



All times listed are U.S. Central time

The following is the list of sessions and session types for the 2021 AIM. Directly below, you will find the three different types of oral sessions being held and their definitions. Please follow up with your session moderator (or session organizer) for specific details as to how they will run their session. As of June 16. *Schedule is subject to change.

Live Sessions: These will be reserved for Special and Invited Sessions, Distinguished Lecture Series, and Panel Discussions. They will afford the presenters with the option of participating with a pre-recorded video or live presentation with Q&A to follow.

Simulated Live Sessions: These sessions will be allocated to technical sessions which have broad community appeal, of high-impact/timely relevance to your technical area, or are listed as Hybrid. In these sessions 12-minute pre-recorded videos will be played by the moderator with live 3-minute Q&A to follow.

Lightning Sessions: In these sessions, presenting authors will have the opportunity to deliver a 3-minute lightning presentation. The 12-minute pre-recorded videos of these presentations will NOT be played during the lightning session but presenters can link the audience to them. At the discretion of the session organizer and moderator, a 3-minute Q&A can be conducted after each presentation, OR a general Q&A session may be held following all presentations in the session.

Quick Reference:

ASABE Special Interest	Page 2
ASE-Applied Science and Engineering.....	Page 5
E-2050 - Global Engagement.....	Page 9
EOPD-Education, Outreach, & Professional Development.....	Page 11
ES-Energy Systems.....	Page 14
ESH-Ergonomics, Safety & Health.....	Page 21
ITSC-Information Technology, Sensors & Control Systems.....	Page 23
MS-Machinery Systems.....	Page 42
NRES-Natural Resources & Environmental Systems.....	Page 54
PAFS-Plant, Animal & Facilities.....	Page 79
PRS-Processing Systems.....	Page 87

Special Interest

Building a Coalition of Societies for Advancing Circular Systems

Live Session

Organized by: Kati Migliaccio

Session Moderator: Sue Nokes; Kati Migliaccio

Sponsoring committee(s): ASABE

Scheduled day and time: Monday, July 12 10:30am - 1:00pm

Panelists: James (Jim) Jones University of Florida; Charles (Chuck) Rice Kansas State University and National Academies of Science, Engineering, and Medicine; P. V. Vara Prasad Kansas State University; Madhu Khanna University of Illinois, Urbana- Champaign; JoAnn Slama Lighty Boise State University; John Ruff Institute of Food Technologists

Alone in a Crowded Room: Reflections of a Black Female Engineering Professor

Live Session

Organized by: Janie Moore

Session Moderator: Janie Moore

Sponsoring committee(s): ASABE

Scheduled day and time: Tuesday, July 13 1:00pm - 2:00pm

2101269 The Theory of Scientific Excellence for Black, Indigenous, and People of Color Researchers Presented by: Monica Cox STEMinent LLC

Current Activities for Transforming to Circular Food and Agricultural Systems

Live Session

Organized by: Jim Jones; Kati Migliaccio

Session Moderator: Sue Nokes

Sponsoring committee(s): ASABE

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

2101270 Current Field Production Practices and Critical Needs and Constraints for Transitioning Farms to Contribute to Circular Economy Food Systems Presented by: A.G. Kawamura Solutions From the Land

2101271 Circular Agriculture; Progress in Knowledge Development to Support the Implementation Presented by: Saskia Visser Wageningen-University and Research

2101272 Towards Circular Grain Production Systems Presented by: Bruno Basso Department of Plant, Soil and Microbial Sciences

2101273 Enhancing Circularity of Livestock Production to Improve Ecosystem Services, Support Rural Communities, and Sustain Access to Nutrient Dense Foods Presented by: Geoffrey Dahl Department of Animal Sciences and Food Systems Institute, University of Florida

2101274 Circular Food Systems and Vertical Farming Presented by: Cristian Toma Kalera

2101275 Circular Economy Solutions for Minimizing and Managing Wasted Food Presented by: Callie Babbitt Golisano Institute for Sustainability, Rochester Institute of Technology

2101276 Systems Science at the Urban Food-Energy-Water (FEW) Nexus to Achieve Resource Circularity with Environmental and Health Co-Benefits Presented by: Anu Ramaswami Princeton University

Advances in Food and Ag Systems Toward Greater Circularity-POSTER SESSION

Poster Session

Organized by: Kati Migliaccio

Session Moderator: Kati Migliaccio; Jim Jones

Sponsoring committee(s): ASABE

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

a.1 - 2101260 Zero-Waste Processing: Physical Characteristics of Different Cultivars of Pawpaw Fruit (*Asimina Triloba* L.) Presented by: Bezalel Adainoo University of Missouri - Columbia, Columbia Missouri; Bezalel Adainoo, Brendan Crowell, Andrew L Thomas, Kiruba Krishnaswamy

a.2 - 2101255 Model Development to Detect Anomalous Feeding Behavior of Individual Pigs in Group-House Pens Presented by: Akintayo Afolabi University of Nebraska-Lincoln, Lincoln Nebraska; Akintayo Afolabi, Tami Brown-Brandl, Sudhendu Sharma, Felix Adrion

a.3 - 2101257 *Rhodopseudomonas palustris* Bioplastic Production from Lignin Breakdown Products Presented by: Brandi Brown; Brandi Brown, Adil Alsiyabi, Cheryl Immethun, Mark Wilkins, Rajib Saha

a.4 - 2101264 Estimating Nitrogen and Phosphorus Flows Embodied in Manufactured Foods in the United States: A Reference Scenario for Nutrient Circularity Interventions Presented by: Zia Uddin Md Chowdhury Penn State University, State College Pennsylvania; Zia Uddin Md Chowdhury, Mikaela Algren, Justin S. Richter, Amy E. Landis, Christine Costello

