1800025	<p>Field Performance Evaluation of Indigenous Tractor Mounted Reaper Muhammad Adnan, University of Agriculture, Faisalabad, Punjab Pakistan (Presenter: Muhammad Adnan) (Muhammad Iqbal)</p>	36	1801421	<p>Improving the Performance of an Extra-large Sunflower Seed Huller Ewumbua Monono, North Dakota State University, Fargo, North Dakota United States (Presenter: Ewumbua Monono) (Ewumbua Monono, Dennis Wiesenborn, Andrew Whalen, Ademola Ajayi-Banji, Harjot Sidhu, Abbi Klos, William Boehmer)</p>
36	1801421	<p>Improving the Performance of an Extra-large Sunflower Seed Huller Ewumbua Monono, North Dakota State University, Fargo, North Dakota United States (Presenter: Ewumbua Monono) (Ewumbua Monono, Dennis Wiesenborn, Andrew Whalen, Ademola Ajayi-Banji, Harjot Sidhu, Abbi Klos, William Boehmer)</p>	37	1800383	<p>Effects of different loading speeds on mechanical properties of King grass stem Bingnan Ye, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yan Li) (Yong You, Decheng Wang, Bingnan Ye, Guanghui Wang, Qingyun Sun, Yan Li, Yalei Wu)</p>
37	1800383	<p>Effects of different loading speeds on mechanical properties of King grass stem Bingnan Ye, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yan Li) (Yong You, Decheng Wang, Bingnan Ye, Guanghui Wang, Qingyun Sun, Yan Li, Yalei Wu)</p>	38	1801069	<p>Investigation of seed system detection based on capacitive sensors Xiangjun Zhong, China Agriculture University, Beijing, China, People's Republic of (Presenter: Xiangjun Zhong) (Xiangjun Zhong)</p>
38	1801069	<p>Investigation of seed system detection based on capacitive sensors Xiangjun Zhong, China Agriculture University, Beijing, China, People's Republic of (Presenter: Xiangjun Zhong) (Xiangjun Zhong)</p>	39	1801098	<p>Magnetic field calculation of permanent magnet lin-</p>
39	1801098	<p>Magnetic field calculation of permanent magnet lin-</p>			

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WEDNESDAY, AUGUST 1

		ear synchronous motor for machine tools Yiyong Yin, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zhang Wenqiang) (Yin Yiyong, Liu Shuoqiong, Wang Zhaohui, Yao Yanchun, Zhang Wenqiang)			King Grass Stem Qingyun Sun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Xiaolong Huan, Decheng Wang, Qingyun Sun, Chenchen Kang, Xingwei Gu, Wenpeng Ma, Hongjian Wu, Yalei Wu, Yan Li)
40	1801467	Measurement of physical and mechanical properties of mung bean seeds and test of suitable mechanical sowing Yu Huan Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yu Huan Li) (Yu Huan Li)	53	1800450	Experiment and analysis of residue flow/blockage characteristics for no/minimum till seeding Hongbo Zhao, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongnan Hu) (Hongbo Zhao, Hongnan Hu, Jin He, Hongwen Li, Zhiqi Zheng, Yifu Zhang, Wenzheng Liu.)
41	1800421	A laser scanner based obstacle detection system for autonomous tractor Hongjian Wu, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Laiquan Luo, Liangdong Liu, Decheng Wang, Yalei Wu, Yan Li, Hongjian Wu)	54	1801470	Design and Experiment of 3D Pint-clouds System Based on 2D LIDAR in Orchard Tractors Huirong Jing, China Agricultural University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Dongyue Zhao, Li Yang, Dongxing Zhang, Tao Cui, Huirong Jing, Yanwei Liu)
42	1801474	Modal and harmonic response analysis of brushcutter Kaizhan Chen, Zhejiang Sci-Tech University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Kaizhan Chen) (Xiaoqiang Du, Kaizhan Chen, Chuanyu Wu, Jianneng Chen)	55	1800435	Size Detection for Cotton Ball Based on Machine Vision Teng Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Teng Li) (Teng Li)
43	1800251	No-tillage tine furrow opener performance: soil-tool-residue interactions, tool geometry and settings Diogenes Antille, University of Southern Queensland, Toowoomba, Queensland Australia (Presenter: Diogenes L. Antille) (Kojo Atta Aikins, Diogenes L. Antille, Troy A. Jensen, James B. Barr, Mustafa Ucgul, Jack M. A. Desbiolles)	56	1801478	Spray drift potential assessment of solid set canopy delivery system configurations in Washington apple orchards and vineyards Rajeev Sinha, Washington State University, Prosser, Washington United States (Presenter: Rajeev Sinha) (Rajeev Sinha, Lav Khot, Gwen Hoheisel, Matthew Grieshop, Haitham Bahlol)
44	1800255	Spray Deposition in Different Target Sparsity on self-propelled swinging orchard sprayer Zhenzhen Cheng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu) (Zhenzhen Cheng, Lijun Qi, Yifan Cheng Yalei Wu, Chunhua Gao)	57	1800381	Tensile strength experiment of seed cotton pulled out of cotton Teng Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Teng Li, Xianfa Fang, Decheng Fang, Fuping Hao, Yalei Wu, Yan Li)
45	1800428	The Analysis of Chinese Agricultural Support Performance Bingnan Ye, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Shi Bo, Jieqiong Wang, Zeqi Gong, Zetian Fu, Lingxian Zhang, Huijuan Bai, Yalei Wu, Yan Li)	58	1800114	Simulation Research on Key Components of Maize Threshing and Separating Device Based on EDEM Zhe Qu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Huirong Jing, Dongxing Zhang, Zhe Qu, Li Yang, Tao Cui)
46	1800416	Influence of moisture content on chosen engineering properties of alfalfa seed Bingnan Ye, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yan Li) (John Morris Togo kAJI, Decheng Wang, Wenpeng Ma, Yan Li, Yalei Wu)	59	1800753	Study on Compaction Density of Cotton Mould Zheng Kuihua, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Kuihua Zheng, Liangdong Liu, Decheng Wang, He Li, Yanfang Li, Zhifei Gu, Yalei Wu, Yan Li)
47	1800158	Photo-degradation of fluorescent tracers under different daylight conditions Kysuk You, United States Department of Agriculture, Wooster, OH United States (Presenter: Kysuk You) (Kysuk You)	60	1801076	The experimental study of the vertical vibration snapping broken of harvester for corn and stalk Yu Huan Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yu Huan Li) (Yu Huan Li)
48	1800437	Experiment on Working Parameters of Different Roller Picking Rollers in Plate Picking Mechanism Zhendong Wang, China Agriculture University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Zhendong Wang, Kehong Li, Youqiang Ding, Dongxing Zhang, Tao Cui, Li Yang)	61	1801075	Design and Experiment on the Key Components of the Subsoiling (Intertill) Topdressing Multifunction Machine Yanwei Liu, China Agriculture University, Beijing, China, People's Republic of (Presenter: Tao Cui) (Yanwei Liu, Dongxing Zhang, Li Yang, Tao Cui, Yunxia Wang, Xiangujun Zhong, Chenlong Fan)
49	1800635	Recognition of weeds and cucumber seedlings in glasshouses based on radial basis support vector machine Pei Wang, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Pei Wang) (Hui Li, Pei Wang, Weidong Jia, Mingxiong Ou, Lijun Qi)	62	1800110	Weed versus Crop Differentiation Using a Crop Marking System with an Intelligent Cultivator HannahJoy Kennedy, UC Davis, Davis, California United States (Presenter: HannahJoy Kennedy) (HannahJoy Kennedy)
50	1801095	Research on lateral vibrating model without damping of casing string system Yiyong Yin, China Agricultural University, Beijing, China, People's Republic of (Presenter: Lu Caiyun) (Yin Yiyong, Qu Congfeng, Zhang Yongqiang, Lu Caiyun)	63	1801796	Simulation of Soil-tool Interaction using Discrete Element Method and Multibody Dynamic Coupling Sadaf Ghorbani, Iowa State Univ, Ames, Iowa United States (Presenter: Sadaf Ghorbani) (Sadaf Ghorbani, Mehari Tekeste, Brian Steward)
51	1800424	Performance evaluation of force-vibrating subsoiler on soil properties Yunxia Wang, China, People's Republic of (Presenter: Tao Cui) (Yunxia Wang, Dongxing Zhang, Li Yang, Tao Cui, Abdalla N Osman)	64	1800766	Design on the Planetary Gear Transmission Mechanism of the Cutter in a Combining Harvester Ying Zeng, Zhejiang Sci-Tech University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Ying Zeng) (Ying Zeng, Xiaoqiang Du, Ge Li)
52	1800417	The Optimization of Double disc Cutting Device for			

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WEDNESDAY, AUGUST 1

65	1801028	Modeling biomass of maize based on height and stem diameter Man Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Ruicheng Qiu, Man Zhang, Han Li, Hong Sun) (Ruicheng Qiu, Yanlong Miao, Man Zhang, Han Li, Hong Sun)	77	1800426	Design and Experiment of End-effector for Eggplant Harvesting Robot Yunting Hui, China, People's Republic of (Presenter: Yunting Hui) (Yunting Hui, Hengyi Liu, Zetian Fu, Dengcheng Wang, Xinxing Li)
66	1800442	Experimental Study on the Correlation Between Rheological Properties and Soil Texture of Paddy Soil Yongwei Wang, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Yongwei Wang) (Yongwei Wang)	78	1800601	Design of the Broken Film Control System of Cotton Round Molding Device He Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (He Li, Liangdong Liu, Decheng Wang, Yalei Wu, Yan Li, Kuihua Zheng, Xiaolong Huan, Yulong Zhang)
67	1800490	Experimental Study on the Correlation between Shear Characteristic and Physical Parameters of Paddy Soil in Plastic State Ming Cao, Zhejiang University, Hang Zhou, Zhejiang Province China, People's Republic of (Presenter: Ming Cao) (Ming Cao, Yongwei Wang, Jun Wang, Zhuoliang He, Xifeng Liang)	79	1800667	Experimental Study on Suspension Speed of Cotton Seeds Binbin Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Binbin Zhang, Xianfa Fang, Decheng Wang, Teng Li, Yalei Wu, Yan Li)
68	1800503	Automatic Generation of Epicyclic Gear trains'Functional Schematic for Transplanting based Code Value Matrix Yadan Xu, Zhejiang Sci-Tech University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Yadan Xu) (Yadan Xu, Liang Sun, Chuanyu Wu, Gaohong Yu, Guofeng Zhang)	80	1800669	Analysis of Flow Field in Wind-feeding System of Cotton Picker Binbin Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Binbin Zhang, Xianfa Fang, Decheng Wang, Teng Li, Yalei Wu, Yan Li)
69	1801060	Development of Irrigation System for Roller-type Onion Pot-seeding Machine Ju Seok Nam, Kangwon National University, Chuncheon, Gangwon Korea, South (Presenter: Seok-Joon Hwang) (Seok-Joon Hwang, Tae-Hyeong Kim, Dae-Cheol Kim, Ju-Seok Nam)	81	1800675	Study on Physical Properties Related to Pneumatic Conveying of Seed Cotton Binbin Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Binbin Zhang) (Binbin Zhang)
70	1800679	Conservation Machinery for Planting of Mungbean and Jute in the Southern Region of Bangladesh Chayan Kumer Saha, Bangladesh Agricultural University, Mymensingh, Bangladesh (Presenter: Md. Monjurul Alam) (Md. Ayub Hossain, Md. Abdul Mottalib, Md. Israil Hossain, Md. Nurul Amin, Md. Monjurul Alam, Chayan K Saha, Prasanta K. Kalita, Alan C. Hansen)	82	1800776	Finite Element Analysis of a Three-point Hitch Link for Dongfanghong 1804 Tractor Chen Cai, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Chen Cai, Zhiqin Wang, Decheng Wang, Yalei Wu, Yan Li, Lei Yu, Yanfang Li, He Li)
71	1801043	Cost Saving Rice Transplanting Technology for Puddled and Unpuddled Soil Condition Muhammad Ashik-E-Rabbani, Bangladesh Agricultural University, Mymensingh Sadar, Mymensingh Bangladesh (Presenter: Md. Monjurul Alam) (Muhammad Ashik-E-Rabbani, Md. Mosharrar Hossain, Surajit Sarkar, Chayan Kumer Saha, Md. Monjurul Alam, Prasanta Kumar Kalita, Alan C. Hansen)	83	1800789	Chinese Agricultural Support Performance Evaluation Based on the Perspective of Farmers Gu Zhifei, China Agriculture University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Shi Bo, Jieqiong Wang, Zeqi Gong, Zetian Fu, Lingxian Zhang, Huijuan Bai, Yalei Wu, Yan Li)
72	1800732	Research on the Monitoring System of Precision Seeding of Maize Tan Yu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Wu Gang, Li Xiangyang, Lv Haotun, Li Shixiong, Zheng Yongjun, Tan Yu)	84	1800824	The development and prospect of Leymus chinensis in China. Yinhao Jin, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Yinhao Jin, Xianfa Fang, Decheng Wang, Yalei Wu, Yan Li, He Li, Xiaolong Huan, Zheng Zhu)
73	1800429	Design and experimental study on small maize planters for Southwest China Bingxin Yan, China Agricultural University, Beijing, China, People's Republic of (Presenter: Bingxin Yan) (Bingxin Yan)	85	1800993	Experimental study on drying straw braid Shuai Li, China, People's Republic of (Presenter: Yan Li; Yalei Wu) (Shuai Li, Huijuan Bai, Decheng Wang, Yalei Wu, Yan Li)
74	1800115	Design and Testing of Rice Wide-Narrow Row Pot Seedling Transplanting Mechanism Based on Three Given Spatial Positions Liang Sun, Zhejiang Sci-Tech University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Liang Sun) (Liang Sun, Hengmin Huang, Xiaoqiang Du, Chuanyu Wu, Guofeng Zhang, Junhua Tong)	86	1801122	Application of Computational Fluid Dynamics (CFD) modeling to evaluate airflow pattern from a self propelled greenhouse air assisted sprayer Elizabeth Musiu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Elizabeth Musiu) (Elizabeth Musiu, Qi Lijun, Wu Yalei)
75	1801061	Optimization of Roller Shape for Roller-type Onion Pot-seeding Machine Ju Seok Nam, Kangwon National University, Chuncheon, Gangwon Korea, South (Presenter: Seok-Joon Hwang) (Seok-Joon Hwang, Ju-Seok Nam)	87	1800590	Low Cost NDVI Camera for Application of Robotic Disease Detection Elnaz Akbari, UC Merced, Merced, California United States (Presenter: Elnaz Akbari) (Elnaz Akbari, Reza Ehsani, Arash Toudeshki, Yunjun Xu)
76	1800414	Application status and development trend of agricultural robot Yunting Hui, China, People's Republic of (Presenter: Yunting Hui) (Yunting Hui, Hengyi Liu, Xinxing Li, Zetian Fu, Dengcheng Wang)	88	1800554	Research on Organic Fertilizer Trenching and Fertilization Machine in Orchard Chang Wan, China Agriculture University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Chang Wan, Yongjun Zheng, Yu Tan, Shixiong Li, Tong Zhang)
			89	1800555	Research on Critical Components of Pneumatic Pruning Shear for Jujube Tree Chang Wan, China Agriculture University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Chang Wan, Yongjun Zheng, Yu Tan, Shixiong Li, Tong Zhang)

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WEDNESDAY, AUGUST 1

90	1800772	Analysis of PTO gears for a small cultivator during rotary operation Du-Han Kim, Korea, South (Presenter: Seokpyo Moon) (Seok-Pyo Moon, Du-Han Kim, Chang-Hyun Choi, Yong Joo Kim)
91	1800637	Fatigue simulation of hydraulic mechanical transmission of agricultural tractor Jeonghoon Jang, Chungnam National University, Daejeon Korea, South (Presenter: Seungmin Baek) (Yongjoo Kim, Jeonghoon Jang, Sunok Chung, Changhyun Choi)
92	1800384	Research on electric safety technology of electric vehicle Haiyan Zhang, Beijing Electric Vehicle Company, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Haiyan Zhang, Zhiwei Lv, Dazhi Li, Yanting Zuo, Yanxiu Guo, Zeming Hu, Zhaolong Zhang, Yalei Wu, Yan Li)
93	1800495	Design and Experiment of Portable Electric Tapping Machine Xiyu Sheng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zhang Wenqiang) (Zhang Chunlong, Sheng Xiyu, Zhang Shunlu, Zhang Fan, Zhang Wenqiang, Zhang Junxiong, Yuan Ting, Zhang Shuaihui, Yong Liyun, Li Wei)