a.5 - 2101256 Reuse of Nutrients, Water, and Food Waste for Sustainable Controlled Environmental Agriculture (CEA) Presented by: Melanie Correll University of Florida, Gainesville Florida; Melanie J. Correll, Zhaohui Tong, Aditya Singh, Stephan Lantin, Emerick Larkin, Abigail Wahlen

a.6 - 2100919 Cotton and Circularity: Exploring Current and Emerging Circular Systems for Cotton and Agriculture Presented by: Jesse Daystar Cotton Incorporated, Cary North Carolina; Jesse Daystar, Ed Barnes, Steven Pires, Michele Wallace, Mary Ankeny

a.7 - 2100312 Sources of Increased Food Demand by 2050 and Options to Address the Challenge Presented by: Niels Dybro University of Illinois, Muscatine Iowa; Niels Dybro, Cody Allen, Claus A.G. Sørensen, Tony E. Grift, Alan C. Hansen

a.8 - 2101263 Waste to Wealth: Logging Residues As Biomass Feedstock Presented by: Ekramul Ehite University of Tennessee, Knoxville Tennessee; Ekramul Haque Ehite, Ross Houston, Yang Li, Nourredine Abdoulmoumine

a.9 - 2101261 Circularity: Insect-Based Protein for Livestock Feed on Smallholder Farms Presented by: William Kisaalita; William S. Kisaalita

a.10 - 2101254 Get involved! International Standards for a Circular Economy Presented by: Keith L Kline Oak Ridge National Laboratory, and UT, Knoxville Tennessee; Keith L Kline, Mike Levy, Hans Kroder, Kuma Sumathipala

a.11 - 2100565 Food Choices Overview and Decision Support (F-CODS): A Toolbox for Choosing Sustainable and Healthy Foods Presented by: Ebenezer Kwofie University of Arkansas, Fayetteville Arkansas; Prince Agyeman, Ebenezer Miezah Kwofie

a.12 - 2100111 Pasture Biomass Estimations Using Crop Surface Modeling and Vegetation Indices Presented by: Brendan MacInnis Clemson University, Clemson South Carolina; Brendan MacInnis, Bulent Koc, Curtis Erwin, Matias Aguerra, Christopher Post

- a.13 - **2101266 *Envisioning a Circular Fruit and Vegetable Production Systems: A Case Study with a Systemic Analysis of Blueberry Production in Georgia*** Presented by: Sudhagar Mani University of Georgia, Athens Georgia; Paige Weiler, Jeff Mullen, Sudhagar Mani
- a.14 - **2101262 *Crop Improvement for Circular Agricultural Systems*** Presented by: Charlie Messina Corteva Agriscience, Johnston Iowa; Charlie Messina, Sandra K. Truong, Ryan F. McCormick Ryan, Tom Tang
- a.15 - **2101253 *Opportunities to Increase Circularity in Pig and Poultry Processing by Reusing Waste Carbon Dioxide*** Presented by: Zeyi Moo University of Illinois, Urbana Illinois; Zeyi Moo, Angela Green-Miller
- a.16 - **2100254 *Evaluating Food Hubs as Alternative Local Food Systems to Preserve Small and Mid-sized Specialty Crop Producers in North Central Florida*** Presented by: Bhagatveer Sangha University of Florida, Gainesville Florida; Bhagatveer S. Sangha, Jonathan Watson
- a.17 - **2101265 *Controlled Biological-Based Indoor Circular Food Systems*** Presented by: Norman Scott Cornell University, Ithaca New York; Norman R. Scott
- a.18 - **2101258 *Investigating Membrane Bioreactor Technology for Water and Nutrient Reuse in Hydroponic Crop Production*** Presented by: Kelsey Vought The University of Florida, Gainesville Florida; Kelsey Vought, Haimanote Bayabil, Ana Martin-Ryals
- a.19 - **2101154 *Augmenting Diet Diversity Assessment in Nutrition Sensitive Agriculture using a Mobile-Phone Based Application*** Presented by: Subeg Mahal McGill University, Montreal Quebec Canada; Subeg Mahal, Ebenezer Kwofie, Christopher Kucha, Michael Ngadi
- a.20 - **2101160 *TOPSIS as a Tool to Design Nutrition-Sensitive Agriculture (NSA) Interventions*** Presented by: Arturo A. Mayorga-Martinez McGill University, Montreal Quebec Canada; Arturo A Mayorga-Martinez, Christopher Kucha, Ebenezer Kwofie, Michael Ngadi

ASE - Applied Science & Engineering

Applied Science & Engineering POSTER SESSION

Poster Session

Organized by: Catherine Brewer

Session Moderator: Catherine Brewer

Sponsoring committee(s): ASE-01 POSTER SESSION

Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

a.1 - 2100029 Long-Term Monitoring of Soil Strength and Crop Yield in a No-Tillage Soybean Production System under Zero, Controlled and Random Traffic of Farm Machinery Presented by: Diogenes Antille CSIRO Agriculture and Food, Canberra Australian Capital Territory Australia; Guido F. Botta, Diogenes L. Antille, Sven Peets, Fernando Bienvenido, David Rivero, Enrique E. Contessotto, Zong Liu, Alejandra Ezquerro-Canalejo, Juan M. Ressa

a.2 - 2100103 An Investigation into the Mobility of Heavy Metals in Soils Amended with Biosolids-Derived Biochar Presented by: Diogenes Antille CSIRO Agriculture and Food, Canberra Australian Capital Territory Australia; Serhiy Marchuk, Diogenes L. Antille, Payel Sinha, Seija Tuomi, Peter W. Harris, Bernadette K. McCabe

a.3 - 2100973 Remediation of Methylene Blue from Water using Hydrochar Produced from Anaerobically Digested Effluent from Sewage Sludge Presented by: Ajay Shah The Ohio State University, Wooster Ohio; Ajay Shah, Ashish Manandhar, Shyam Sivaprasad

a.4 - 2101191 Iron Deficiency Chlorosis (IDC) in Soybeans: Effect of Cropping System and Variety Presented by: Mary Love Tagert Mississippi State University, Starkville Mississippi; Will Monroe, Mary Love Tagert, Justin McCoy, Mark Harrison, Dennis Reginelli

a.5 - 2100072 The Effect Factors of Hygroscopic Behavior and Thermodynamic Properties of the Hybrid Pennisetum Presented by: Lu Zhu China Agricultural University, Beijing China; Qingyun Sun, Feng Zhao, Zhenchao Jia, Xianlong Yu, Menglong Han, Lu Zhu, Zongchao Zhang

a.6 - 2100092 Improve Biochar-Based Controlled Release Fertilizer's Performance by Coating Multiple Layers of Polylactic Acid Presented by: Lin Wei South Dakota State University, Brookings South Dakota; Robiul Islam Rubel, Lin Wei

a.7 - 2100165 Investigation and Suggestions on Intercropping Model of Forest and Grass in China Presented by: Yanrui Zhao China Agricultural University, Beijing China; Chong Li, Yanrui Zhao, Decheng Wang, Yong You

a.8 - 2100797 Quality Evaluation Method of Green Grass Braid and Design of Special Fixture Presented by: Yuting Chen Beijing Institute of Graphic Communication, Beijing China; Shuai Li, Lan Zhang, Han Hu, Yuting Chen

b.1 - 2100017 Research Status and Development Trend of UAV Broadcast Sowing Technology in China Presented by: Junjie Wan China Agriculture University, Beijing China; Junjie Wan, Lijun Qi, Hao Zhang, Zhong'ao Lu, Jiarui Zhou

b.2 - 2100018 A Real-Time Route Planning Method Based on DeepLabV3+ for Plant Protection UAVs Presented by: Junjie Wan China Agriculture University, Beijing China; Junjie Wan, Lijun Qi, Hao Zhang, Zhong'ao Lu, Jiarui Zhou

b.3 - 2100349 Using Neural Networks to Optimize the Treatment of Wastewater in Microbial Fuel Cells Presented by: Suhasini Srinivasan McGill University, Montreal Quebec Canada; Suhasini Srinivasan, Ademola Adekunle, Yvan Gariepy, Vijaya Raghavan

b.4 - 2100385 Simulation Analysis of the Influence of Tire Crown Structure on Grip Performance Presented by: Nan Zhang China Agricultural University, Beijing Haidian China; Jing Lin, Nan Zhang, Yong You, Decheng Wang

b.5 - 2100414 Evaluation of Dicamba Drift Injury on Soybean using Unmanned Aerial Vehicle (UAV) Presented by: Kelvin Betitame North Dakota State University, Fargo North Dakota; Kelvin Betitame, Mike Ostlie, Kirk Howatt, Cengiz Koparan, Xin Sun

b.6 - 2100705 Land Cover Land Use Classification Performance of Machine Learning Algorithms Using Sentinel 2A and Landsat 8 Data Presented by: Usman Ali Dalhousie University, Truro Nova Scotia Canada; Usman Ali, Travis J. Esau, Aitazaz A. Farooque, Qamar U. Zaman

b.7 - 2100350 Development of On-Farm Method for Visual Quantification of Carbon Degradation in Agricultural Soil Presented by: Karla Melgar University of Nebraska-Lincoln, Lincoln Nebraska; Karla Melgar, Amy Schmidt

b.8 - 2100777 Experimental Study on Snowing Seeds of the Pneumatic Seeding System Presented by: Yanjun Li Chinese Academy of Agricultural Mechanization Sciences, Beijing Chaoyang China; Yanjun Li, Shuzhe Yu, Chao Ma, Rui Liu, Lijing Liu

b.9 - 2101215 Construction of a Prototype Heat Pump Dehydrator for Mango Pulp and Peel Presented by: Felipe de Jesús Espinoza Gutierrez Chapingo University, Texcoco Mexico; Felipe Espinoza, Federico Hahn

b.10 - 2100518 Model of Estimated Energy from Bio-Methane Generated with Hydraulic Fracturing Wastewater and Beef Cattle Manure Presented by: Terra Campbell USDA-ARS, Bushland Texas; Terra N. Campbell, Marty B. Rhoades, David B. Parker, Brock C. Blaser

b.11 - 2100611 Defect Detection of Apple Surface Based on YOLOv3 Presented by: Yujian Xin China Agricultural University, Beijing China; Bai Jing, Yujian Xin, Shaochun Ma, Yi Wei, Jiwei Hu, Zhengliang Ding, Fenglei Wang

Sustainability Metrics in Agriculture

Simulated Live Session

Organized by: Cale Boriack

Session Moderator: Cale Boriack

Sponsoring committee(s): ASE-16 Engineering for Sustainability

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2100735 An Optimal Network Design for Sustainable Waste-to-Energy Resource Management Presented by: Tinn-Shuan Uen University of Illinois Urbana Champaign, Urbana Illinois; Tinn-Shuan Uen, Luis F Rodriguez

2100620 Using The FieldPrint Calculator To Improve Cotton and Peanut Sustainability Production Practices in Georgia Presented by: Kaylyn Groce University of Georgia, Tifton Georgia; Kaylyn Groce, Wesley M. Porter

2100776 Present Status of Appropriate Scale Mechanization in Selected Villages of Southern Delta of Bangladesh Presented by: Md. Monjurul Alam Bangladesh Agricultural University, Mymensingh Bangladesh; Md. Monjurul Alam, Chayan Kumer Saha, Surajit Sarkar, Prasanta Kumar Kalita

2100456 Biofilm Bioreactors: A Novel Strategy for Current Microbial MK-7 Fermentation Production Presented by: Aydin Berenjian Pennsylvania State University, State College Pennsylvania; Ehsan Mahdinia, Ali Demirci, Aydin Berenjian