09:00AM	1800818	The Study of Path Planning and Precise Seeding of a Seeding Robot Li Shixiong, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Li Shixiong, Zheng Luofeng, Xiao Zhang, Yang Liu, Lv Haotun, Zheng Yongjun)
09:15AM	1801563	Comparison of Soy-protein based and commercially available seed lubricants for seed flowability in row crop planters Ajay Sharda, Kansas State University, Manhattan, Kansas United States (Presenter: Ajay Sharda) (Ajay Sharda, Ryan Strasser, Sylvester Badua, Terry Griffin)
09:30AM	1800371	Development of artificial neural network models for seeding performance of a belt-type corn seed metering device Niu Qi, China Agricultural University, Beijing, China, People's Republic of (Presenter: Caiyun Lu) (Qi Niu, Caiyun Lu, Hongwen Li, Qingjie Wang, Hongnan Hu, Zhongcai Wei, Hongbo Zhao)
09:45AM	1800736	Review of the Monitoring Systems of the Machine for Precision Sowing and Fertilization of Wheat Zheng Yongjun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Lv Haotun, Ren Jieyu, Liu Xin, Li Shixiong, Wu Gang, Zheng Yongjun)

**Wednesday, August 1 - 7:30AM-10:00AM
SESSION 314**

ADVANCES IN TILLAGE, SEEDING AND TRANSPLANTING TECHNOLOGY - PART 1 – Sponsored by MS-49
Moderator: Ajay Sharda, Kansas State University, Manhattan, KS
LOCATION: 250A

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801285	Operational Challenges and Yield Implications of Increasing Corn Planting Speeds Andrew Klopfenstein, The Ohio State University, Columbus, OH United States (Presenter: Andrew Klopfenstein) (Andrew Klopfenstein, Richard Colley III, Christopher Wiegman, Sami Khanal, John Fulton, Scott Shearer)
07:50AM	1800850	Assessment of Spatial Data Layers and Zone Delineation of Multi-hybrid Placement of Corn Hybrids and Soybean Seed Treatments. Rachel Stevens, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Rachel Stevens) (Rachel Stevens, Joe Luck, Richard Ferguson, Loren Giesler, Santosh Pitta, Laura Thompson, Nathan Mueller)
08:05AM	1801291	Evaluation of Data Layers to Optimize Corn and Soybean Placement within the Soil Landscape Andrew Klopfenstein, The Ohio State University, Columbus, OH United States (Presenter: Andrew Klopfenstein) (Andrew Klopfenstein, Richard Colley III, Sami Khanal, John Fulton, Scott Shearer)
08:20AM	1800204	On-Farm Evaluation of Soil Electrical Conductivity versus Planter Downforce for Maximizing Crop Emergence Simerjeet Virk, University of Georgia, Tifton, Georgia United States (Presenter: Simerjeet Virk) (Simerjeet Virk, Wesley Porter)
08:35AM		BREAK
08:45AM	1801776	Development of A Machine Vision System For Real-Time Measurement Of Seed Spacing And Seeding Depth Of Corn Ajay Sharda, Kansas State University, Manhattan, Kansas United States (Presenter: Ajay Sharda) (Sylvester Badua, Ajay Sharda, Ignacio Ciampitti)

**Wednesday, August 1 - 7:30AM-10:00AM
SESSION 315**

BIONICS ENGINEERING FOR AGRICULTURAL AUTOMATED SYSTEMS – Sponsored by MS-58, ITSC-254, ITSC-318
Moderator: Aaron Franzen, South Dakota State University, Brookings, SD
LOCATION: 250B

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800773	Agricultural bioresources and biofabrication as an enabling strategy for agricultural and biological applications Jangho Kim, Chonnam National University, Gwangju, Korea, South (Presenter: Jangho Kim) (Jangho Kim, Sunho Park, Daun Kim, Dohyeon Lee, Woochan Kim)
07:50AM	1800220	Exploration of bionic technologies for the mitigation of particulate matter emitted from fugitive sources Li Guo, Jilin University, Changchun, Jilin China, People's Republic of (Presenter: Li Guo) (Li Guo, Shuli Ma, Dongsun Zhao, Chun Wang, Jin Tong, Donghui Chen, Yunhai Ma, Mo Li, Lili Ren)
08:05AM	1801059	Fabrication of a bionic and superhydrophobic composite polymer/graphene coating on Al alloy with great corrosion resistance property Yan Liu, Jilin University, Changchun, Jilin China, People's Republic of (Presenter: Yan Liu) (Yan Liu)
08:20AM	1801032	Fabrication of biomimetic multi-scale surface of rice leaf and anisotropic superhydrophobic properties Jing Li, China, People's Republic of (Presenter: Jing Li) (Jing Li, Yonghua Wang, YanLing Wan, JinKai Xu, HuaDong Yu)
08:35AM		BREAK
08:45AM	1800708	Review on Application of Biomimetics in the field of Agriculture Ximei Tian, Jilin University, Changchun, Jilin China, People's Republic of (Presenter: Jianqiao Li) (Ximei Tian, Jianqiao Li, Runmao Wang, Yue Gao)
09:00AM	1800707	Bionic modification in improving energy consumption through reducing adhesion and friction Abdul Qaisrani, Department of Agriculture, Canberra, ACT Australia (Presenter: Abdul Qaisrani) (Abdul Qaisrani)

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

WEDNESDAY, AUGUST 1

- 09:15AM 1800243** **The Advancement of Nature-Inspired Algorithms for Agriculture**
Yanbo Huang, USDA ARS, Stoneville, MS United States (Presenter: Yanbo Huang) (Yanbo Huang)
- 09:30AM 1801903** **Natural Resource-derived Biomaterials with Nanotechnology and 3D Printing Techniques**
Hoon Seonwoo, Korea, South (Presenter: Hoon Seonwoo) (Hoon Seonwoo, Ju O Lee, Jong Hoon Chung)

- 09:45AM 1800682** **Evaluations of a Novel Ultrasonic Guidance System for Cover Crop Planter Grain Cart**
nadia Delavarpour, North Dakota State University, Fargo, North Dakota United States (Presenter: Nadia Delavarpour) (Nadia Delavarpour, John Nowatzki, Thomas Bon, Sreekala Bajwa)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 316

MACHINERY SYSTEMS FOR CROP PRODUCTION - PART 1

– Sponsored by MS-49
Moderator: Wesley Porter, University of Georgia, Athens, GA

LOCATION: 250C

- | Time | Paper # | Title/Author |
|----------------|----------------|--|
| 07:30AM | | Introduction |
| 07:35AM | 1800347 | Chopping mechanism and finite element simulation of chopping process for sugarcane chopper harvester
Luxin Xie, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Luxin Xie) (Luxin Xie, Jun Wang, Shaoming Cheng)
316 Machinery Systems for Crop Production - Part 1 |
| 07:50AM | 1800191 | Design and Experiment of Tea Leaf Classifier
Yongzong Lu, University of California, Davis, Davis, California United States (Presenter: Yongzong Lu) (Zhe Du, Yongzong Lu, Jiangang Li, Yongguang Hu, Erci Amoah Asante) |
| 08:05AM | 1800339 | Design and analysis of wave shaped separation device of potato-soil for potato harvester
Wei Zhongcai, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongnan Hu) (Zhongcai Wei, Qi Niu, Hongwen Li, Jin He, Wen Zheng Liu, Hongnan Hu, Hongbo Zhao) |
| 08:20AM | 1800532 | Development and Evaluation of a Particle-Size Screener for Crop Residues
Cyrus Nigon, University of Wisconsin, Madison, WI United States (Presenter: Cyrus Nigon) (Cyrus Nigon, Kevin Shinnors) |
| 08:35AM | | BREAK |
| 08:45AM | 1800783 | Development of Low-cost Liquid Livestock Manure Injector
Seth Manuwa, Federal University of Technology, Akure, Ondo Nigeria (Presenter: Seth Manuwa) (Seth Manuwa) |
| 09:00AM | 1801256 | Discrete Event Simulation of Farm Scale Grain Transportation Systems
Aaron Turner, University of Kentucky, Lexington, KY United States (Presenter: Aaron Turner) (Aaron Turner, Michael Sama, Michael Montros, Joseph Dvorak, Samuel McNeill, Ben Martin, Tyler Mark) |
| 09:15AM | 1801418 | Effect of Different Methods of Planting and Weeding on Field Capacity and Yield of a Mixed Cropping Small Holder Farm.
Folasayo Fayose, Federal University Oye Ekiti, Oye Ekiti, Ekiti Nigeria (Presenter: Folasayo Fayose) (Folasayo Fayose, Adesoji Olaniyan, Babatope Alababan, Kayode Ogunleye, Olanrewaju Omoju, Olufemi Aladejebi, Ayodele Fajimi, Oluwaseun Ilesanmi) |
| 09:30AM | 1800093 | Effect of Seed Variety, Operating Speed and Moisture Content on the Shelling Efficiency of a Mechanised Centrifugal Melon Shelling and Cleaning Machine
Joshua Olaoye, University of Ilorin, Ilorin, Kwara State Nigeria (Presenter: Joshua Olanrewaju Olaoye) (Oluwabukola Belinda Aturu) |

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 317

UAS IN PRECISION AGRICULTURE

– Sponsored by MS-60, MS-23/6/2, MS-54, MS-58

Moderator: Ajay Sharda, Kansas State University, Manhattan, KS

LOCATION: 251C

- | Time | Paper # | Title/Author |
|----------------|----------------|---|
| 07:30AM | | Introduction |
| 07:35AM | 1801698 | Assessment of Canopy Temperature Accuracy from Unmanned Aircraft Systems
Yan Zhu, Purdue University, West Lafayette, Indiana United States (Presenter: Yan Zhu) (Yan Zhu, Keith Cherkauer) |
| 07:50AM | 1801412 | Automated Seed Plantability and Emergence Performance of Hulled and Coated Confectionary Sunflower Kernels using Unmanned Aerial Vehicle (UAV)
Harjot Sidhu, North Dakota State University, Fargo, ND United States (Presenter: Harjot Sidhu) (Harjot Sidhu, Dennis Wiesenborn, Igathinathane Cannayen, John Nowatzki, OveisHassanjililian, Ewumbua Monono) |
| 08:05AM | 1801524 | Examining the influence of flight parameters and image processing software in the quality of UAV acquired images for agricultural decision-making
Sami Khanal, Ohio State University, Wooster, OH United States (Presenter: Sami Khanal) (Sami Khanal, Richard Colley III, Andrew Klopfenstein, John Fulton, Oveis Douridas, Scott Shearer) |
| 08:20AM | 1800840 | Impact of camera lens angle and sUAS flying altitude on spatial crop canopy temperature evaluation
Harman Singh Sangha, Kansas State University, Manhattan, Kansas United States (Presenter: Harman Singh Sangha) (Harman Singh Sangha, Nicholle Hatton, Ajay Sharda, Guanghui Wang, Pavithra Prabhakar) |
| 08:35AM | | BREAK |
| 08:45AM | 1800308 | Multifunctional Ground Control Points based on Wireless System Network for UAS Application
Xiongzhe Han, Texas A&M University, College Station, Texas United States (Presenter: Xiongzhe Han) (Xiongzhe Han, J. Alex Thomasson, Yang Xiang) |
| 09:00AM | 1801527 | Remote sensing for monitoring the effects of machine-induced soil compaction during planting on corn vigor and yield
Sami Khanal, Ohio State University, Wooster, OH United States (Presenter: Sami Khanal) (Sami Khanal, Richard Colley III, John Fulton, Nathan Douridas, Scott Shearer) |
| 09:15AM | 1800881 | Remote Thermal Infrared Imaging for Rapid Screening of Sudden Death Syndrome in Soybean
Nicholle Hatton, Kansas State University, Manhattan, KS United States (Presenter: Nicholle Hatton) (Nicholle Hatton, Ajay Sharda, William Schapaugh Jr, Deon van der Merwe) |
| 09:30AM | 1801570 | Shape based weed discrimination in low-altitude unmanned aerial system images
Dharani Suresh Babu, North Dakota State University, Fargo, North Dakota United States (Presenter: Dharani Suresh Babu) (Dharani Suresh Babu, Sunoj Shajahan, Igathinathane Cannayen, Paulo Flores) |

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

WEDNESDAY, AUGUST 1

09:45AM 1800700 Improved estimation of rice aboveground biomass combining textural and spectral analysis of UAV imagery
 Hengbiao Zheng, Nanjing Agricultural University, Nanjing, China, People's Republic of (Presenter: Hengbiao Zheng) (Hengbiao Zheng, Yan Zhu)

**Wednesday, August 1 - 7:30AM-10:00AM
 SESSION 318 NUTRIENT TRANSPORT AND CYCLING - PART 1** – Sponsored by NRES-224, NRES-22
 Moderators: Sanjay Shukla, University of Florida, Immokalee, FL; Cibir Raj, Pennsylvania State University, University Park, PA

LOCATION: 252A

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801089	Estimation of Delivery Ratio using Multiple Regression Analysis Hyunji Lee, Seoul National University, Seoul, Korea, South (Presenter: Hyunji Lee) (Hyunji Lee, Moon Seong Kang, Kyeong Kim, Sang Min Jun, Do Gil Lee)
07:50AM	1801607	Developing regression relationships between transient storage and hydraulic parameters in streams Femeena Pandara Valappil, Purdue University, West Lafayette, IN United States (Presenter: Femeena Pandara Valappil) (Femeena Pandara Valappil, Indrajeet Chaubey, Antoine Aubeneau, Sara McMillan, Paul Wagner, Nicola Fohrer)
08:05AM	1801342	Effect of soil Phosphorus on Phosphorus dynamics in organic soils in the Holland Marsh, Ontario, Canada Genevieve Grenon, McGill University, Montreal, Quebec Canada (Presenter: Genevieve Grenon) (Genevieve Grenon)
08:20AM	1800832	The Interactions between Phosphorus Leaching and Lime Application in Undisturbed Soil Columns with Different Soil Textures Faezeh Eslamian, McGill University, Montreal, Quebec Canada (Presenter: Faezeh Eslamian) (Faezeh Eslamian, Zhiming Qi, Mike Tate)
08:35AM		BREAK
08:45AM	1801125	Designing Biochar for Enhanced Nutrient Bioavailability within Soils Adina Boyce, University of California, Davis, Davis, California United States (Presenter: Adina Boyce) (Adina Boyce, Bryan Jenkins)
09:00AM	1800064	The Potential of Hydrochar from Animal Wastes as a Vehicle for Phosphorus Cycling, A Review Bingjun He, University of Idaho, Moscow, Idaho United States (Presenter: Bingjun He) (Bingjun Brian He, Lide Chen)
09:15AM	1801580	Evaluation of plant growth with wastewater derived Algal biofertilizer and quantification of nutrient fluxes Durga Madhab Mahapatra, Oregon State University, Corvallis, Oregon United States (Presenter: Durga Madhab Mahapatra) (Durga Madhab Mahapatra)

**Wednesday, August 1 - 7:30AM-10:00AM
 SESSION 319 CENTER PIVOT TECHNOLOGY TRANSFER EFFORT SPONSORED BY THE USDA-ARS OGALLALA AQUIFER PROGRAM - PART 1** – Sponsored by NRES 241, NRES-24
 Moderators: Burdette Barker, University of Nebraska-Lincoln, Lincoln, NE; Derek Heeren, University of Nebraska-Lincoln, Lincoln, NE
LOCATION: 252B

Time	Paper #	Title/Author
07:30AM		Introduction
07:30AM	1801394	Opportunities and Concerns for Agricultural Irrigation Technology Transfer and Education Dana Porter, Texas A&M University, Lubbock, TX United States (Presenter: Dana Porter) (Dana Porter, Freddie Lamm, Jonathan Aguilar, Danny Rogers)
07:50AM	1800849	Factors Leading to Variable Rate Irrigation Not Meeting Grower Expectations Jacob LaRue, Valmont Irrigation, Valley, Nebraska United States (Presenter: Jacob LaRue) (Jacob LaRue)
08:10AM	1801789	Precision Agriculture and Irrigation - Current U.S. Perspectives Steven Evett, USDA ARS, Bushland, Texas United States (Presenter: Steven Evett) (Steven Evett, Susan O'Shaughnessy, Manuel Andrade, Paul Colaizzi, Martha Anderson, William (Bill) Kustas)
08:30AM	1801598	Low Energy Precision Application (LEPA) Irrigation Method, a Forty-year Review James Bordovsky, United States (Presenter: James P. Bordovsky) (James P. Bordovsky)
08:50AM		BREAK
09:00AM	1801440	Advantages and Disadvantages of Variable Rate Irrigation Using Mechanical Move Systems Susan O'Shaughnessy, USDA-ARS, Bushland, TX United States (Presenter: Susan A. O'Shaughnessy) (Steven R. Evett, Paul D. Colaizzi, Thomas H. Marek, Manuel A. Andrade)
09:20AM	1800814	Variable Rate Irrigation Decision Support System: Evaluation and Experiences Kenneth Stone, USDA-ARS, Florence, SC United States (Presenter: Kenneth Stone) (Kenneth Stone, Susan O'Shaughnessy, Alejandro Andrade, Steve Evett)
09:40AM	1801384	Understanding and Promoting Center Pivot Irrigation Safety Dana Porter, Texas A&M University, Lubbock, TX United States (Presenter: Thomas H. Marek) (Thomas H. Marek, Dana O. Porter)