2100457 Process Intensification: A Step toward Production of Vitamin K (MK-7) Presented by: Aydin Berenjian Pennsylvania State University, State College Pennsylvania; Mostafa Seifan, Aydin Berenjian

Wood-Based Carbon Materials and Applications

Lightning Session

Organized by: Catherine Brewer

Session Moderator: Sibel Irmak

Sponsoring committee(s): ASE-12 Forest Engineering, NRES-265 Soil and Groundwater Remediation, PRS-707 Food & Organic Waste Management & Utilization, ES-220 Biomass Energy & Industrial Byproducts

Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

2100361 A Carbon Conservation Corps to Restore Forests with Biochar Using Flame Cap Kilns Presented by: Kelpie Wilson Wilson Biochar Associates, Cave Junction Oregon; Kelpie J Wilson

2100280 The Potential of Woody Biochar Application on Abandoned Mine Lands Restoration Presented by: Deborah Page-Dumroese USDA Forest Service, Moscow Idaho; Carlos Rodriguez-Franco, James Archuleta, Deborah Page-Dumroese

2100027 Understanding the Relationship between Ethanol Yield/Concentration and Solid Loading to Achieve High Ethanol Concentration of Industrial Hemp Biomass Presented by: Jikai Zhao Kansas State University, Manhattan Kansas; Jikai Zhao, Youjie Xu, Weiqun Wang, Jason Griffin, Donghai Wang

2100063 High-strength Biocomposites Reinforced by Epoxy-modified Pine Fibers Presented by: Xianhui Zhao Oak Ridge National Laboratory, Oak Ridge Tennessee; Xianhui Zhao, Kai Li, Halil Tekinalp, Erin Webb, Soydan Ozcan

2101141 Catalytic Co-Pyrolysis of LDPE and Lignocellulosic Biomass Over Biochar for Syngas and Bio-Oil Upgrading Presented by: Rongge Zou Washington State University, Richland Washington; Rongge Zou, Chenxi Wang, Hanwu Lei, Moriko Qian, Wendy Mateo

2100244 Capturing Carbon Dioxide on Deep Eutectic Solvent Functionalized-Superactivated Hydrochars Synthesized from Loblolly Pine Presented by: Al Ibtida Sultana Florida Institute of Technology, Melbourne Florida; Al Ibtida Sultana, Nepu Saha, Toufiq Reza

2100083 Ball Milled Biochar Effectively Removes Sulfamethoxazole and Sulfapyridine Antibiotics from Water and Wastewater Presented by: Jinsheng Huang University of Florida, Gainesville Florida; Andrew Zimmerman, Hao Chen, Bin Gao, Jinsheng Huang

Woody Biomass Production and Processing

Live Session

Organized by: Catherine Brewer

Session Moderator: David Lanning

Sponsoring committee(s): ASE-12 Forest Engineering, MS-23/7/2 Forage & Biomass Engineering, ES-220 Biomass Energy & Industrial Byproducts, ES-238 Solid Biofuels and US TAG for ISO TC 238

Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

2101231 Issues and Opportunities for Salvaging Storm Damaged Wood Presented by: Dana Mitchell USDA FS-Southern Research Station, Auburn Alabama; Dana Mitchell, Mathew Smidt, Tim McDonald

2100279 In-woods Processing of Waste Wood to Enhance Forest Resilience and Soil Health Presented by: Deborah Page-Dumroese USDA Forest Service, Moscow Idaho; Carlos Rodriguez-Franco, James Archuleta, Deborah Page-Dumroese

2100260 Rotary Shear Comminution to Multiple Particle Sizes of Hardwood and Softwood For Biodiesel Production Presented by: David Lanning Forest Concepts, Auburn Washington; Christopher McKiernan, Mathew Wamsley, David Lanning

2101095 *Impact of Ash Content On Material Properties of Biocomposites* Presented by: Xianhui Zhao Oak Ridge National Laboratory, Oak Ridge Tennessee; Xianhui Zhao, Oluwafemi Oyedeki, Erin Webb, Soydan Ozcan

2100308 *New Developments in Biochar from Wood and Agricultural Residues* Presented by: Thomas Miles US Biochar Initiative, Portland Oregon; Thomas Miles

2101060 *Catalytic Upcycling of Waste Plastics Over Nanocellulose Derived Biochar Catalyst for the Coupling Harvest of Hydrogen and Liquid Fuels* Presented by: Chenxi Wang Washington State University, Richland Washington; Chenxi Wang, Hanwu Lei, Moriko Qian, Rongge Zou, Wendy Mateo

2100470 *Graphitization of Paper Waste into Anode Material for Lithium-Ion Batteries* Presented by: Trevor Vook North Carolina State University, Raleigh North Carolina; William Sagues, Trevor Vook

E-2050 - Global Engagement

Agriculture, Food and Biological Engineering in Developing Countries in Response to the COVID-19 Post Pandemic Era

Contact the session organizer

Organized by: Sushant Mehan

Session Moderator: Sushant Mehan

Sponsoring committee(s): AOCABFE, AABFEIO, ANGASABE

Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

Panelists: Linus Opara Stellenbosch University, Valentine Achancho International Fund for Agricultural Development; Shaojin Wang Washington State University; Nagesh Kumar Indian Institute of Sciences

AOCABFE & NERCITA China Exchange Forum

Contact the session organizer

Organized by: Yang Zhao

Session Moderator: Yang Zhao

Sponsoring committee(s): E-2050 Global Engagement

Scheduled day and time: Monday, July 12 7:00pm - 9:30pm

Opening Remarks Presented by: Naiqian Zhang Kansas State University

2101277 Introduction of USHCA and US-China Collaborations and Friendship in Agriculture Presented by: Min Fan US Heartland China Association & Kenneth M. Quinn The World Food Prize

2101279 Diatom: An Emerging Industry Presented by: Jawkai Wang Shenzhen Jawkai Bioengineering R&D Center, National Academy of Engineering

2101280 Opportunities and Challenges Faced by Peanut Mechanization Presented by: Shuqi Shang Mechanical and Electrical Engineering, Qingdao Agricultural University

2101281 Research and Applications in Smart Agriculture Technologies Presented by: Liping Chen National Engineer Research Center for Information Technology in Agriculture

Modernizing African Agriculture

Live Session

Organized by: Margaret Gitau

Session Moderator: Margaret Gitau

Sponsoring committee(s): E-2050 Global Engagement

Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm; 1:00pm - 3:30pm; Wednesday, July 14 10:00am - 12:30pm; 1:00pm - 3:30pm

2101282 Modernizing the African Agri-Food System (Invited Keynote Address) Presented by: Ndidi Nwuneli Sahel Consulting, Nigeria

2101283 Innovation Hubs: How these are Formed, Operate, and are Funded Presented by: Greg Deason Purdue Foundry

2101287 Innovation Hubs: How These are Formed, Operate, and are Funded (Success Story) Presented by: Soji Adelaja Michigan State University

2101284 Funding Opportunities and Financial Frameworks Presented by: Kenton Dashiell International Institute of Tropical Agriculture, Ibadan, Nigeria

2101288 Modernization through Mechanization Presented by: Joseph Mpagalile FAO

2101285 *A Success Story: The Martin Richenhagen Future Farm, Africa* Presented by: Benard Ngwene Africa bei AGCO Corporation

2101293 *Panel Discussant on Modernizing African Agrifood System* Presented by: William Kisaalita University of Georgia

2101292 *Foundational Pillars* Presented by: Gajendra Singh Appropriate Scale Mechanization Consortium for Sustainable Intensification, Asia & Africa

2101286 *Reflections on the Funding Outlook* Presented by: Metti Richenhagen AGCO Foundation

2101289 *Current Funding Landscape* Presented by: Robert Bertram USAID

2101291 *Women Empowerment and Youth Engagement (Success Story)* Presented by: Cynthia Mene Inspire Africa

2101290 *Women Empowerment and Youth Engagement* Presented by: Maria Jones University of Illinois

Technology Trends and Career Opportunities in the U.S. and Korea

Contact the session organizer

Organized by: Young Gu Her

Session Moderator: Young Gu Her

Sponsoring committee(s): E-2050 Global Engagement

Scheduled day and time: Tuesday, July 13 6:00pm - 8:00pm

2101294 *R&D Trend on Smart Farming in Korea* Presented by: Yong Hyeon Kim Department of Bioindustrial Machinery Engineering, College of Agriculture and Life Sciences, Jeonbuk National University

2101295 *Agricultural Engineering Research Trend and Future Directions in Korea* Presented by: Jin-Yong Choi Department of Landscape Architecture and Rural Systems Engineering, College of Agriculture and Life Sciences, Seoul National University

EOPD - Education, Outreach, & Professional Development

Education, Outreach, and Professional Development POSTER SESSION

Poster Session

Organized by: Michael Pate

Session Moderator: Deepak Keshwani

Sponsoring committee(s): EOPD-01 POSTER SESSION, EOPD-203 Undergraduate & Graduate Instruction, EOPD-204 Engineering & Technology Accreditation, EOPD-205 Engineering Technology & Management Education, EOPD-206 Ag Technology & Mgmt Curriculum Review & Pgm Recog

Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

a.1 - **2100632 Farm Energy Extension Material Development from a Multi-Institutional Team** Presented by: Siobhan Fathel Penn State University, University Park Pennsylvania; Siobhan Fathel, A.J. Both, Daniel Ciolkosz, Kay DiMarco, Aluel Go, M. Charles Gould, Serpil Guran, F. John Hay, John Ignosh, Edward Johnstonbaugh, Scott Sanford, David Specca, Xinlei Wang

a.2 - **2100832 Using Virtual Reality to Increase Engagement with Online Field Demonstrations** Presented by: Elizabeth Hawkins Ohio State University, Xenia Ohio; Elizabeth Hawkins, Brooke Beam, Andrew Klopfenstein, Scott Shearer, John Fulton

a.3 - **2100467 Central Asia University Partnership Program (UniCEN): Iowa State U., Tashkent Inst. of Irrigation and Agricultural Mechanization Eng., and TIAME Bukhara Branch** Presented by: Jacek Koziel Iowa State University, Ames Iowa; Jacek Koziel, Brian Steward, Tina Coffelt, Kodir Sabirov, Mansur Amonov

a.4 - **2100642 Engaging Agricultural Education Students In On-farm Research, Soil Health And Science Literacy** Presented by: Agustin Olivo Cornell University, Ithaca New York; Agustin Olivo, Amy Millmier Schmidt, Richard Koelsch, Jennifer Keshwani.

a.5 - **2100925 Choice Based ASsessment: Utilizing a Project-Based Focus for Agricultural Systems Technology Programming during the COVID Pandemic** Presented by: Michael Pate Utah State University, Logan Utah; Michael L. Pate, Bruce Miller, Richard Beard, Rhonda Miller, Derrick Hendry

a.6 - **2100201 Opportunities and Barriers to Energy Extension in Maryland** Presented by: Drew Schiavone University of Maryland, Keedysville Maryland; Drew Schiavone

a.7 - **2100196 On-Farm Solar Photovoltaic Training Through Maryland Extension** Presented by: Drew Schiavone University of Maryland, Keedysville Maryland; Drew Schiavone

Inclusive Pedagogy & Andragogy: Engaging Diverse Audiences in Teaching, Extension, and Outreach

Live Session

Organized by: Deepak Keshwani

Session Moderator: Deepak Keshwani

Sponsoring committee(s): EOPD-203 Undergraduate & Graduate Instruction, EOPD-205 Engineering Technology & Management Education, EOPD-208 Extension, E-03 Inclusion, Diversity, Equity and Access