**Wednesday, August 1 - 7:30AM-10:00AM
 SESSION 320 STREAM PROCESSES AND RESTORATION** – Sponsored by NRES-25, NRES-28
 Moderators: David Blersch, Auburn University, Auburn, AL; Jasmeet Lamba, Auburn University, Auburn, AL
LOCATION: 331A

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801682	Enhancing Water Storage in the Drained Landscapes of Everglades: Geophysical Drivers and Scale-up Angelica Engel, University of Florida, Gainesville, Florida United States (Presenter: Angelica Engel) (Angelica Engel, Sanjay Shukla)

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

WEDNESDAY, AUGUST 1

07:50AM	1801495	<p>Development of Methods for Digital Data Incorporation into Rapid Geomorphic Assessments Abigail Parnell, Oklahoma State University, Stillwater, OK United States (Presenter: Abigail Parnell) (Daniel Storm, Garey Fox)</p>
08:05AM	1800276	<p>Suitability of a Linear Model for Predicting Cohesive Soil Detachment: Investigations with a Jet Erosion Test (JET) Garey Fox, North Carolina State University, Raleigh, North Carolina United States (Presenter: Lucie Guertault) (Lucie Guertault, Katie Wardinski, Celso Castro Bolinaga, Garey Fox)</p>
08:20AM	1800278	<p>Groundwater Flux Estimation in Streams: A Thermal Equilibrium Approach Garey Fox, North Carolina State University, Raleigh, North Carolina United States (Presenter: Garey Fox) (Garey Fox, Yan Zhou, Ron Miller, Robert Mollenhauer, Shannon Brewer)</p>
08:35AM	1800908	<p>Geostatistical features of streambed vertical hydraulic conductivity in the Frenchman Creek Watershed in Western Nebraska Aaron Mittelstet, University of Nebraska, Lincoln, NE United States (Presenter: Olfemi Abimbola) (Aaron Mittelstet, Troy Gilmore, Jesse Korus)</p>
08:50AM		BREAK
09:00AM	1800294	<p>Spatial variability of streambed hydraulic conductivity across multiple stream orders Aaron Mittelstet, University of Nebraska, Lincoln, NE United States (Presenter: Olufemi Abimbola) (Aaron Mittelstet, Troy Gilmore and Jesse Korus)</p>
09:15AM	1801557	<p>Impact of riparian re-vegetation on streambank erosion Fouad Jaber, Texas A&M, Dallas, TX United States (Presenter: Fouad Jaber) (Fouad Jaber, Nikki Dictson, Clare Entwistle, Destiny Russell, Lucas Gregory)</p>
09:30AM	1801127	<p>Using Citizen Science to Evaluate the Success of Urban Stream Restoration Projects Carmen Agouridis, University of Kentucky, Lexington, KY United States (Presenter: Carmen Agouridis) (Erin Remley, Samuel Austen, Morgan Gerlitz)</p>
09:45AM	1801725	<p>An Overview of the Sources of Microplastics in the Great Lakes: WWTPs Matthew Germane, United States (Presenter: Matthew Germane) (Matthew Germane, Mala Hettiarachchi, Monika Hentze, Matthias Barth)</p>

**Wednesday, August 1 - 7:30AM-10:00AM
SESSION 321**

MANAGEMENT OF WATER AND LAND RESOURCES UNDER EXTREME EVENTS - PART 1

– Sponsored by NRES-26
Moderators: Tushar Sinha, Texas A&M University, Kingsville, TX; Pawan Upadhyay, Iowa State University, Ames, IA

LOCATION: 331B

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801151	<p>Multi-index Evaluation of Future Drought and Climate Extreme Occurrence in an Agricultural Watershed Sagar Gautam, University of Missouri, Columbia, Missouri United States (Presenter: Sagar Gautam) (Sagar Gautam, Christine Costello, Claire Baffaut, Allen Thompson, John Sadler)</p>
07:50AM	1801609	<p>Improved Water Retention and Reduced Flooding Risk Benefits of Compact Bed Design for Fresh Produce Rajendra Sishodia, University of Florida, Immokalee, FL United States (Presenter: Rajendra Sishodia) (Rajendra Sishodia, Sanjay Shukla, Kira Hansen, Gregory Hendricks)</p>

08:05AM	1800544	<p>Development of agricultural drought indices by harnessing soil moisture and weather data Ali Ajaz, Oklahoma State University, Stillwater, Oklahoma United States (Presenter: Ali Ajaz) (Ali Ajaz, Saleh Taghvaeian, Kul Khand)</p>
08:20AM	1800293	<p>Impact of an Extreme Flood Event on Streambank Retreat on Cedar River, Nebraska Aaron Mittelstet, University of Nebraska, Lincoln, NE United States (Presenter: Naisargi Dave) (Aaron Mittelstet)</p>
08:35AM		BREAK
08:45AM	1801518	<p>Effects of Land Cover Changes on Stormwater Runoff in an Urban Watershed Muhammed Chowdhury, Texas A & M University - Kingsville, Kingsville, Texas United States (Presenter: Muhammed A Chowdhury) (Tushar Sinha)</p>
09:00AM	1801534	<p>Effect of Climate Variability on Crop Yield in the Lower Flint River Basin in Southeastern United States Sandra M. Guzman, Auburn University, Auburn, Alabama United States (Presenter: Sandra M. Guzman) (Sandra M. Guzman, Ritesh Karki, Puneet Srivastava)</p>
09:15AM	1800449	<p>Toward comprehensive coping of risks at farms: integration of diverse farm strategies and insurance Rachata Muneeppeerakul, University of Florida, Gainesville, FL United States (Presenter: Rachata Muneeppeerakul) (Chitsomanus P. Muneeppeerakul, Rachata Muneeppeerakul)</p>

**Wednesday, August 1 - 7:30AM-10:00AM
SESSION 322**

MANAGING MANURE AND AGRICULTURAL BYPRODUCTS FOR SUSTAINABILITY - PART 2

– Sponsored by NRES-27
Moderators: Linda Schott, University of Nebraska-Lincoln, Panora, IA; Daniel Ostrem, Ostrem Farms & USDA-NRCS, Mitchell, SD

LOCATION: 331C

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801218	<p>Geospatial Landscape Analysis for Livestock Manure Management in Western Pennsylvania Gourab Saha, The Pennsylvania State University, University Park, Pennsylvania United States (Presenter: Gourab Saha) (Gourab Saha, Cibin Raj, Herschel Elliott, Heather Gall, Jim Shortle, David Abler)</p>
07:50AM	1801688	<p>Greenhouse Gas and Ammonia emissions from solid dairy manure Fangle Chang, Penn State University, University Park, PA United States (Presenter: Fangle Chang) (Fangle Chang, Tom Richard, Eileen Fabian)</p>
08:05AM	1800287	<p>Incorporating Biochar into Farmstead Management Strategies to Reduce Nitrogen Losses Rebecca Larson, University of Wisconsin-Madison, Madison, WI United States (Presenter: Rebecca Larson) (Joseph Sanford, Michael Holly, Troy Runge)</p>
08:20AM	1800956	<p>Life cycle assessment of corn residues management and utilization practices in China Yangyang Li, The Ohio State University, Wooster, Ohio United States (Presenter: Yangyang Li) (Yangyang Li, Ajay Shah, Guoxue Li)</p>
08:35AM		BREAK
08:45AM	1800029	<p>Methane emission during on-site pre-storage of animal manure prior to anaerobic digestion at biogas plant: effect of storage temperature and addition of food waste Lu Feng, Aarhus University, Tjele, Denmark (Presenter: Lu Feng) (Henrik Bjarne Møller, Alastair James Ward, Veronica Moset)</p>

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

WEDNESDAY, AUGUST 1

09:00AM	1800946	<p>Predicting Manure Nitrogen, Phosphorus, and Carbon Characteristics of Beef Open Lot Systems Richard Koelsch, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Richard Koelsch) (Richard Koelsch, Galen Erickson, Megan Homolka, Matthew Luebbe)</p>
09:15AM	1801034	<p>Recovery of energy, nitrogen and phosphorus from swine manure by combination of microbial fuel cell and struvite crystallization Zhiying Han, China, People's Republic of (Presenter: Zhiying Han) (Zhiying Han, Yihui Guo, Xiaochang Lin, Li'an Duan, Ruoling Dong)</p>
09:30AM	1801177	<p>Utilization of Woody Biomass and Manure as Agricultural Soil Amendments in Nebraska Linda Schott, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Linda Schott) (Amy Schmidt)</p>

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 323

AQUACULTURE AND ENGINEERED AQUATIC ENVIRONMENTS

– Sponsored by NRES-28
Moderators: Steven Hall, North Carolina State University, Raleigh, NC; Felix Akharume, University of Kentucky, Lexington, KY

LOCATION: 332

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800934	<p>Engineering Challenges in Marine Aquaculture Steven Hall, North Carolina State University BAE, Raleigh, NC United States (Presenter: Steven G. Hall) (Steven G. Hall, Matthew Campbell, Alexander Geddie, Melody Thomas, Diplina Paul, Devon Wilcox, Russell Smith, Nathaniel Eddy, Michael Frinsko, Simone Wilder, Kate Doman, Daniel Smith, Justin Traenkle, Ryan Kelly)</p>
07:50AM	1800762	<p>Review of conventional and alternative media used in biofiltration of aquaculture effluents Diplina Paul, North Carolina State University, Raleigh, North Carolina United States (Presenter: Diplina Paul) (Diplina Paul, Steven G. Hall)</p>
08:05AM	1801093	<p>Performance evaluation of an intensive pond aquaculture system for commercial freshwater fish production Weijun Bao, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Weijun Bao) (Weijun Bao, Zequn Peng, Dingwang Zhou, Songming Zhu, Zhangying Ye)</p>
08:20AM	1800352	<p>Aeration Characteristics of Perforated Tray Aerator (PTA) Subha Manash Roy, IIT Kharagpur, West Bengal India (Presenter: Subha Manash Roy) (Subha Manash Roy, Zhangying Mukherjee)</p>
08:35AM		BREAK
08:45AM	1801102	<p>Experimental study on feeding precision of projective feeding machine Zhang Fengdeng, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Zhang Fengdeng) (Fengdeng Zhang)</p>
09:00AM	1801741	<p>Lactic Acid Production from Aquaculture Fish Manure David Blersch, Auburn University, Auburn, AL United States (Presenter: David Blersch) (David Blersch, Suan Shi, Jing Li)</p>
09:15AM	1800691	<p>Hydrodynamic Effects on Oyster Aquaculture Systems Matthew Campbell, North Carolina State University, Raleigh, NC United States (Presenter: Matthew Campbell) (Matt Campbell, Steve Hall)</p>

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 324

MEASUREMENT AND MODELING OF ECOSYSTEM SERVICES

– Sponsored by NRES-28, NRES-21, NRES-25
Moderator: Sanjay Shukla, University of Florida, Immokalee, FL

LOCATION: 333

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800187	<p>Ecologies of scale: The effects of spatial resolution on predictions of habitat suitability Ian Hahus, Univ. of Florida, Gainesville, FL United States (Presenter: Ian Hahus) (Ian Hahus, Kati Migliaccio, Rafael Muñoz-Carpena, Matthew Cohen, David Kaplan, Gregory Kiker)</p>
07:50AM	1801673	<p>Integrative indicators as robust metrics of catchment biogeochemical function Francois Birgand, NC State University, Raleigh, NC United States (Presenter: Francois Birgand) (Francois Birgand)</p>
08:05AM	1800265	<p>Impact of Grazing Management Practices on Water Catchment Functions and Soil Carbon Sequestration Jungjin kim, Texas A&M AgriLife Research, Vernon, TX United States (Presenter: Jungjin Kim) (Jungjin Kim, Srinivasulu Ale, W Richard Teague)</p>
08:20AM	1801381	<p>Streamflow Response to Integrated Crop-Livestock Production Systems Implementation in an Agriculture Dominated Watershed Juan Pérez-Gutiérrez, South Dakota State University, Brookings, SD United States (Presenter: Juan Pérez-Gutiérrez) (Juan Perez-Gutierrez, Sandeep Kumar)</p>
08:35AM		BREAK
08:45AM	1801761	<p>Evaluating the impact of conservation practices on water quality Susan Wang, Blackland Research and Extension Center, Temple, TX United States (Presenter: Susan Wang) (Susan Wang)</p>
09:00AM	1801092	<p>Estimating biomass production and yield of dryland crops using satellite imagery based simple crop model Azeem Khan, United States (Presenter: Azeem Khan) (Azeem Khan, Claudio Stockle, Roger Nelson)</p>
09:15AM	1801258	<p>The influence of winter cereal rye on water and nutrient availability in central and north-central Iowa Emily Waring, Iowa State University, Ames, Iowa United States (Presenter: Emily Waring) (Emily Waring, Carl Pederson, Matthew J. Helmers, John Sawyer)</p>
09:30AM	1801053	<p>Effect of winter wheat cover crop termination date on soil water availability and yield of cotton in the Texas Rolling Plains Srinivasulu Ale, Texas A&M AgriLife Research, Vernon, Texas United States (Presenter: Srinivasulu Ale) (Nina Omani, Sushil Himanshu, Paul DeLaune)</p>

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

WEDNESDAY, AUGUST 1

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 325

ADVANCES IN ECOSYSTEM EVAPOTRANSPIRATION RESEARCH

– Sponsored by NRES-21, NRES-23, NRES-24, NRES-25, NRES-253, NRES-28

Moderators: Devendra Amatya, US Forest Service, Cordsville, SC; Suat Irmak, University of Nebraska-Lincoln, Lincoln, NE; Meetpal Kukal, University of Nebraska-Lincoln, Lincoln, NE; Vivek Sharma, University of Wyoming, Powell, WY

LOCATION: 334

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800541	Dynamics of Canopy Water and Radiation Use Within and Across Crops Meetpal Kukal, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Meetpal Kukal) (Suat Irmak)
07:50AM	1800357	Comparison of Reference Evapotranspiration (ET_o) Estimation Models Emmanuel Omenuko, Nnamdi Azikiwe University, Awka, Anambra Nigeria (Presenter: Emmanuel Omenuko) (Emmanuel Omenuko)
08:05AM	1800094	Impact of Air Temperature and Relative Humidity Measured over Rice and Grass Canopies on Penman-Monteith Reference Evapotranspiration Koffi Djaman, New Mexico State University, Las Cruces, New Mexico United States (Presenter: Koffi Djaman) (Koffi Djaman, Mamadou Sall, Abdoulaye Sow, Suat Irmak)
08:20AM	1801679	Evapotranspiration measurement in an emergent marsh using Bowen's ratio and White's method Theresa Thompson, Virginia Tech, Blacksburg, VA United States (Presenter: Theresa Thompson) (Theresa Thompson, Stephen Stone, G. Richard Whittecar, W. Lee Daniels)
08:35AM	1800986	Evapotranspiration rate and energy flux comparisons of eddy covariance and Bowen ratio methods in the Red River Valley Ali Rashid Niaghi, North Dakota State University, Fargo, ND United States (Presenter: Ali Rashid Niaghi) (Ali Rashid Niaghi, Xinhua Jia)
08:50AM		BREAK
09:00AM	1800892	Using Machine Learning to Evaluate Site-specific Crop Coefficients Jason Kelley, University of Idaho, Moscow, ID United States (Presenter: Jason Kelley) (Jason Kelley)
09:15AM	1800118	Understanding Drivers of Dynamic and Complex Cropping Systems in Southwest Michigan Using Remote Sensing Prakash Jha, Michigan State university, East Lansing, Michigan United States (Presenter: Prakash Kumar Jha) (Amor V M Ines)
09:30AM	1801213	Temporal Evapotranspiration and Crop Production Correlation Study in Georgia to Develop Cropping Management Decision Support Sudhanshu Panda, University of North Georgia, Oakwood, Georgia United States (Presenter: Dr. Sudhanshu Sekhar Panda) (Sudhanshu Panda, Santa Hernandez, Ian Iitcroft, Devendra Amatya)
10:00AM	1800822	Trends of Air Temperature and Potential Evapotranspiration from Forest Watersheds in the Lower Mississippi River Basin over the Past 100 Years Ying Ouyang, USDA Forest Service, Starkville, MS United States (Presenter: Ying Ouyang) (Ying Ouyang, Gary Feng, Johnny Grace III)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 326