Scheduled day and time: Tuesday, July 13 2:00pm - 3:30pm

Panelists: Deepak Keshwani University of Nebraska-Lincoln; Marybeth Lima Louisiana State University; Athena Ramos College of Public Health, University of Nebraska Medical Center

Innovations and Integration of Instruction

Simulated Live Session

Organized by: Kendall Kirk

Session Moderator: Paul Weckler

Sponsoring committee(s): EOPD-205 Engineering Technology & Management Education, EOPD-206 Ag Technology & Mgmt Curriculum Review & Pgm Recog

Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

2100059 Bridging the Gap: Creating Community Connections to Develop and Deliver Effective Remote K-12 Learning Opportunities in Water and Agriculture Presented by: Leigh-Anne Krometis Virginia Tech, Blacksburg Virginia; Leigh-Anne Krometis, Hannah Patton, Erika Bonnett, Erin Ling, Madeline Schreiber, Luke Juran, Durelle Scott, Lauren Wind, Thea Torrisi, Molly Hackley

2100161 Recruitment & Placement Strategies and Activities: A Framework and Roadmap for the Agricultural Operations Management Program at the University of Florida Presented by: Adam Watson University of Florida, Gainesville Florida; Adam Watson, Kati Migliaccio, Wendell Porter

2100475 Developing a Precision Agriculture Technology Course for Regions with Lower Technology Adoption Levels Presented by: Sunil Mathanker University of Puerto Rico at Mayaguez, Mayaguez Puerto Rico; Sunil K Mathanker

2100005 The Value of Climate in Educational Experiences for Diverse Student Populations within Engineering Disciplines Presented by: Robert Stwalley Purdue University, W Lafayette Indiana; Robert M. Stwalley III, Grace Baldwin, Virginia Booth Womack, Sarah LaRose, Carol Stwalley

2100068 Taking the Indoors Out: Involving Students in the Creation of Outdoor Learning Spaces on a University Campus Presented by: Carmen Agouridis University of Kentucky, Lexington Kentucky; Carmen Agouridis

2100615 Cornerstone & Community: Integrating Stormwater Education & Outreach in an Engineering Design Curriculum Presented by: Monica Gray Coastal Carolina University, Conway South Carolina; Monica Gray

2100263 Uses and Impacts of E-portfolios for Biosystems Engineering Graduates Presented by: Jonathan Davis Auburn University, Auburn Alabama; Jonathan Davis, Mark Dougherty, Oladiran Fasina, Sarah Tyndall

2101099 Developing Cohort Challenges: A Model for Innovative Online Team-Based Graduate Education by the INFEWS-ER Presented by: Luis Rodriguez University of Illinois, Urbana Illinois; Luis F. Rodriguez, Anna-Maria Marshall, John Classen, Erin Cortus, Alison Deviney, Jill Heemstra, Jacek Koziel, Deanne Meyer, Anand Padmanabhan, Samuel Reed, Ben Ruddell, Dan Steward, Riveraine Walters

Methods and Procedures for Teaching Engineering Ethics

Live Session

Organized by: Jerry Wille

Session Moderator: Jerry Wille

Sponsoring committee(s): EOPD-412 Professional Ethics

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2101296 Fundamentals and Current Trends on Engineering Ethics in Education Presented by: Robert Gustafson Ohio State University, Columbus Ohio

2101297 ABET and Engineering Registration Expectations Presented by: Sonia Maassel Jacobsen University of Minnesota, St. Paul Minnesota

2101298 Ethics in ABE Curriculum (How it is Done) Presented by: Ronald Yoder University of Nebraska, Lincoln Nebraska

2101299 Participation in Engineering Ethics Instruction Presented by: Dana Porter Texas A&M University, Lubbock Texas

Online Labs: Innovations and Lessons Learned

Lightning Session

Organized by: Ganesh Bora

Session Moderator: Dev Shrestha

Sponsoring committee(s): EOPD-203 Undergraduate & Graduate Instruction, EOPD-205 Engineering Technology & Management Education

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2101103 NCSU BAE: The Good, the Bad, and the Takeaways from Online Laboratory Instruction Presented by: Thomas Stephenson North Carolina State University, Willow Spring North Carolina; Thomas Stephenson, Sierra Young, Lucie Guertault, Gary Roberson

2101057 Challenges and Effectiveness on Teaching Lab- and Project-Based Courses Online Presented by: Ning Wang Oklahoma State University, Stillwater Oklahoma; Ning Wang, Austin Pickering, Wade Young, Peyman Nematzadeh

2100739 Pathways for Virtual Transdisciplinary Collaboration to Enhance Community Resilience for Compound[ing] Disasters in Puerto Rico Presented by: Michael Stablein University of Illinois Urbana Champaign, Urbana Illinois; Luis Rodriguez, Jesann Gonzalez Cruz, Emine Fidan, Jessica Talbot, Samuel Reed, Riveraine Walters, Ayorinde Ogunyiola, Michael Fernandez Frey, Mariela Ramirez, Jill Heemstra, Anna Marshall, Michael Stablein

2101017 Students Create Plans for Sustainable Bioenergy Crops on Existing Farms Using Open-Access, Interactive Tools Presented by: Siobhan Fathel Pennsylvania State University, University Park Pennsylvania; Siobhan Fathel

2100999 Straight From the Students: Why on-Line and Modified Lab Experiences Worked (or Didn't) Presented by: Tim Shepherd Iowa State University, Ames Iowa; Tim Shepherd, Ben Smith, Ryan Saxon, Amy Kaleita, contributing students and instructors

2101019 Taking Tractor Safety to the Virtual Limits Presented by: Dee Jepsen The Ohio State University, Columbus Ohio; Dee Jepsen, Aaron Yoder, Deana Namuth-Covert, Jill Kilanowski, Justin Pulley

2100863 Investigating the Impact of Disruption to Senior Design Capstone Courses due to Covid19. Presented by: Lucie Guertault North Carolina State University, Raleigh North Carolina; Lucie Guertault, Tamecia Jones, Praveen Kolar, Eric Hall, Dell Tollin