AIR EMISSION FROM LIVESTOCK AND POULTRY PRODUCTION

– Sponsored by PAFS-50

Moderator: Lingjuan Wang Li, North Carolina State University, Raleigh, NC

LOCATION: 335

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801027	A review of life cycle assessment on carbon footprint of beef production in the U.S. Yang Liu, Kansas State University, Manhattan, KS United States (Presenter: Yang Liu) (Yang Liu)
07:50AM	1800508	Empirical Model of Annual Nitrous Oxide Emissions from Open-Lot Beef Cattle Feedyard Pens in the Southern High Plains David Parker, USDA-ARS-CPRL, Bushland, TX United States (Presenter: David B. Parker) (Erin L. Cortus, Kenneth D. Casey, Gary W. Marek, Kevin R. Heflin, Heidi M. Waldrip)
08:05AM	1800613	Evaluation of pre-flushing for the recovery of odorants from intensive pig production in sampling bags measured by PTR-MS Dezhao Liu, Zhejiang University, Hangzhou, China, People's Republic of (Presenter: Xianwang Kong) (Xianwang Kong, Leiping Wang, Zun Man, Xiaorong Dai, Yicong Xin, Shihao Ying, Dezhao Liu)
08:20AM	1801295	Nitrous oxide from beef cattle feedyards: Understanding effects of microbial community structure, climate and manure properties on denitrification Heidi Waldrip, USDA-ARS, Bushland, Texas United States (Presenter: Heidi Waldrip) (David Parker, Sierra Miller, Daniel Miller, Lisa Durso, Kenneth Casey, Richard Todd, Erin Cortus)
08:35AM		BREAK
08:45AM	1800882	Atmospheric Modeling of Precursor Gases to Inorganic PM_{2.5} in a Regional Scale Coupled with an Improved Ammonia Emission Inventory for Animal Agriculture Yijia Zhao, North Carolina State University, Raleigh, NC United States (Presenter: Yijia Zhao) (Yijia Zhao, Lingjuan Wang-Li, Sanjay Shah, Nicholas Meskhidze, Peter Guinness)
09:00AM	1800870	Dynamics of Rural and Urban Inorganic Aerosols Bin Cheng, North Carolina State University, Raleigh, NC United States (Presenter: Bin Cheng) (Bin Cheng, Lingjuan Wang-Li, Nicholas Meskhidze, John Classen, Peter Bloomfield)
09:15AM	1800872	Emissions and Characteristics of Particulate Matter As Impacted by Air Velocity Treatment for Heavy Broilers: A Chamber Study Bin Cheng, North Carolina State University, Raleigh, NC United States (Presenter: Bin Cheng) (Bin Cheng, Derek West, Yijia Zhao, Xiuguo Zou, Mingqi Zou, Lingjuan Wang-Li, Hernan Cordova, Viviana San Martin Diaz, Edgar Oviedo)
09:30AM	1801179	Ammonia Emission as Impacted by Air Velocity Treatment for Heavy Broilers: A Chamber Study Derek West, North Carolina State University, Raleigh, North Carolina United States (Presenter: Derek West) (Derek West, Bin Cheng, Yijia Zhao, Xiuguo Zou, Mingqi Zou, Lingjuan Wang-Li, Hernan Cordova, Viviana San Martin Diaz, Edgar Oviedo)
09:45AM	1800026	Technical Note: Building a Gradient Calorimeter to Measure Heat Production in Insects Travis McEachern, University of Kentucky, Lexington, Kentucky United States (Presenter: Travis McEachern) (Morgan Hayes)

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

WEDNESDAY, AUGUST 1

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 327

ADVANCED TREATMENT TECHNOLOGY ON FOOD & ORGANIC WASTES/BYPRODUCTS MANAGEMENT-PART 2

– Sponsored by PRS
Moderator: Wei Liao, Michigan State University, East Lansing, MI

LOCATION: 336

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1800038	Energy Requirements and Effective Moisture Diffusivity of Tomato Slices in a Hybrid Convective Dryer Nnaemeka Nwakuba, Michael Okpara Uni. of Agric., Umudike, Umuahia, Abia State Nigeria (Presenter: Prof. S.N.Asoegwu) (N.R. Nwakuba, O. C. Chukwuezie, S.N. Asoegwu, G.I. Nwandikom, N.A.A. Okereke)
07:50AM	1800904	Influence of Drying Method on Bioactive Compound Content in Waste Cauliflower Leaves (<i>Brassica oleracea</i> var. <i>botrytis</i>) and their Potential Use as a Natural Antimicrobial Agent César Ozuna, Universidad de Guanajuato, Irapuato, Guanajuato Mexico (Presenter: César Ozuna) (Alejandra C. Franco-Ramirez, Martin E. Gutierrez-Robles, Ma. Del Rosario Abraham-Juarez, Víctor Olalde-Portugal, Cesar Ozuna)
08:05AM	1800663	Mild hydro-thermal treatment for improving head rice yield of Basmati Rice Champathi Gunathilake, Fiji (Presenter: D.M.C. Champathi Gunathilake) (Champathi Gunathilake)
08:20AM	1800749	Optimization of process parameters for ultrasonic assisted extraction of punicalagin from Pomegranate (<i>Punica granatum</i>) peel powder Madhulekha Rakshit, Indian Institute of Technology, Kharagpur, West Bengal India (Presenter: Madhulekha Rakshit) (Madhulekha Rakshit)
08:35AM	1801490	Reclamation of Wastewater from Food Manufacturing using Membrane Filtration Subbiah Nagappan, The Ohio State University, Columbus, Ohio United States (Presenter: Subbiah Nagappan) (David Phinney, Dennis Heldman)
08:50AM		BREAK
09:00AM	1800047	Sand Bioreactors for Treatment of High Salt Content Wastewater Kristen Conroy, The Ohio State University, Columbus, OH United States (Presenter: Kristen Conroy) (Kristen Conroy, Feng Chen, Olli H. Tuovinen, Karen M. Mancl)
09:15AM	1800616	Techno-economic analysis of electrocoagulation on water reclamation and pathogen reduction of a high-strength organic wastewater Sibel Uludag Demirer, Michigan State University, East Lansing, Michigan United States (Presenter: Sibel Uludag Demirer) (Sibel Uludag Demirer, Nathan Olson, Rebecca Ives, Jean Pierre Nshimiyimana, Cory Rusinek, Joan Rose, Yan Liu, Wei Liao)
09:30AM	1801774	Use of a 3D Finite Element Model to Evaluate Accuracy of Temperature Sensing Technology in Stored Grain Benjamin Plumier, Kansas State University, United States (Presenter: Benjamin Plumier) (Benjamin Plumier, Dirk Maier)
09:45AM	1800802	Variations in nutrient composition of stored cowpea IT96D-610K in steel and wooden structures. Ibukunoluwa Ajayi-Banji, University of Ilorin, Ilorin, Kwara Nigeria (Presenter: Ibukunoluwa Ajayi-Banji) (Ibukunoluwa Ajayi-Banji, Olusola Sunmonu)

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 328

FOOD PROCESS AND ENGINEERING - PART 3

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

LOCATION: 337

Time	Paper #	Title/Author
07:30AM		Introduction
07:35AM	1801631	Functional Properties of Rice Flour Generated from Parboiled and Regular Brokens Rebecca Bruce, University of Arkansas, Fayetteville, AR United States (Presenter: Rebecca Bruce) (Rebecca Bruce, Griffiths Atungulu)
07:50AM	1800245	High pressure impregnation of apple cubes Hosahalli Ramaswamy, McGill University, Montreal, Quebec Canada (Presenter: Hosahalli Ramaswamy) (Hamed Vatankhah, Hosahalli Ramaswamy)
08:05AM	1801268	Impact of different washing procedures on microbial diversity associated to endive salad (<i>Cichorium endivia</i>) Oliver Schlueter, Leibniz Inst. f. Agricult. Eng. Bioecon., Potsdam, Brandenburg Germany (Presenter: Oliver Schlueter) (Antje Froehling, Peter Muranyi, Oliver Schlueter)
08:20AM	1800863	Impact of Power Ultrasound on Globulin Fraction of Chicayota (<i>Cucurbita Argryrosperma</i> subsp. <i>Sororia</i>) Seed Protein César Ozuna, Universidad de Guanajuato, Irapuato, Guanajuato Mexico (Presenter: César Ozuna) (Ma. Fabiola Leon-Galvan, Ana Cristina Corona-Pacheco, Cesar Ozuna)
08:35AM		BREAK
08:45AM	1800781	In vitro starch digestibility of cooked high pressure treated brown rice Hao Wang, Zhejiang university, Hangzhou, Zhejiang China, People's Republic of (Presenter: Hao Wang) (Hao Wang, Chunfang Wang, Xiuping Jiang, Songming Zhu, Yong Yu)
09:00AM	1801081	Investigation of the appropriate temperature and heating duration for achieving uniform browning on cooked corn cob Anthony Iheonye, Mccgill Univesity, Ste-Anne-De-Bellevue, Quebec Canada (Presenter: Anthony Iheonye) (Anthony Iheonye, Sabbas Asoegwu, Kevin Nwaigwe)
09:15AM	1800356	It's a maze: Effect of natural sweeteners on shelf stability of dairy dessert (<i>Rasgulla</i>) during refrigerated storage Gurveer Kaur, Indian Institute of Technology, Kharagpur, West Bengal India (Presenter: Gurveer Kaur) (Tridib Kumar Goswami)
09:30AM	1801737	Kinetic modelling of polyphenol degradation during common beans processing Ebenezer Kwofie, McGill University, Ste Anne-de-Bellevue, Quebec Canada (Presenter: Ebenezer Kwofie) (Ebenezer Kwofie, Ogan Mba, Michael Ngadi)

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

WEDNESDAY, AUGUST 1

Wednesday, August 1 - 7:30AM-10:00AM

SESSION 329

LARGE SCALE GRAIN DRYING, STORAGE AND AERATION SYSTEMS - INVITED SPEAKERS

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

LOCATION: 338

In USA, billions of bushels of grains are handled during harvest season particularly for drying and storage. When we handle these grains in large scale, there are a lot of issues in grain handling such as quality, moisture content, amount of fines and foreign materials, hotspots, moisture migration, mycotoxins, insect problems. In terms of grain drying, there are issues such as uniformity, over-drying, energy consumption, quality and so forth. How to dry these harvest high moisture to safe storage moisture without affecting the quality. Similar how to manage the grain after drying using aeration systems without affecting the quality. In this session, we will cover various topics related to large scale system in drying, storage and aeration system for grains such as corn, rice, soybean and so on.

Time	Paper #	Title/Author
07:30AM		Introduction1 Invited speakers: Greg Baltz Ricardo Reggati Chris Butts Scott Chant Charles Sukup

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 330

ADDRESSING ETHICAL ISSUES IN ENGINEERING DESIGN - PANEL DISCUSSION

– Sponsored by EOPD-412
Moderator: Robert Gustafson, Ohio State University, Worthington, OH

Location: 355

A keynote speaker will introduce how IEEE P7000™ Standards Working Group which is setting the standards for the future of ethical intelligent and autonomous technologies. Including work on 1) Model Process for Addressing Ethical Concerns During System Design, 2) a Standard for developing autonomous technologies, and 3) how to manage privacy issues for systems or software that collect personal data. This will be followed by a panel discussion of ethics in agricultural and biological engineering systems design by practicing engineers.

Time	Paper #	Title/Author
10:15AM		Introduction Keynote Speaker: Dr. Bill Moylan , Eastern Michigan University, Ypsilanti, Michigan

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 331

TECHNO-ECONOMIC AND LIFE CYCLE ASSESSMENT OF BIOENERGY OF AGRICULTURAL SYSTEMS

– Sponsored by ES-220
Moderators: Deepak Kumar, University of Illinois, Urbana, IL; Ganti Murthy, Oregon State Univ, Corvallis, OR

LOCATION: 140D

Time	Paper #	Title/Author
10:15AM		Introduction1
10:20AM	1800227	A regional scale modeling framework combining biogeochemical model with life cycle and economic analysis for integrated assessment of cropping systems Seyed Mohammad Hossein Tabatabaie, Oregon State University, Corvallis, Oregon United States (Presenter: Kyle W Proctor) (John Bolte, Kyle W Proctor, Ganti Murthy)
10:35AM	1800264	Techno-economic analysis of solid-biofuels and biochar using forest residues through portable production systems Kamalakanta Sahoo, University of Georgia, Athens, Georgia United States (Presenter: Kamalakanta Sahoo) (Kamalakanta Sahoo, E.M. (Ted) Bilek, Richard Bergman, Sudhagar Mani)
10:50AM	1801466	Life Cycle Sustainability Assessment (LCSA) of Energy Systems - A Case study on LCSA of oxymethylene ether (OME) production from forest biomass Adetoyese Olajire Oyedun, University of Alberta, Edmonton, Alberta Canada (Presenter: Adetoyese Olajire Oyedun) (Nafisa Mahbub, Adetoyese Olajire Oyedun, Peyman Gemechu, Amit Kumar)
11:05AM	1801366	Colored corn processing for anthocyanin extraction and ethanol production using modified dry grind process: a techno-economic evaluation Deepak Kumar, University of Illinois Urbana-Champaign, Urbana, Illinois United States (Presenter: Deepak Kumar) (Deepak Kumar, Pavel Somavat, Vijay Singh)
11:20AM	1801194	Environmental Impact of Decentralized Electrocatalysis for Upgrading Bio-Oil to Make Liquid Fuel Rachael Ssk, Michigan State University, East Lansing, MI United States (Presenter: Rachael Sak) (Rachael Sak, Sabyasachi Das, Peyman Fasahati, Christopher Saffron)
11:35AM	1801323	Techno-economic analysis of corn and soybean production in Ohio Luis Huezo, The Ohio State University, Wooster, Ohio United States (Presenter: Luis Huezo) (L. Huezo, A. Khanal, A. Shah)
11:50AM	1801639	Economic and environmental impact assessments of napier grass based combined heat and power generation system Sudhagar Mani, University of Georgia, Athens, GA United States (Presenter: Sudhagar Mani) (Maryam Manouchehrinejad, Kamalakanta Sahoo, Sudhagar Mani)
12:05PM	1801111	Techno-economic analysis of the production of novolac resin by partial substitution of petroleum based phenol with phenolic compounds present in bio-oil derived from fast pyrolysis of pine wood Asmita Khanal, The Ohio State University, Columbus, Ohio United States (Presenter: Asmita Khanal) (Ashish Manandhar, Ajay Shah)

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

WEDNESDAY, AUGUST 1

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 332

ADVANCED AND DROP-IN BIOFUELS PRODUCTION - BIOCHEMICAL APPROACH

– Sponsored by ES-220

Moderators: Sushil Adhikari, Auburn Univ, Auburn, AL; Nouredine Abdoulmoumi, University of Tennessee, Knoxville, TN; Oluwafemi Oyedeji, University of Tennessee, Knoxville, TN