2101134 "Breaking Out" All the Stops: Fostering Student Engagement and Peer Learning using Segmented Delivery and Virtual COLLABoratories Presented by: Michael Mashtare Pennsylvania State University, State College Pennsylvania; Michael Mashtare

2100684 Simulated Hands-On Laboratory Instruction for Fluid Power Systems Presented by: Saxon Ryan Iowa State University, Ames Iowa; Saxon Ryan, Brian L. Steward, Safal Kshetri

2100932 Thermodynamics Online: A Multi-Method Exploration of Student Perception Presented by: Ann Christy The Ohio State University, Columbus Ohio; Turhan K. Carroll, Tara G. Wilson, Ashley N. Venturini, Jacqueline Wilder, Ann D. Christy

ES - Energy Systems

Advances in Biomass Preprocessing and Pretreatment

Lightning Session

Organized by: Yi Zheng

Session Moderator: Nurun Nahar

Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, MS-23/7/2 Forage & Biomass Engineering, ASE-12 Forest Engineering

Scheduled day and time: Thursday, July 15 10:00am - 11:30am

2100690 Grinding Characteristics of Corn Stover Fractions: Impact of Grinder Speed and Moisture on the Particle Dimensions and Energy Consumption Presented by: Jaya Shankar Tumuluru Idaho National Laboratory, Idaho Falls Idaho; Eric Fillerup, Sergio Hernandez, Jaya Shankar Tumuluru

2100460 Discrete Element Modeling of Switchgrass Particle Breakage in Hammer Mill – Computational Efficiency and Practical Considerations Presented by: Zakia Tasnim Clemson University, Clemson South Carolina; Qiushi Chen, Feiyang Chen, Zakia Tasnim

2100838 Anatomical Fractionation for Improved Property Control as Part of the Single-pass, Weather Independent Fractionation Technology (SWIFT) Process Presented by: Matthew Digman University of Wisconsin - Madison, Madison Wisconsin; Keagan Blazer, Matthew Digman, Kevin Shinnors, Adam Hemmelgarn, Benjamin Pike

2100780 High-Solids Pretreatment and Enzymatic hydrolysis of Pelleted Corn Stover with Improved Sugar Yields Presented by: Max Salzer North Dakota State University, Fargo North Dakota; Max Salzer, Nurun Nahar, Niloy Chandra Sarker, Jaya Shankar Tumuluru

2100485 Synergistic Interaction of Bacteria and Fungi for the Efficient Degradation of Plant Lignin Presented by: Hadia Mukhtar Oklahoma State university, Stillwater Oklahoma; Yinka Adesanya, Rahul Thunuguntla, Hasan Atiyeh, Rolf Prade, Babu Fathepure, Hadia Mukhtar

2100264 Enhancing Hydrophobicity of Biomass Pellets by Addition of Hydrochars Presented by: Md Tahmid Islam Florida Institute of Technology, Melbourne Florida; Md Tahmid Islam, Sergio Hernandez, Jordan Klinger, M. Toufiq Reza

2100926 Effect of Biochar Additive in Torrefied Biomass: Energy Consumption, Mass Yield, Grindability, and Thermochemical Properties Presented by: Obiora Agu University of Saskatchewan, Saskatoon Saskatchewan Canada; Obiora S. Agu, Lope G. Tabil, Edmund Mupondwa, Duncan Cree, Bagher Emadi

2100645 Time-Domain NMR for Non-Invasive Characterization and Quantification of Vegetative Oil/Lipids in Bioenergy Crops after Pretreatment Presented by: Shraddha Maitra University of Illinois Urbana-Champaign, Urbana Illinois; Shraddha Maitra, Bruce Dien, Stephen P. Long, Vijay Singh

2100722 A Mechano-Chemical Method for Algal Protein Extraction and Isolation Presented by: Ashley Cutshaw Michigan State University, East Lansing Michigan; Ashley Cutshaw, Henry Frost, Sibel Uludag-Demirer, Yan Liu, Wei Liao

2100256 Resin Assisted Separation and Recovery of Free Fatty Acids from Oil Presented by: Ramkrishna Singh University of Illinois (Urbana Champaign, Urbana Illinois; Vijay Singh, Ramkrishna Singh

Biomass Feedstock Supply Logistics and Modeling

Simulated Live Session

Organized by: Yi Zheng

Session Moderator: Jaya Shankar Tumuluru; Ajay Shaw

Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, MS-23/7/2 Forage & Biomass Engineering, ASE-12 Forest Engineering

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2100873 Cellulosic Biorefineries Powered by Nuclear Heat and Hydrogen: A Nationwide Analysis Presented by: Tasmin Hossain North Carolina State University, Raleigh North Carolina; Tasmin Hossain, Daniela Jones, Charles Forsberg, Bruce Dale, Lynn Wendt

2100959 A Novel Whole-Plant Logistics System for Biobased Industry Presented by: Ajay Shah Ohio State University, Wooster Ohio; Ajay Shah

2100837 Fractional Harvest of Corn Stover for Improved Property Control as Part of the Single-pass, Weather Independent Fractionation Technology (SWIFT) Process Presented by: Matthew Digman University of Wisconsin - Madison, Madison Wisconsin; Benjamin Pike, Matthew Digman, Kevin Shinnars, Keagan Blazer, Adam Hemmelgarn

2100883 Forage Economics Calculator – A Web Tool Presented by: Subhashree Navaneetha Srinivasagan North Dakota State University, Fargo North Dakota; Igathinathane Cannayen, John Hendrickson, David Archer, Mark Liebig, Jonathan Halvorson, Scott Kronberg, David Toledo, Subhashree Navaneetha Srinivasagan