LOCATION: 140E

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800279	Enhanced Ethanol and Butanol Production from Synthesis Gas Using Biochar Hasan Atiyeh, Oklahoma State University, Stillwater, OK United States (Presenter: Hasan Atiyeh) (Xiao Sun, Hasan K. Atiyeh, Ralph S. Tanner, Ajay Kumar, Hailin Zhang)
10:35AM	1801558	Production of high levels of chirally pure D-2,3-butanediol using a newly isolated Bacillus subtilis strain Pengfei Yan, Auburn University, Auburn, Alabama United States (Presenter: Pengfei Yan) (Pengfei Yan, Jun Feng, Sheng Dong, Yi Wang)
10:50AM	1800654	Characterization of nano-oxide added water-biodiesel emulsion prepared with optimal parameters and its performance in diesel engine Neeraj Kumar, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Neeraj Kumar) (Neeraj Kumar, Hifjur Raheman)
11:05AM	1801779	Analysis of Properties and Estimation of Optimum Blending Ratio of Blended Castor Biodiesel Joshua Olaoye, University of Ilorin, Ilorin, Kwara State Nigeria (Presenter: Joshua Olanrewaju Olaoye) (Rasheed A. Busari)
11:20AM	1801502	Catalytic Transfer Hydrogenation (CTH) of Flash Hydrolyzed Microalgae into Liquid Hydrocarbon Fuels (Jet Fuel & Diesel) Alexander Asiedu, Old Dominion University, Norfolk, Virginia United States (Presenter: Alexander Asiedu) (Sandeep Kumar)
11:35AM	1800141	Anaerobic Digestion of Food Wastes for Biogas Potentials Evaluation Using Automatic Methane Potentials Test System Kevin Nwaigwe, University of Botswana, Department of Mechanical Engineering, Gaborone Botswana (Presenter: Sabbas Asoegwu) (Kevin N. Nwaigwe, Sabbas N. Asoegwu, Emmanuel E. Anyanwu)
11:50AM	1800059	Design, Fabrication, and Testing of a 8.0 Cubic Metres Anaerobic Biodigester for Cow Dung Waste and Sizing Calculations Abubakar Ibrahim Suleiman, University of Exeter, UK, Truro, Cornwall United Kingdom (Presenter: Abubakar Ibrahim Suleiman) (Abubakar Ibrahim Suleiman)
12:05PM	1800597	Enhancing biogas production of corn stover by fast pyrolysis pretreatment Fang Wang, Shandong University of Technology, Zibo, Shandong province China, People's Republic of (Presenter: Fang Wang) (Fang Wang, Deli Zhang, Weiming Yi)
12:20PM	1800910	Utilization of Excess Corn Kernels for High-yielding Hydrogen Gas Production Sibel Irmak, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Ozge Nayman Tiryaki) (Ozge Nayman Tiryaki, Sibel Irmak, Divya Ramchandran)

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 334

APPS IN AGRICULTURAL APPLICATIONS

– Sponsored by ITSC-254, ITSC-217, MS-54

Moderator: Joseph Dvorak, University of Kentucky, Lexington, KY

LOCATION: 141

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801597	Real-time on-farm yield trials powered by open-source: connecting ISOBlue, OADA, and the Trials Tracker App Samuel Noel, Purdue University, West Lafayette, IN United States (Presenter: Samuel Noel) (Samuel Noel, Yang Wang, Alex Layton, Aaron Ault, Dennis Buckmaster, James Krogmeier)
10:35AM	1801547	Slow Moving Vehicle App: Ag Machine Track Capture for Improved Road Safety and Mapping of Fixed Road Hazard Locations Ryan Beasley, Purdue University, West Lafayette, Indiana United States (Presenter: James Krogmeier) (Ryan Beasley, Andrew Balmos, Aaron Ault, Dennis Buckmaster, James Krogmeier)
10:50AM	1800888	Assessing Kernel Processing Score of Harvested and Processed Corn Silage Via Image Processing Techniques Jessica Drewry, University of Wisconsin-Madison, Madison, WI United States (Presenter: Jessica Drewry) (Jessica Drewry, Brian Luck, Rebecca Willett, Eduardo Rocha, Joshua Harmon)
11:05AM	1800650	Livestock Feeds Analyzer and Management: PHP Approach Idowu Adewumi, Federal College of Agriculture, Ibadan, Oyo State Nigeria (Presenter: Idowu Adewumi) (Idowu Adewumi)
11:20AM	1800792	Monitoring starch degradation and biosynthesis in mung bean plants with terahertz spectroscopy Shusaku Nakajima, Kyoto University, Kyoto, Kyoto Japan (Presenter: Shusaku Nakajima) (Shusaku Nakajima, Tetsuhito Suzuki, Yuichi Ogawa)
11:35AM	1801484	Online Fast Measurement of Moisture Content of Potato Slice During Pulsed Vacuum Drying Base on Surface Temperature Change Linyang Xue, China Agricultural University, Beijing, China, People's Republic of (Presenter: Linyang Xue) (Linyang Xue, Shumao Wang, Zhenjing Gao, Jun Wang, Xingyi Li)
11:50AM	1801677	A GIS Tool for Precision Agriculture: Architecture and Analytics Humeshkar Nemala, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Humeshkar Nemala) (Santosh K. Pitla, Joe D. Luck)

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 335

DIELECTRIC PROPERTIES AND SENSING APPLICATIONS

– Sponsored by ITSC-348

Moderator: Samir Trabelsi, USDA ARS, Athens, GA

LOCATION: 142A

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801726	Method for Rapid and Nondestructive Sensing of Moisture Content of In-Shell Nuts from Measurement of Their Dielectric Properties at a Single Microwave Frequency Samir Trabelsi, USDA-ARS, Athens, GA United States (Presenter: Samir Trabelsi) (Samir Trabelsi, Micah Lewis, Stuart Nelson)

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

WEDNESDAY, AUGUST 1

10:35AM	1801351	Application of Ground-Penetrating Radar in measuring Corn seeds (CS) Spacing and Planting depth in different soils Kenneth Mapoka, Iowa State University, Ames, Iowa United States (Presenter: Kenneth Mapoka) (Kenneth Mapoka, Stuart Birrell, David Eisenmann)
10:50AM	1800234	Investigation of Relative Electrical Capacitance Tomography (ECT) for Root Sensing and Early Nematode Detection Daniel Sabo, Georgia Tech Research Institute, Atlanta, Ga United States (Presenter: Daniel Sabo) (Daniel Sabo, Abolfazl Hajihassani, Glen Rains)
11:05AM	1801664	Real-time Monitoring of Moisture within an Eighth-scale Grain Bin during Drying Micah Lewis, USDA ARS, Athens, GA United States (Presenter: Micah Lewis) (Micah Lewis, Samir Trabelsi, Stuart O. Nelson)
11:20AM	1801325	Soil Moisture Estimation using Automotive Radar Siyang Cao, The University of Arizona, Tucson, Arizona United States (Presenter: Siyang Cao) (Siyang Cao, Xiang Zhang)
11:35AM	1801199	New Techniques to Measure the Spatial Variability of the Soil Moisture Content Mahmoud Shehata, North Carolina State University, Raleigh, NC United States (Presenter: Mahmoud Shehata) (Mahmoud Shehata, William Carr, Joseph Ishak, Chadi Sayde)
11:50AM	1801728	Thermal imaging for early nondestructive detection of wheat stripe rust Yao Zhifeng, Northwest A&F University, Yangling, Shaanxi China, People's Republic of (Presenter: Zhifeng Yao, Yu Lei) (Zhifeng Yao, Dongjian He, Yu Lei)

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 336 HYPERSPECTRAL IMAGING APPLICATIONS - PART 2 – Sponsored by ITSC-348
Moderator: Kurt Lawrence, USDA ARS, Athens, GA

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800579	Application of hyperspectral microscope imaging for multiplexed detection of foodborne bacteria Bosoon Park, USDA, ARS, Athens, GA United States (Presenter: Bosoon Park) (Bosoon Park, Matthew Eady, Brian Oakley, Seung-Chul Yoon)
10:35AM	1801659	Hyperspectral Imaging for the Detection of Shiga-Toxin Producing Escherichia coli with a Modified MacConkey Agar Kurt Lawrence, USDA, ARS, Athens, Georgia United States (Presenter: Kurt Lawrence) (Kurt Lawrence, Seung Chul Yoon, Gerald Heitschmidt, Peggy Feldner, Tae-Sung Shin, Gary Gamble, Norasak Kalchayanand, Tommy Wheeler)
10:50AM	1800448	Classification of Tomato Impact Bruise Using Hyperspectral Imaging Based on Spatial-spectral Method Jinshi Cui, Seoul National University, Seoul, Seoul Korea, South (Presenter: Jinshi Cui) (Jinshi Cui, Myongkyoon Yang, Seongmin Park, Daesik Son, Seong-In Cho)
11:05AM	1801451	Effectiveness of hyperspectral imaging technology in detecting herbicide injury Dongdong Ma, Purdue University, West Lafayette, In United States (Presenter: Dongdong Ma) (Dongdong Ma, Jian Jin, Hideki Maki, Julie Young, Haozhen Nie, Bryan Young, William Johnson)

11:20AM	1801803	Non Destructive Method of Aflatoxin B1 Detection Using NIR Hyperspectral Imaging Omotola Folarin-ottun, McGill University, Ste-Anne-de-Bellevue, Quebec Canada (Presenter: Chijioke Nwankpa) (Michael Ngadi, Li Liu, Christopher Kucha)
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Wednesday, August 1 - 10:15AM-12:15AM
SESSION 338 MACHINE VISION AND SENSORS FOR AUTONOMOUS VEHICLES AND ROBOTICS – Sponsored by ITSC-312
Moderator: Yufeng Ge, University of Nebraska-Lincoln, Lincoln, NE

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800975	Strawberry Plant Localization via Relative Pixel Positions in Sequential Images Xiangling Kong, University of Central Florida, Orlando, Florida United States (Presenter: Sinem Gozde Defterli) (Xianglin Kong, Yunjun Xu)
10:35AM	1800660	Early Tomato Spotted Wilt Virus Detection using Hyperspectral Imaging Technique and Outlier Removal Auxiliary Classifier Generative Adversarial Nets (OR-AC-GAN) Yang Tao, University of Maryland, College Park, Maryland United States (Presenter: Dongyi Wang) (Dongyi Wang, Robert Vinson, Maxwell Holmes, Gary Seibel, Avital Bechar, Shimon Nof, Yaguang Luo, Yang Tao)
10:50AM	1800404	Comparing various supervised classification and learning techniques for apple detection in modern fruiting wall orchards Santosh Bhusal, Washington State University, Prosser, WA United States (Presenter: Santosh Bhusal) (Santosh Bhusal, Kapil Khanal, Manoj Karkee, Abhishesh Silwal)
11:05AM	1800831	Deep Learning based Real-time GPU-accelerated Tracking and Counting of Cotton Bolls under Field Conditions using a Moving Camera Kadeghe Fue, University of Georgia, Tifton, Georgia United States (Presenter: Kadeghe Fue) (Wesley Porter, Glen Rains)
11:20AM	1801212	Machine vision for plant detection and localization for robotic weeding based on deep convolutional neural network Jingyao Gai, Iowa State University, Ames, Iowa United States (Presenter: Jingyao Gai) (Jingyao Gai, Lie Tang, Isaac Tegeler, Xinjie Yu)

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 339 ADVANCES IN TILLAGE, SEEDING AND TRANSPLANTING TECHNOLOGY - PART 2 – Sponsored by MS-49
Moderator: Ajay Sharda, Kansas State University, Manhattan, KS

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800129	Air Drill Seeder Distributor Head Evaluation. Comparison Between Laboratory Tests and CFD Simulations Gastón Bourges, INTI/UNR, Rosario, Santa Fe Argentina (Presenter: Gastón Bourges) (Gaston Bourges)
10:35AM	1800132	Impact of air flow and seeds density in the air-seed flow distribution of an "air drill" distributor head Gastón Bourges, INTI/UNR, Rosario, Santa Fe Argentina (Presenter: Gastón Bourges) (Gaston Bourges)

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WEDNESDAY, AUGUST 1

10:50AM	1800791	<p>A Hybrid RBFNN-MOPSO Algorithm for Optimizing the Design and Operational Parameters of a Pneumatic Seed Metering Device Chaitanya Madhaw Pareek, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Chaitanya Madhaw Pareek) (C.M. Pareek, V.K. Tewari, Rajendra Machavaram)</p>
11:05AM	1800539	<p>Design and Experiment of a Planetary Gear System Transplanting Mechanism Based on Solution Region Synthesis Li Dai, Zhejiang Sci-Tech University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Xin Zhang) (Li Dai, Xiong Zhao, Xin Zhang, Karkee Manoj, Qin Zhang)</p>
11:20AM	1801104	<p>Design and Simulation of sweet potato mulched transplanting mechanism with "boat"-shape Yuanyuan Shao, Shandong Agricultural University, China, People's Republic of (Presenter: Yuanyuan Shao) (Guantao Xuan, Jialin Hou, Zhichao Hu, Yongxian Wang, Yi Liu)</p>
11:35AM	1800715	<p>Development of a Semiautomatic Napa Cabbage Transplanter for Women and elderly Cheol Woo Han, Korea, South (Presenter: Cheol Woo Han) (Cheolwoo Han, Sang Yoon Lee, Seung Yun Lee, Giyoung Kweon)</p>
11:50AM	1801237	<p>Development of a field testing unit for vertical tillage (VT) and seeding Sumanth Kuntavalli Venkatesh, University of Manitoba, Winnipeg, Manitoba Canada (Presenter: Sumanth Kuntavalli) (Sumanth Kuntavalli Venkatesh, Ying Chen, Qingjin Peng)</p>
12:05PM	1801189	<p>Development of Draft Force Model for Multi-Tool Tillage Implements Brittany Schroeder, The Ohio State University, Columbus, OH United States (Presenter: Brittany Schroeder) (Brittany Schroeder, Andrew Klopfenstein, Scott Shearer)</p>
12:20PM	1801018	<p>Field Performance Evaluation of Combined Offset Disc Harrow Ganesh Upadhyay, Indian Institute of Technology, Kharagpur, Kharagpur, West Bengal India (Presenter: Ganesh Upadhyay) (Ganesh Upadhyay, Hifjur Raheeman)</p>
12:35PM	1800147	<p>Development of a Motion Control Switch for the Common Carriage of a Soil Bin Test Facility Ozoemena Ani, University of Nigeria, Nsukka, Nsukka, Enugu Nigeria (Presenter: Ozoemena Ani) (Ozoemena Ani, Gieon Okoro, Akpan Mfonobong, Martins Eze)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 340

AUTOMATED AGRICULTURAL FIELD MACHINERY DATA COLLECTION, ANALYSIS, AND UTILIZATION – Sponsored by MS-58, ITSC-254, ITSC-353, MS-54
Moderator: TBA
LOCATION: 250B

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800533	Transition in agricultural equipment to support the development of a sustainable bioeconomy in the USA: drivers and barriers Mahmood Ebadian, University of British Columbia, Vancouver, BC Canada (Presenter: Mahmood Ebadian) (Mahmood Ebadian, Erin Webb)
10:35AM	1801031	Mechanism Analysis for a Plastic Mulch Lifter Wrapper Sangyoon Lee, Gyeongsang National University, Jinju-si, Gyeongsangnam-do Korea, South (Presenter: Sangyoon Lee) (Sangyoon Lee, Cheolwoo Han, Yeonggeun Kim, Ilsoo Choi, Giyoung Kweon)

10:50AM	1800322	<p>Simulation Analysis and High-speed Camera Test of Corn Picking Process Jiahao Qin, China Agricultural University, Beijing, China, People's Republic of (Presenter: Jiahao Qin) (Jiahao Qin, Yuefeng Du, Zhenghe Song, Zhongxiang Zhu)</p>
11:05AM	1801014	<p>Simulation and experiments of influence factor for scattering performance of double helix manure spreader Yibo Ma, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yibo Ma) (Ma Yibo, Yu Zhenjun, Zhang Yuanyuan, Chen Du, Wang Shumao, Wang Xin)</p>
11:20AM	1801085	<p>Three Dimensional Kinematic Analysis of Three Point Hitch System of a Tractor Rajendra Machavaram, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Rajendra Machavaram) (Rajendra Machavaram)</p>
11:35AM	1801552	<p>Prediction of Agricultural Implement Hydraulic Power Requirements Using Controller Area Network Bus Data Gabe Stoll, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Gabriel Stoll) (Rodney Rohrer, Santosh Pitla, Joe Luck)</p>
11:50AM	1801630	<p>Developing a Data Acquisition System to Quantify Necessary In-Field Tractor Performance Characteristics Dalton Owen, Kansas State University, Manhattan, KS United States (Presenter: Dalton Owen) (Dalton Owen, Ajay Sharda, Daniel Flippo, Edwin Brokesh)</p>
12:05PM	1801045	<p>Embedded System for Measurement of Tractor PTO Shaft Torque Virendra Tewari, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Virendra Tewari) (Virendra Tewari, Deep Joshi)</p>
12:20PM	1801835	<p>Evaluation of the Accuracy of Machine Reported Can Data for Engine Torque and Speed Rodney Rohrer, University of Nebraska, Lincoln, Nebraska United States (Presenter: Rodney Rohrer) (Joe Luck, Santosh Pitla, Roger Hoy)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 341

MACHINERY SYSTEMS FOR CROP PRODUCTION - PART 2 – Sponsored by MS-49
Moderator: Wesley Porter, University of Georgia, Athens, GA
LOCATION: 250C

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801007	Fruit Accessibility for Mechanical Harvesting of Fresh Market Apples Long He, United States (Presenter: Long He) (Long He, Xin Zhang, Manoj Karkee, Qin Zhang)
10:35AM	1800775	Mathematical Modelling and Optimization of the Distribution Uniformity for the Fixed Rate Compound Fertilizer of 15-15-15 Application Ceren Kόμεkçi, Izmir, Turkey (Presenter: Huseyin Guler) (Ceren Komekci, Huseyin Guler)
10:50AM	1800344	Optimum Design of Tractor Cab Based on Human Thermal Comfort Cheng Junnan, China Agricultural University, Beijing, China, People's Republic of (Presenter: Cheng Junnan) (Cheng Junnan)
11:05AM	1800751	Role of Mechanical Rice Harvesting in Socio-Economic Development of Bangladesh Md Rostom Ali, Bangladesh Agricultural University, Mymensingh, Bangladesh (Presenter: Chayan Kumer Saha) (Md. Rostom Ali, Md. Kamrul Hasan, Chayan Kumer Saha, Md. Monjurul Alam, Md. Mosharraf Hossein, Prasanta Kumar Kalita, Alan Christopher Hansen)

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

WEDNESDAY, AUGUST 1

11:20AM	1800434	<p>Structural analysis of the transportation and the power transmission parts for design of a self-propelled and small-sized Chinese cabbage harvester YeSeul Lee, Chungnam National University, 99, Daehak-dong, Yuseong-gu, Daejeon Korea, South (Presenter: Ye-Seul Lee) (Bo-Eun Jang, Yong-Joo Kim, Sun-Ok Chung, Young-Soo Choi, Keum-Bae Ji)</p>
11:35AM	1801650	<p>Utility Tractor Usage within Small-Scale Farming Operations Jared Cullop, Kansas State University, Manhattan, Kansas United States (Presenter: Jared Cullop) (Jared Cullop, Terry Griffin, Ajay Sharda, Ed Brokesh)</p>
11:50AM	1801709	<p>Yield effects of ground and conveyor speeds for virginia and runner type peanut Kendall Kirk, Clemson University, Blackville, SC United States (Presenter: Kendall Kirk) (Kendall Kirk, Benjamin Fogle, James Thomas, Dan Anco)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 342 **PRECISION SPRAY APPLICATIONS WITH UAVS AND DRONES**
 – Sponsored by MS-60, MS-23/6, MS-54
 Moderator: Randy Price, Louisiana State University, Alexandria, LA

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800518	<p>Using unmanned aircraft systems to develop variable rate prescription maps for cotton defoliants Joshua Rudd, North Carolina State University, Raleigh, NC United States (Presenter: Joshua Rudd) (Joshua Rudd, Gary Roberson)</p>
10:35AM	1800454	<p>Quantification of crop health status using low-altitude high-resolution unmanned aerial vehicle acquired multispectral imagery Matt Wallhead, USDA-ARS, Wooster, OH United States (Presenter: Matt Wallhead) (Matt Wallhead, Heping Zhu)</p>
10:50AM	1801143	<p>Field Evaluation of Commercially Available Small Unmanned Aircraft Crop Spray Systems Wayne Woldt, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Wayne Woldt) (Wayne Woldt, Dan Martin, Mohamed Latheef, Greg Kruger, Robert Wright, Christopher Proctor, Tamra Jackson-Ziems, Justin McMechan)</p>
11:05AM	1801530	<p>Development of a Low Volume Spray System for UAS and Drones Randy Price, LSU AgCenter, Alexandria, Louisiana United States (Presenter: Randy Price) (Randy Price)</p>
11:20AM	1800972	<p>Evaluation of Human Surveillance Utilizing Machine Vision Processed Imagery from Unmanned Aerial Systems for Detection of Invasive Plants Roberto Rodriguez, University of Hawaii at Manoa, Honolulu, HI United States (Presenter: Roberto Rodriguez) (Roberto Rodriguez, James Leary, Daniel Jenkins, Ryan Perroy)</p>
11:35AM	1800479	<p>Evaluation of multi-rotor unmanned aerial vehicles (UAV) for pesticide spray applications Brian Richardson, NZ Forest Research Institute (Scion), Rotorua, Bay of Plenty New Zealand (Presenter: Brian Richardson) (Brian Richardson, Christina Dunker, Tara Strand, Stefan Gous)</p>
11:50AM	1800504	<p>Assessment of spray deposition and losses in the apple orchard from agricultural unmanned aerial vehicle in China Longlong Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: He Xiongkui) (Longlong Li, Yajia Liu, Xiongkui He, Jianli Song, Aijun Zeng, Wang Zhichong, Li Tian)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 343 **WATER SECURITY ASSESSMENT IN RIVER BASIN** – Sponsored by NRES-21
 Moderators: Subhasis Giri, Rutgers University, New Brunswick, NJ; Veronika Vazhnik, Penn State University, State College, PA
LOCATION: 331A

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800827	<p>Assessment of Water Security using Blue and Green water footprint concept in Grand River watershed in South-western Ontario Baljeet Kaur, University of Guelph, Guelph, Ontario Canada (Presenter: Baljeet Kaur) (Baljeet Kaur, Jun Hou, Nabil Allatafeh, Fahimeh Jafarianlari, Harshpinder Brar, Ramesh Rudra, Prasad Daggupati)</p>
10:35AM	1800615	<p>Effect of Current and Projected Agricultural Irrigation Water Withdrawals on Upper Floridan Aquifer in the Lower Apalachicola-Chattahoochee-Flint River Basin, USA Ritesh Karki, Auburn University, Auburn, Alabama United States (Presenter: Ritesh Karki) (Ritesh Karki, Sandra Guzman, Puneet Srivastava)</p>
10:50AM	1801501	<p>Baseflow Analysis Using Hydrologic Model Considering Landuse and Climate Change Yujin Choi, Kangwon National University, Hyojadong, Chuncheon, Gangwon Province Korea, South (Presenter: Yujin Choi) (Yujin Choi, DongSeok Yang, DongHyuk Kum, Jonggun Kim, KyoungJae Lim)</p>
11:05AM	1800894	<p>Assessing future water supply and demand under climate change in an agriculture-dominated watershed Quang Phung, University of Missouri, Columbia, Missouri United States (Presenter: Quang Phung) (Quang Phung, Allen Thompson, Claire Baffaut, Christine Costello, John Sadler)</p>
11:20AM	1801499	<p>A study of the water pollution Characteristics during dry season for main streams inflow into south han river SeoRo Lee, Korea, South (Presenter: Seoro Lee) (SeoRo Lee, Donghyuk Kum, Yujin Choi, Jonggun Kim, KyoungJae Lim)</p>
11:35AM	1801683	<p>A Geospatial and Temporal Analysis of Indiana's Groundwater and Surface Water Resources Stephen Kines, Purdue University, West Lafayette, Indiana United States (Presenter: Stephen Kines) (Stephen Kines, Keith Cherkauer, Laura Bowling)</p>
11:50AM	1801500	<p>Reinforcement on Digital Recursive Filter for Baseflow Separation using Machine Learning DongSeok Yang, Kangwon National University, Hyojadong, Chuncheon, Gangwon Province Korea, South (Presenter: DongSeok Yang) (DongSeok Yang, Yujin Choi, DongHyuk Kum, Jonggun Kim, KyoungJae Lim)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 344 **MANAGEMENT OF WATER AND LAND RESOURCES UNDER EXTREME EVENTS - PART 2**
 – Sponsored by NRES-26
 Moderator: Tushar Sinha, Texas A&M University, Kingsville, TX
LOCATION: 331B

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800055	<p>Impacts of drought on evapotranspiration across humid and semi-arid climates of Oklahoma Kul Khand, Oklahoma State University, Stillwater, United States (Presenter: Kul Khand) (Kul Khand, Saleh Taghvaeian)</p>

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

WEDNESDAY, AUGUST 1

10:35AM	1800681	<p>Assessing the Impacts of Climate Change on Seasonal Irrigation and Water Use Efficiency of Grain Sorghum and Cotton in the Texas High Plains Kritika Kothari, Texas A&M University, College Station, Texas United States (Presenter: Kritika Kothari) (Kritika Kothari, Srinivasulu Ale, James Bordovsky, Clyde Munster)</p>
10:50AM	1800046	<p>Mitigating the Impacts of Climate Change on Water Resources: Myth or Possibility? Juan Sebastian Acero Triana, University of Illinois, Urbana, IL United States (Presenter: Juan Sebastian Acero Triana) (Juan sebastian Acero Triana, Maria Chu, Jorge Guzman)</p>
11:05AM	1800521	<p>Opportunities to reduce water requirement for increased rice production under climate change conditions Ranjeet Jha, University of Illinois, USA, Urbana, Illinois United States (Presenter: Ranjeet Jha) (Ranjeet Jha, Prasanta Kalita, Rajkumar Jat)</p>
11:20AM	1801033	<p>Reducing Uncertainty Due to Climate Change for Improving Water Resources Management Momtahana Habib, Texas A & M University - Kingsville, Kingsville, Texas United States (Presenter: Tushar Sinha) (Momtahana Habib, Tushar Sinha)</p>
11:35AM	1800280	<p>Substituting space for time: lessons from the NCGA Yield Contest about climate-adaptive management Elizabeth Carter, Cornell University, Ithaca, NY United States (Presenter: Elizabeth Carter) (Elizabeth Carter, Jeffrey Melkonian, Scott Steinschneider, Susan Riha)</p>
11:50AM	1801065	<p>Prediction of Groundwater Level Fluctuation under Increased Demand due to Changing Climate and Land Use Scenarios Rabindra Kumar Panda, IIT Bhubaneswar, Bhubaneswar, Odisha India (Presenter: Rabindra Kumar Panda) (Suraj Jena, Rabindra Kumar Panda)</p>

11:05AM	1800164	<p>Assessing the Response of Climate Variabilities on Riverine Ecological Integrity Fariborz Daneshvar, Purdue University, West Lafayette, Indiana United States (Presenter: Fariborz Daneshvar) (Fariborz Daneshvar, A. Pouyan Nejadhashemi, Matthew Herman, Mohammad Abouali)</p>
11:20AM	1800170	<p>The Importance of Hydrological Model Calibration on Predictability of Environmental Flow Indices Juan Sebastian Hernandez Suarez, Michigan State University, East Lansing, MI United States (Presenter: Juan Sebastian Hernandez Suarez) (Juan Sebastian Hernandez Suarez, A. Pouyan Nejadhashemi, Ian M. Kropp, Mohammad Abouali, Zhen Zhang, Kalyanmoy Deb)</p>
11:35AM	1801240	<p>An Integrated HEC-RAS and Riparian Vegetation Simulation Module System and its Application to the Sacramento River Zhonglong Zhang, LimnoTech, USACE Environmental Lab., Davis, CA United States (Presenter: Zhonglong Zhang) (Zhonglong Zhang)</p>
11:50AM	1800108	<p>A New Measure to Address Sustainability on Dairy Production M. Melissa Rojas Downing, Michigan State University, East Lansing, Michigan United States (Presenter: M. Melissa Rojas Downing) (M. Melissa Rojas Downing, A. Pouyan Nejadhashemi, Behin Elahi, Kimberly Cassida, Fariborz Daneshvar, J. Sebastian Hernandez-Suarez, Mohammed Abouali, Matthew Herman, Sabah Anwer Dawood Al Masraf, Timothy Harrigan)</p>
12:05PM	1800090	<p>Estimating estuary-scale detention of freshwater and dissolved organic matter by oyster reefs using satellite imagery Natalie Nelson, North Carolina State University, Raleigh, NC United States (Presenter: Natalie Nelson) (Alice Alonso)</p>

**Wednesday, August 1 - 10:15AM-12:15AM
SESSION 345**

COMPUTATIONAL ECOHYDROLOGY— Sponsored by NRES-21
Moderators: Pouyan Nejadhashemi, Michigan State University, East Lansing, MI; Fariborz Daneshvar, Purdue University, West Lafayette, IN

LOCATION: 331C

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800168	<p>Engineering Crop Water and Nutrient Management for Sustainable Agricultural Intensification Ian Kropp, Michigan State University, East Lansing, Michigan United States (Presenter: Ian Kropp) (Ian Kropp, Amirpouyan Nejadhashemi, Kalyanmoy Deb, Mohammad Abouali, Proteek Roy, Hoogenboom Gerrit)</p>
10:35AM	1800089	<p>Using Deep Learning to Create a Dynamic Crops Growth Model Babak Saravi, Mississippi State University, Starkville, MS United States (Presenter: Babak Saravi) (Babak Saravi, A. Pouyan Nejadhashemi, Ian Kropp)</p>
10:50AM	1800107	<p>Evaluating the Role of Evapotranspiration Remote Sensing Data in Improving Hydrological Modeling Predictability Matthew Herman, Michigan State University, East Lansing, Michigan United States (Presenter: Matthew Herman) (Matthew Herman, A. Pouyan Nejadhashemi, Mohammad Abouali, Juan Sebastian Hernandez-Suarez, Fariborz Daneshvar, Zhen Zhang, Martha Anderson, Ali Sadeghi, Christopher Hain, Amir Sharifi)</p>

**Wednesday, August 1 - 10:15AM-12:15AM
SESSION 346**

QUANTIFICATION AND MITIGATION OF SOIL AND NUTRIENT LOSSES IN SUSTAINABLE SYSTEMS

— Sponsored by NRES-223, NRES-22
Moderators: Johnny Grace, US Forest Service, Tallahassee, FL; Lordwin Girish Jeyakumar, Agriculture & Agri-Food Canada, Allahabad, Uttar Pradesh, India

LOCATION: 332

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800162	<p>Identification, Quantification and Modelling Nutrient Source in Big Sunflower River Watershed Avay Risal, Mississippi State University, Starkville, Mississippi United States (Presenter: Avay Risal) (Avay Risal)</p>
10:35AM	1800262	<p>Greenhouse gas emissions (GHGs) and N losses from a two-year field study of manure application under corn (Zea Mays L.) production Suresh Niraula, North Dakota State University, Fargo, ND United States (Presenter: Suresh Niraula) (Suresh Niraula)</p>
10:50AM	1801175	<p>Soil organic C sequestration and greenhouse gas emission from spring- and fall-applied poultry litter in corn production as simulated with RZWQM2 Wei Yang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Wei Yang) (Wei Yang, Gary Feng, Haile Tewolde)</p>
11:05AM	1800380	<p>Evaluation of EPIC model on predicting runoff, soil erosion, and nitrate and dissolved phosphorus loss Pingjin Jiao, IWHR, Beijing, China, People's Republic of (Presenter: Pingjin Jiao) (Yingduo Yu, Di Xu)</p>

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

WEDNESDAY, AUGUST 1

11:20AM	1800933	<p>Assessing reservoir sedimentation control and management plans using Soil and Water Assessment Tool and Environmental Fluid Dynamics Code Satbyeol Shin, University of Florida, Gainesville, FL United States (Presenter: Satbyeol Shin) (Satbyeol Shin)</p>
11:35AM	1800012	<p>Challenges and Opportunities in Sustainable Agroecosystems in the Florida panhandle J M Grace, USDA Forest Service, SRS, Tallahassee, FL United States (Presenter: J.M. Grace III) (Y. Ouyang, A. Swamy, J. Drake, P. Medley, O.S. Mbuya)</p>
11:50AM	1801226	<p>Geospatial Technology-based Assessment of Erosion Vulnerability at Forest Road/Stream Crossings under Climate Change Related Extreme Precipitation Intensities Scenario Sudhanshu Panda, University of North Georgia, Oakwood, Georgia United States (Presenter: Dr. Sudhanshu Sekhar Panda) (Sudhanshu Panda, Devendra Amatya, Johnny Grace, Peter Caldwell)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 347 NUTRIENT TRANSPORT AND CYCLING - PART 2 – Sponsored by NRES-224, NRES-22
 Moderators: Sanjay Shukla, University of Florida, Immokalee, FL; Cibir Raj, Pennsylvania State University, University Park, PA
LOCATION: 252A

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800153	<p>Environmental Impact of Conventional and Pasture Based Dairy Farms in Pennsylvania Michael Holly, USDA-ARS, University Park, PA United States (Presenter: Michael Holly) (Michael Holly, C. Alan Rotz, Tamie Veith, Peter J.A. Kleinman)</p>
10:35AM	1800360	<p>Silage Storage Runoff Characterization: Annual Nutrient Loading Rate and First Flush Analysis of Bunker Silos Michael Holly, USDA-ARS, University Park, PA United States (Presenter: Michael Holly) (Rebecca A. Larson, Eric T. Cooley, Aaron M. Wunderlin)</p>
10:50AM	1801599	<p>Reduced Water and Nutrient Losses from Compact Bed Plasticulture on the U.S. East Coast Kira Hansen, University of Florida, Immokalee, FL United States (Presenter: Kira Hansen) (Kira Hansen, Sanjay Shukla)</p>
11:05AM	1800868	<p>Reduction of nitrate loss from soybean-corn rotations using winter cover crops in the Upper Midwest Ronghao Liu, University of Minnesota, Lamberton, MN United States (Presenter: Axel Garcia y Garcia) (Axel Garica y Garcia, Ronghao Liu, Mohammad J Anar)</p>
11:20AM	1800144	<p>Spatial Analysis of Soil Nutrients in Mixed Cropping Field in Ilaro, South Western Nigeria Anthony Amori, Federal Polytechnic Ilaro, Ilaro, Ogun State Nigeria (Presenter: Anthony Amori) (Olufemi Abimbola, Anthony Amori)</p>
11:35AM	1801286	<p>Twenty three years of agricultural drainage monitoring in Latvia Ainis Lagzdins, Latvia University of Agriculture, Jelgava, Latvia (Presenter: Ainis Lagzdins) (Ainis Lagzdins, Ritvars Sudars, Kaspars Abramenko, Arturs Veinbergs, Linda Grinberga)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 348 EDGE-OF-FIELD BEST MANAGEMENT PRACTICES FOR AGRICULTURAL DRAINAGE SYSTEMS - PART 2 – Sponsored by NRES-23
 Moderators: Lindsay Pease, USDA ARS, Columbus, OH; Saeid Nazari, University of Kentucky, Lexington, KY
LOCATION: 333

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801377	<p>Two-chamber “booster” denitrifying bioreactor to address variable drainage flow Laura Christianson, University of Illinois, Urbana, Illinois United States (Presenter: Ana Paula Sanchez Bustamante Bailon) (Ana Sanchez-Bustamante Bailon, Laura Christianson, Richard Cooke)</p>
10:35AM	1801201	<p>Can drying-rewetting cycles in woodchip bioreactors increase short and long-term nitrate removal rates? Bryan Maxwell, North Carolina State University, Raleigh, NC United States (Presenter: Bryan Maxwell) (Bryan Maxwell)</p>
10:50AM	1801185	<p>Can woodchip bioreactors meet WQ goals by denitrifier enhancement or carbon dosing? Gary Feyereisen, USDA-ARS, St. Paul, MN United States (Presenter: Gary Feyereisen) (Gary Feyereisen, Satoshi Ishii, Ping Wang, Emily Anderson, Jeonghwan Jang, Ehsan Ghane, Scott Schumacher, Ed Dorsey, Carl Rosen, Michael Sadowsky)</p>
11:05AM	1801383	<p>Toxicity and chemistry of woodchip leachate – Laboratory scale bioreactor study Laura Christianson, University of Illinois, Urbana, Illinois United States (Presenter: Niranga Madubashini Wickramarathne) (Laura Christianson, Niranga Wickramarathne, Richard Cooke)</p>
11:20AM	1801798	<p>Phosphorus removal structures: current state and potential future improvements Chad Penn, Purdue University, West Lafayette, Indiana United States (Presenter: Chad Penn) (Isis Chagas)</p>
11:35AM	1801799	<p>When phosphorus removal structures under-perform: a case study Chad Penn, Purdue University, West Lafayette, Indiana United States (Presenter: Chad Penn) (Lindsay Pease, Kevin King, Isis Chagas)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 349 MANURE TREATMENT SYSTEMS – Sponsored by NRES-27
 Moderator: Shafiqur Rahman, North Dakota State University, Fargo, ND
LOCATION: 334

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1800135	<p>Bacteria indicator reduction in Dairy Manure using Hybrid Zero Valent Iron (h-ZVI) System Sunghwa Han, Texas A&M University, College Station, Texas United States (Presenter: Sunghwa Han) (Sunghwa Han, Yongheng Huang, Zong Liu)</p>
10:35AM	1801674	<p>Comparison of Dairy Manure Pelletization to Granulation for Facilitating Farm Nutrient Export Troy Runge, University of Wisconsin - Madison, Madison, WI United States (Presenter: Troy M. Runge) (Mahmoud A Sharara, John G. Primm)</p>

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

WEDNESDAY, AUGUST 1

10:50AM	1801565	<p>Effect of Solid Manure Separation on the Mitigation of Methane Emissions from Dairy Lagoons Abdolhossein Edalati, University of CA, Davis, Davis, CA United States (Presenter: Abdolhossein Edalati) (Abdolhossein Edalati, Yike Chen, Hamed El-Mashad, Xingjun Lin, Tyler Barzee, Steve Zicari, Ruihong Zhang)</p>
11:05AM	1800267	<p>Understanding gaseous reduction mechanisms in swine manure resulting from nano-particle treatments under anaerobic storage conditions Niloy Chandra Sarker, North Dakota State University, Fargo, North Dakota United States (Presenter: Niloy Chandra Sarker) (Niloy Chandra Sarker, Md. Borhan, Ann-Marie Fortuna, Shafiqur Rahman)</p>
11:20AM	1800068	<p>Enhancing volatile fatty acids concentration by pre-digestion to be used as a carbon source for denitrification in liquid swine manure treatment Jun Zhu, University of Arkansas, Fayetteville, Arkansas United States (Presenter: McKenzie Walquist) (Sarah Wu, Lide Chen, Jun Zhu, McKenzie Walquist)</p>
11:35AM	1801273	<p>Evaluation of Mechanical Scraper System Finishing Barn for Solid-Liquid Separation Joshua Brown, University of Missouri-Columbia, Columbia, Missouri United States (Presenter: Teng Teeh Lim) (Joshua Brown)</p>
11:50AM	1801042	<p>The effect of different particle sizes of biochar on ammonia mitigation during pig manure/wheat straw aerobic composting process Xueqin He, China Agricultural University, Beijing China, People's Republic of (Presenter: Xueqin He) (Xueqin He, Guangqun Huang, Lujia Han)</p>
12:05PM	1800918	<p>Particle Size Distribution and Effect of Solid Removal on Biomethane Potential Reduction in Flushed Dairy Manure Yike Chen, University of California, Davis, Davis, California United States (Presenter: Yike Chen) (Yike Chen, Abdolhossein Edalati, Hamed Elmashad, Ruihong Zhang)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 350

MITIGATING WESTERN LAKE ERIE HARMFUL ALGAL BLOOMS
– Sponsored by NRES-28, NRES-25
Moderators: Derek Schlea, Limno Tech, Britton, MI; Paula Steiner, USDA NRCS, Lansing, MI
LOCATION: 335

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801616	Development of Novel Phosphate Adsorbents, Essential Next Steps. Kevin Kelly, McGill University, Sainte Anne de Bellevue, Quebec Canada (Presenter: Kevin Kelly) (Kevin Kelly)
10:35AM	1801566	Assessing the Maumee River Watershed for Targeted Wetland Placement Chelsie Boles, LimnoTech, Ann Arbor, MI United States (Presenter: Chelsie Boles) (Chelsie Boles, Derek Schlea, Scott Bell, Greg Peterson, Brian Lord)
10:50AM	1801002	Evaluating Management Options to Reduce Lake Erie's Harmful Algal Blooms with Watershed Models and Stakeholder Input Jay Martin, Ohio State University, Columbus, Ohio United States (Presenter: Jay Martin) (Jay Martin, Margaret Kalcic, Noel Aloysius, Anna Apostel, Jeffrey Kast, Haley Kujawa, Richard Becker, Chelsie Boles, Rem Confessor, Tian Guo, Colleen Long, Rebecca Longsdon Muenich, Todd Redder, Dale Robertson, Don Scavia, Awoke Teshager, Yu-Chen Wang)

11:05AM	1801288	<p>Multi-site Validation of a SWAT Model in the Maumee River Watershed Haley Kujawa, The Ohio State University, Columbus, Ohio United States (Presenter: Haley Kujawa) (Haley Kujawa, Margaret Kalcic, Jay Martin, Jeffrey Kast, Anna Apostel, Yu-Chen Wang, Awoke Teshager, Noel Aloysius, Rebecca Muenich)</p>
11:20AM	1801310	<p>A retrospective analysis of the impacts of land management on phosphorus export in the Maumee River watershed Anna Apostel, The Ohio State University, Columbus, Ohio United States (Presenter: Anna Apostel) (Anna Apostel, Margaret Kalcic, Rebecca Muenich, Awoke Teshager, Colleen Long, Jay Martin, Jeffrey Kast, Don Scavia)</p>
11:35AM	1801327	<p>Evaluating the Importance of Manure Management on Lake Erie's Water Quality: Data-Driven Manure Production and Application in SWAT Jeffrey Kast, The Ohio State University, Columbus, OH United States (Presenter: Jeffrey Kast) (Jeffrey Kast, Jay Martin, Margaret Kalcic, Anna Apostel, Haley Kujawa, Colleen Long, Rebecca Logsdon Muenich, Awoke Teshager)</p>
11:50AM	1801549	<p>Using Linked Watershed-Lake Models to Evaluate the Environmental Benefits associated with 4R Nutrient Stewardship in the Western Lake Erie Basin Derek Schlea, LimnoTech, Ann Arbor, MI United States (Presenter: Derek Schlea) (Derek Schlea, Todd Redder, Chelsie Boles, Joseph DePinto, Kevin King)</p>

Wednesday, August 1 - 10:15AM-12:15AM
SESSION 351

CENTER PIVOT TECHNOLOGY TRANSFER EFFORT SPONSORED BY THE USDA-ARS OGALLALA AQUIFER PROGRAM - PART 2
– Sponsored by NRES 241, NRES-24
Moderators: Derek Heeren, University of Nebraska-Lincoln, Lincoln, NE; Burdette Barker, University of Nebraska-Lincoln, Lincoln, NE
LOCATION: 252B

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801636	Low Elevation Spray Application (LESA) compared with Mid Elevation Spray Application (MESA) on Center Pivots in the Pacific Northwest. R. Troy Peters, Washington State University, Prosser, WA United States (Presenter: R. Troy Peters) (R. Troy Peters)
10:35AM	1801690	The Need for the Improved Practice of In-Canopy and Near-Canopy Sprinkler Irrigation Freddie Lamm, KSU Northwest Research-Extension Center, Colby, Kansas United States (Presenter: Freddie Lamm) (Freddie Lamm, James Bordovsky, Dana Porter, Danny Rogers, Terry Howell)
10:50AM	1801788	Evaporative Losses from Sprinkler and Subsurface Drip Irrigation in a Region of Large Exaporative Demand Steven Evett, USDA ARS, Bushland, Texas United States (Presenter: Steven Evett) (Steven Evett, Paul Colaizzi, Gary Marek, Jerry Moorhead, David Brauer, Karen Copeland, Brice Ruthardt)
11:05AM	1800062	Simulated cotton yield and water use responses to blanket versus variable-rate irrigation management Kelly Thorp, USDA-ARS, Maricopa, Arizona United States (Presenter: Kelly Thorp) (Kelly Thorp, Shreya Varra, Alison Thompson)

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

WEDNESDAY, AUGUST 1

11:20AM 1800370 Evaluation of Variable Rate Irrigation in Humid Region
 Ruixiu Sui, USDA-ARS, Stoneville, MS United States
 (Presenter: Ruixiu Sui) (Jonnie Baggard)

**Wednesday, August 1 - 10:15AM-12:15AM
 SESSION 352 PLANT, ANIMAL, & FACILITY
 SYSTEMS POSTER SESSION**

– Sponsored by PAFS
 Moderator: Tim Shepherd, Iowa State University,
 Ames, IA

LOCATION: Atrium

Poster #	Paper #	Title/Author
1	1800891	An Experimental Study on Energy and Water Uses of A Newly Developed Greenbox Farming System Cong Liu, University of Connecticut, Storrs, CT United States (Presenter: Junya Wu) (Cong Liu, Junya Wu, Rosa Raudales, Richard McAvoy, Daniel Theobald and Xiusheng Yang)
2	1801727	Determining an Optimum Size and Layout of Greenhouse using Robot Jinseon Park, Chungbuk National University, Cheongju, Chungcheongbuk-do Korea, South (Presenter: Jinseon Park) (Jinseon Park, Byungjun Lee, Jeongbae Jeon, Seongsoo Yoon)
3	1801123	Effect of red-blue light treatments on growth of cherry belle radishes (<i>Raphanus sativus</i> L) Harshpinder Brar, University of Guelph, Guelph, Ontario Canada (Presenter: Harshpinder Singh Brar) (Harshpinder Brar, Prasad Daggupati, Baljeet Kaur)
4	1801207	Robotic Assistant for Grow Out House Management Colin Usher, Georgia Tech Research Institute, Atlanta, GA United States (Presenter: Colin Usher) (Colin O'Donnell)
5	1800962	Use of chlorophyll fluorescence as an indicator of the extent of heat treatment of citrus trees to combat HLB Daoyuan Yang, University of Georgia, Athens, GA United States (Presenter: Daoyuan Yang) (Daoyuan Yang, Janeal Jackson, Samuel Cimowsky, Jose Reyes De Corcuera)
6	1800331	Design and experiment on artificial radiation-frost chamber based on temperature difference between leaves and air dew point Yongzong Lu, University of California, Davis, Davis, California United States (Presenter: Yongzong Lu) (Yongzong Lu, Yongguang Hu, Jintao Tian, Huan Song, Richard L. Snyder.)
7	1801084	Sustainable Strategies for Container Citrus Nursery Production Using Soilless Culture Methods Ferisca Putri, University of California- Davis, Davis, Ca United States (Presenter: Ferisca Putri) (Ferisca Putri, Heiner Lieth, Tien-Chieh Hung)
8	1801321	Integrated Multi-Trophic Aquaculture Utilizing Atlantic Striped Bass, <i>Morone saxatilis</i>, and Microalgae, <i>Thalassiosira</i> Devon Wilcox, North Carolina State University, Raleigh, North Carolina United States (Presenter: Devon Wilcox) (Devon Wilcox, Matthew Campbell)
9	1800343	Rabbit Industry Development in Shandong Province in 2017 and the Next Annual Development Trend Report Menghu Zheng, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongying Wang) (Menghu Zheng, Xiao Chen, Hongying Wang, Dandan Kong, Peng Fang, Nan Jin, Enze Duan, Zhongxian Qi, Jiyuan Chen)

10 1800350 Study on the indoor environmental simulation and optimal design of rabbit houses in winter based on CFD

Enze Duan, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongying Wang) (Enze Duan, Dandan Kong, Hongying Wang, Peng Fang, Nan Jin, Menghu Zheng, Jiyuan Chen)

11 1800345 Research Status of the Technology and Equipment of Rabbit Manure Treatment

Jiyuan Chen, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongying Wang) (Jiyuan Chen, Menghu Zheng, Hongying Wang, Dandan Kong, Xiao Chen, Peng Fang, Nan Jin, Enze Duan, Zhongxian Qi)

12 1801704 Modeling Rapid Chilling of Eastern Oysters *Crassostrea virginica*

Melody Thomas, NC State, Raleigh, NC United States (Presenter: Melody Thomas) (Steve Hall)

13 1800058 Design, Development and Testing of a Mobile Snailery

Abubakar Ibrahim Suleiman, University of Exeter, UK, Truro, Cornwall United Kingdom (Presenter: Abubakar Ibrahim Suleiman) (Abubakar Ibrahim Suleiman)

14 1800988 Application of Infrared Thermography in Livestock Monitoring

Changzhen Zhang, South China Agricultural University, Guangzhou, Guangdong, China, People's Republic of (Presenter: Changzhen Zhang) (Changzhen Zhang, Deqin Xiao, Aijing Feng)

15 1800914 Atmospheric Pressure Air Sanitation of Animal Production Facility Using Atmospheric Pressure Non-thermal Plasma (APNTP)

Peng Peng, University of Minnesota, St. Paul, Minnesota United States (Presenter: Peng Peng) (Peng Peng, Nan Zhou, Charles Schiappacasse, Yanling Cheng, Min Addy, Yanning Zhang, Erik Anderson, Liangliang Fan, Raymond Hatzenbeller, Dongjie Chen, Shiyu Liu, Yuhuan Liu, Paul Chen, Roger Ruan)

16 1800338 Segmentation Method of Laying Hens in Cages Based on Difference of Color Information

Peng Fang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongying Wang) (ApPeng Fang, Tengfei Li, Dandan Kong, Hongying Wang, Nan Jin, Yanning Duan, Erick Chen, Menghu Zheng)

17 1800193 Computer Vision-Based Animal Preference Assessment – Do Laying Hen Chicks Prefer Light with UVA Radiation?

Kai Liu, Iowa State University, Ames, IA United States (Presenter: Kai Liu) (Kai Liu, Kailao Wang, Tao Fei, Lilong Chai, Hongwei Xin)

18 1801395 Development of a Hog Cooling Panel
 Robert Stwalley, Purdue University, West Lafayette, Indiana United States (Presenter: Robert Stwalley) (Robert Stwalley, Tyler Field, Allen Schinckel)

19 1800549 Interception effect of vegetative environment buffers on pollutant emission from mechanical ventilated poultry houses

Li Guo, Jilin University, Changchun, Jilin China, People's Republic of (Presenter: Li Guo) (Li Guo, Shuli Ma, Dongsun Zhao, Jin Tong, Donghui Chen, Yunhai Ma, Mo Li, Zhiyong Chang)

20 1801444 Evaluating the effectiveness of best management practices at mitigating pollution from livestock farms.

Christine Georgakakos, Cornell University, Ithaca, NY United States (Presenter: Christine Georgakakos) (Christine Georgakakos)

21 1801612 Why do we house animals in manure storages?

Eileen Fabian, Pennsylvania State University, University Park, PA United States (Presenter: Eileen Fabian) (Eileen Fabian)

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

WEDNESDAY, AUGUST 1

22	1801618	<p>Virtual farm website for dairy climate change and sustainability information Eileen Fabian, Pennsylvania State University, University Park, PA United States (Presenter: Eileen Fabian) (Eileen Fabian, Daniel Hofstetter, Rebecca Larson, Horacio Aguirre-villeg)</p>
23	1800097	<p>Customized facial masks to measure gas exchange for indirect calorimetry Hugo Milan, Cornell University, Ithaca, New York United States (Presenter: Hugo Milan) (Alex Maia, Bruno Simao, Hugo Milan, Kifle Gebremedhin)</p>
24	1800261	<p>Research on Distribution of Environmental parameters in Plastic mulch type greenhouse cattle barn during winter based on CFD Juan Ma, China Agricultural University., Beijing, China, People's Republic of (Presenter: Hongying Wang) (Juan MaHao Li, Lingzhuo Kong, Nan Jin, Jie Zhang, Jian Su, Paheerding Abulaiti, Bin Feng, Hongying Wang)</p>
25	1800418	<p>The research status and prospect of dung compost and compost processing technology of beef cattle Juan Ma, China Agricultural University., Beijing, China, People's Republic of (Presenter: Hongying Wang) (Juan Ma, Jie Zhang, Jian Su, Nan Jin, Bin Feng, Hongying Wang)</p>
26	1800231	<p>Parameter Estimation, Transferability Evaluation and Predictive Uncertainty Analysis of a Sugarbeet Model Using PEST Zhulu Lin, North Dakota State University, Fargo, ND United States (Presenter: Zhulu Lin) (Mohammad J. Anar)</p>
27	1801308	<p>Manure Management in Ohio Confined Feeding Facilities: Maumee River Watershed Case Study Jeffrey Kast, The Ohio State University, Columbus, OH United States (Presenter: Jeffrey Kast) (Jeffrey Kast, Jay Martin, Margaret Kalcic, Colleen Long, Rebecca Logsdon Muenich, Ashley Gignac, E'Lise Harden, Anna Apostel, Haley Kujawa)</p>
28	1800327	<p>Simulation-based optimization of irrigation scheduling for maize in arid region to increase field application efficiency Jiang Li, Tsinghua University, Beijing, China, People's Republic of (Presenter: Jiang Li) (Jiang Li, Jian Song, Songhao Shang)</p>
29	1800510	<p>Simulating the Effect of Water and Nitrogen on Silage Corn Production Abdelaziz Nilahyane, Montana State University, Sidney, Montana United States (Presenter: Abdelaziz Nilahyane) (Abdelaziz Nilahyane, M. Anowarul Islam, Abdel. O. Mesbah, Axel Garcia y Garcia)</p>
30	1801420	<p>High Voltage Atmospheric Cold Plasma Enhances Germination of Carrot and Lettuce Seeds Rkia Moutiq, Iowa State University, Ames, Iowa United States (Presenter: Dr. Kevin Keener) (R. Moutiq, A. Mendonca and K. Keener)</p>
31	1801766	<p>Prediction model for Volatility Agricultural Product Price using System Dynamics Jinseon Park, Chungbuk National University, Cheongju, Chungcheongbuk-do Korea, South (Presenter: Jinseon Park) (Jinseon Park, Byungjun Lee, Jeongbae Jeon, Seongsoo Yoon)</p>
32	1801729	<p>Evaluation of the Project in Agriculture and Biological Engineering and Determination of Appropriate Technology in the ODA(Official Development Assistance) Project Byungjun Lee, Chungbuk National University, Cheongju, Chungcheongbuk-do Korea, South (Presenter: Byungjun Lee) (Byungjun Lee, Jinseon Park, Jeongbae Jeon, Seongsoo Yoon)</p>
33	1800573	<p>Evaluation novel forms of the mixing methods during the performance anaerobic digestion and his effects on the microbial establishments Juan Pablo Rojas-Sossa, Michigan State University, Lansing, Michigan United States (Presenter: Juan Pablo Rojas-Sossa) (Juan Pablo Rojas-Sossa, Kirk Dana, Wei Liao)</p>

34	1801509	<p>Dual Benefits For Energy Conservation Measures In Turkey Farming: MI Turkey Farm Increases Energy Efficiency and Turkey Conditions Simultaneously Jessica Mehall, Michigan State University, United States (Presenter: Jessica Mehall) (Jessica Mehall)</p>
35	1800735	<p>Energy and Water Use Analysis for the Greenbox System in Comparison with Traditional Greenhouses Junya Wu, University of Connecticut, Storrs, CT United States (Presenter: Junya Wu) (Xiusheng Yang, Richard Mcavoy, Rosa Raudales, Daniel Theobald, Cong Liu)</p>

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 353 DRYING, HANDLING AND STORAGE

- PART 3 – Sponsored by PRS-702

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

LOCATION: 338

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801427	<p>Pico Solar Crop Dryer (POD) for Farm Level Grain Drying by Small Holder Farmers in Africa Richard Strohshine, Purdue University, West Lafayette, Indiana Vatican City (Presenter: Mingyuan Chen) (Mingyuan Chen, Richard Strohshine, Arvind Raman, Patrick Ketiem)</p>
10:35AM	1800674	<p>Scope of BAU-STR in existing paddy drying system of Bangladesh Chayan Kumer Saha, Bangladesh Agricultural University, Mymensingh, Bangladesh (Presenter: Chayan Kumer Saha) (Chayan Kumer Saha, Md. Ashrafal Alam, Md. Monjurul Alam, Alex Winter-Nielsen, Jagger Harvey)</p>
10:50AM	1800960	<p>Simulating the Phosphine Distribution in Grain Storage Bunkers Kaliramesh Siliveru, Kansas State University, Manhattan, Kansas United States (Presenter: Kaliramesh Siliveru) (Kaliramesh Siliveru, Sherif Elsayed, Mark Casada, Dirk Maier)</p>
11:05AM	1800755	<p>Sustainable Alternative Traditional Paddy Storage Technology in Bangladesh Md Abdul Awal, Bangladesh Agricultural University, Mymensingh, Mymensingh Bangladesh (Presenter: Md Abdul Awal) (Md Abdul Awal, Mohammad Afzal Hossain, Md Rostom Ali, Md Monjurul Alam, Alex Winter-Nielsen, Jagger Harvey)</p>
11:20AM	1800744	<p>Thin layer drying characteristics of high moisture woody and herbaceous biomass pellets in a laboratory scale grain dryer Jaya Shankar Tumuluru, Idaho National Laboratory, Idaho Falls, Idaho United States (Presenter: Jaya Shankar Tumuluru) (Jaya Shankar Tumuluru, Kristen Baker)</p>
11:35AM	1801794	<p>Experimental Study of Drying Rough Rice in a Fluidized Bed Exposed to Heating and Hold-Up Duration Sammy Sadaka, Univ of Arkansas, Little Rock, Arkansas United States (Presenter: Kaushik Luthra) (Sammy Sadaka, Griffiths Atungulu)</p>
11:50PM	1801795	<p>Effects of Aspect Ratio, Drying Temperature and Drying Duration on the Performance of a Custom-Made Fluidized Bed Drying System Sammy Sadaka, Univ of Arkansas, Little Rock, Arkansas United States (Presenter: Sammy Sadaka) (Kaushik Luthra, Griffiths Atungulu)</p>
12:05PM	1801797	<p>Grain Moisture Meter Networked to Smartphones Klein Ileleji, Purdue University, West Lafayette, Indiana United States (Presenter: Klein Ileleji) (Klein Ileleji)</p>

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

MONDAY, JULY 30

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 354

FOOD PROCESS AND ENGINEERING - PART 4 – Sponsored by PRS-703, PRS-701
Moderator: Akinbode Adedeji, University of Kentucky, Lexington, KY
LOCATION: 337

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801216	Optimization of Refractance Window Drying for Making Mango Leather Deepika Shende, Agril and Food Eng Dept, IIT Kharagpur, West Midnapore, West Bengal India (Presenter: Deepika Shende) (Deepika Shende, Ashis Datta)
10:35AM	1801145	Physical and chemical characteristics lyophilized of rocoto chili pepper (Capsicum pubescens) Jairo Alexander Osorio Saraz, National University Of Colombia, Medellin, Antioquia Colombia (Presenter: Jairo Alexander Osorio Saraz) (Jairo Alexander Osorio Saraz, Carlos Julio Marquez Cardozo, Julio Cesar Arango Tobon, Birinia L. Caballero, Maria I. Nieto, Hector Jose Ciro)
10:50AM	1801702	Preparation of Nutritious Legumes (Dal /Pulse) Analogue Using Extrusion Technology Prachi Pahariya, South Dakota State University, Brookings, South Dakota United States (Presenter: Prachi Pahariya) (Prachi Pahariya, Rakesh Raigar, Hari Niwas Mishra)
11:05AM	1800353	Production of Biscuits from Quality Protein Maize enriched with Dried Fluted Pumpkin Leaves and Cocoa Powder Kehinde Taiwo, Obafemi Awolowo University, Ile-Ife, Osun Nigeria (Presenter: Kehinde Taiwo) (Kehinde Taiwo, Oyebola Raji, Victor Ikujenlola, Adewale Adebayo)
11:20AM	1801414	Quality Characteristics of Pre-cooled Rice upon Drying with Conventional Methods Soraya Shafiekhani, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Soraya Shafiekhani) (Soraya Shafiekhani, Griffiths G. Atungulu)
11:35AM	1800723	The destruction and sublethal effect of cycle or continuous high pressure treatment on Escherichia coli in different frozen and unfrozen media Chunfang Wang, Zhejiang University, Hangzhou, China, People's Republic of (Presenter: Chunfang Wang) (Chunfang Wang, Hosahalli S. Ramaswamy, Wei Sun, Hao Wang, Songming Zhu, Yong Yu)
11:50AM	1801278	The Effect of Spent Grain Type and Particle Size on the Physical Properties of Proso Millet Based Extruded Snack Joseph Woomer, University of Kentucky, Lexington, Kentucky United States (Presenter: Joseph Woomer) (Joseph Woomer, Akinbode Adedeji)

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 355

FOOD SAFETY ENGINEERING - PART 2 – Sponsored by PRS-703
Moderator: Griffiths Atungulu, University of Arkansas, Fayetteville, AR
LOCATION: 353

Time	Paper #	Title/Author
10:15AM		Introduction
10:20AM	1801612	Inactivation of Fungi on Corn Using Selective Infrared Heating Shantae Wilson, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Shantae Wilson) (Shantae Wilson, Griffiths Atungulu)

10:35AM 1800584

Links among Mold Growth and Rice Kernel Discoloration during Storage of Long-grain Hybrid, Long-grain Purline, and Medium-grain Rice Cultivars
Zeinab Mohammadi Shad, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Zeinab Mohammadi Shad) (Griffiths G. Atungulu)

10:50AM 1801905

Elucidating Microbial Basis of Stored Rice Discoloration by Using High Resolution Microscopic Examination
Griffiths Atungulu, University of Arkansas, Fayetteville, Arkansas United States (Presenter: Zeinab Mohammadi Shad) (Griffiths G. Atungulu)

11:05AM 1800171

An engineering model for retention and infiltration of bacteria into leafy greens during water film evaporation
Mohsen Ranjbaran, Cornell University, Ithaca, New York United States (Presenter: Mohsen Ranjbaran) (Ashim K. Datta)

11:20AM 1800297

Mechanistic understanding of light-driven active internalization of bacteria into leafy greens
Mohsen Ranjbaran, Cornell University, Ithaca, New York United States (Presenter: Mohsen Ranjbaran) (Ashim K. Datta)

11:35AM 1801657

Novel technologies to enhance the quality and safety of dried food ingredients
Colm O'Donnell, University College of Dublin, Belfield, Dublin, Ireland (Presenter: Colm O'Donnell) (Brijesh Tiwari, Clementine Charoux, Laura Hinds, Colm O'Donnell)

11:50AM 1800208

Quantifying the Survivability of Enterococcus faecium during Spray Drying
Philip Steinbrunner, Michigan State University, East Lansing, MI United States (Presenter: Philip Steinbrunner) (Philip Steinbrunner)

12:05PM 1801008

Rapid detection of total volatile basic nitrogen (TVB-N) content in beef based on impact deformation characteristics
Yanlei Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yanlei Li) (Yanlei Li, Yongyu Li, Zhixiong Shen, Zhengxuan Li, Yankun Peng, Xiuying Tang)

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 356

TRANSFORMING DRAINAGE: RETAINING WATER FOR INCREASED RESILIENCY OF DRAINAGED AGRICULTURAL LAND-INVITED SPEAKERS

– Sponsored by NRES-23
Moderator: Jane Frankenberg, Purdue University, West Lafayette, IN
LOCATION: 336

Increasing the storage of drained water within the landscape could increase the sustainability of water for agriculture, producing positive impacts for crop production as well as the environment. This session will highlight work throughout the Midwest region to advance transformative drainage practices.

Time Paper # Title/Author

10:15AM

Transforming Drainage through a Research, Extension, and a Stakeholder Network
Jane Frankenberg, Purdue University, West Lafayette, IN (J. Frankenberg, B. Reinhart)

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

WEDNESDAY, AUGUST 1

10:30AM **Variability in Seasonal Tile Flow and Nitrate-N Loads from Controlled Drainage Systems across 16 Sites**
 Matt Helmers, Iowa State University, Ames, IA (Helmers, M., Chighladze, G., Abendroth, L., Ahiablame L., Allred, B., Bowling, L., Brown, L., Fausey, N., Frankenberger, J. Jaynes, D., Kladvko, E., Nelson, K., Pease, L., Reinhart, B., Schwaegler, K. Strock, J., Youssef, M)

10:45AM **A Review of Saturated Buffer Performance Across the Upper Midwest**
 Nathan Utt, University of Minnesota, St. Paul, MN (N. Utt, G. Sands, D. Jaynes, D. Canelon, K. Newburg)

11:00AM **DISCUSSION**

11:15PM **Drainage Water Recycling and Related BMPs in Fulton County, Illinois: A Win-Win for Agriculture and the Environment**
 Richard Cooke, University of Illinois, Urbana, IL (R. Cooke, O. Oladeji, G. Tian, A. Cox, E. Stone, A. Echols, L. Lurkins)

11:30AM **The Drainage Water Recycling Evaluation Tool: Evaluating the Potential Benefits of Drainage Water Recycling for Varying Water Storage Sizes and Conditions**
 Benjamin Reinhart, Purdue University, West Lafayette, IN (B. Reinhart, J. Frankenberger, L. Bowling, B. Hancock, C. Lee)

11:45AM **Potential Benefits of Drainage Water Recycling on Crop Yield**
 Chris Hay, Iowa Soybean Association, Ankeny, IA (C. Hay, M. Helmers, J. Frankenberger, B. Reinhart, L. Bowling)

Wednesday, August 1 - 10:15AM-12:15AM

SESSION 357 BEST PRACTICES IN GRADUATE PROGRAMMING AND RECRUITING - RAP SESSION

Sponsored by EOPD
 Moderator: John Classen, North Carolina State University, Raleigh, NC

LOCATION: 356

This session will start with short statements from a panel Directors of Graduate Programs; we will then have an open discussion about recruiting graduate students and training those students for success in a variety of careers. We'll talk about recruiting tactics from the viewpoint of the program as well as that from the advisor, especially related to student success and program diversity. We'll also discuss mentoring, curricular requirements, and non-curricular training suggestions that prepare our MS and PhD students for careers in academia, industry, government and other sectors.

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