2100366 A Machine-Learning Holistic Analysis Framework for Biomass to Bioenergy Facility Siting Optimization Presented by: Xufeng Zhang West Virginia University, Morgantown West Virginia; Xufeng Zhang, Jingxin Wang

2100213 Integrated Optimization for a Grain-Biomass-Ethanol Supply Chain With Event-Based Decision-Making Presented by: Ana Paula Spranger Correia de Oliveira University of Illinois at Urbana-Champaign, Urbana-Champaign; Ana Paula Spranger Correia de Oliveira, Luis F. Rodríguez

2100840 Harvest and Storage of Ear Corn and Chopped Stover as a Biomass Feedstock Presented by: Matthew Digman University of Wisconsin - Madison, Madison Wisconsin; Adam Hemmelgarn, Matthew Digman, Kevin Shinnars, Benjamin Pike, Keagan Blazer

2100854 Evaluating Storage Characteristics of Whole-plant Corn for Biobased Industries Presented by: Asmita Khanal Ohio State University, Wooster Ohio; Ajay Shah, Asmita Khanal

2100532 Variations in the Bulk Physical and Mechanical Properties of Milled Corn Stover and Woody Biomass Due to the Moisture Content Presented by: Hojae Yi Pennsylvania State University, University Park Pennsylvania; Christopher Lanning, Matthew Wamsley, James Slosson, James H. Dooley, Virendra M. Puri, Hojae Yi

Conversion of Biomass to Biofuels (Thermochemical)

Simulated Live Session

Organized by: Yi Zheng

Session Moderator: Sandun Fernando

Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

2100930 Biomass-Based Catalyst Development from Acidic and Basic Metal Salts for the Conversion of Non-Edible Vegetable Oils to Fuel-Range Hydrocarbons Presented by: Poulami Roy Auburn University, Auburn Alabama; Poulami Roy, Hossein Jahromi, Sushil Adhikari, Zou Finckle, Tawsif Rahman

2100090 Biocrude Oil from Algal Bloom Microalgae: A Novel Integration of Biological and Thermochemical Techniques Presented by: Jamison Watson University of Illinois, Champaign Illinois; Megan Swoboda, Aersi Aierzhati, Tengfei Wang, Buchun Si, Yuanhui Zhang, Jamison Watson

2100246 Effect of Selected Type III Deep Eutectic Solvent Pretreatment on Hydrothermal Carbonization of Loblolly Pine Presented by: Toufiq Reza Florida Institute of Technology, Melbourne Florida; Md Tahmid Islam, Nepu Saha, M. Toufiq Reza

2100721 Intermediate Pyrolysis of Boreal Forest Residues for Production of Biofuels Presented by: Vinoj Kurian University of Alberta, Edmonton Alberta Canada; Bijay Dhakal, Manjot Gill, Amit Kumar, Rajender Gupta, Andreas Hornung, Vinoj Kurian

2100952 Batch Hydrotreatment of Biocrude Derived From Hydrothermal Liquefaction of Municipal Sewage Sludge Presented by: Hossein Jahromi Auburn University, Auburn Alabama; Hossein Jahromi, Tawsif Rahman, Poulami Roy, Sushil Adhikari

2100931 Effect of Catalyst and Ambience on Hydrothermal Liquefaction of Municipal Sludge Presented by: Tawsif Rahman Auburn University, Auburn Alabama; Tawsif Rahman, Hossein Jahromi, Poulami Roy, Sushil Adhikaria

2100050 Aromatic Hydrocarbon Production from Co-Pyrolysis of Algae, Cedar Wood and Digested Sludge Blends Presented by: Sourabh Chakraborty Oklahoma State University, Stillwater Oklahoma; Sourabh Chakraborty, Nurhan Dunford

2101156 An Overview of Machine Learning Tools to Predict Biomass Conversion Performances Presented by: Sudhagar Mani University of Georgia, Athens Georgia; Sudhagar Mani, KK Sahoo, KC, Das, Jayashankar Tumuluru, Joe Dalhen, Laurie Schimlack, Rick Bergman

Current Achievements and New R&D Trends in Renewable Energy Resources and Technologies

Live Session

Organized by: Xianhui Zhao

Session Moderator: Xianhui Zhao

Sponsoring committee(s): ES-210 Renewable Power Generation Committee, ES-220 Biomass Energy & Industrial Byproducts

Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

2101300 Catalytic Upgrading of Biogas to Value-Added Fuels and Chemicals Presented by: John Kuhn University of South Florida

2101301 Bioderived Materials and Bioinspired Design for Large Scale Grid Storage Presented by: Hongli Zhu Northeastern University

2101302 Decarbonizing the Maritime Sector: Opportunities & Challenges Presented by: Timothy Theiss Oak Ridge National Laboratory

2101303 R&D Advancements in Feedstock Supply and Preprocessing for Bioenergy Supported by the US Department of Energy Presented by: Mark Elless U.S. Department of Energy

2101304 R&D Advancements in Feedstock Supply and Preprocessing for Bioenergy Supported by the US Department of Energy Presented by: Chenlin Li US Department of Energy

Energy Systems POSTER SESSION

Poster Session

Organized by: Yi Zheng

Session Moderator: Jaya Shankar Tumuluru

Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, MS-23/7/2 Forage & Biomass Engineering, PRS-701 Physical Properties of Ag & Biological Products, ASE-12 Forest Engineering, ES-01 POSTER SESSION

Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

a.8 - **2100288 Life Cycle Assessment of A Microalgae Biorefinery for Wastewater Treatment and Production of Biofuels and Biochar** Presented by: Lijun Wang North Carolina A&T State University, Greensboro North Carolina; Bo Zhang, Lijun Wang, Lifeng Zhang, Abolghasem Shahbazi

a.9 - **2101033 Techno-Economic Analysis of Co-Pelletization of Agricultural Residue and Plastic Waste for Cement Production** Presented by: Haley Stockham Ohio State University, Wooster Ohio; Haley Stockham, Asmita Khanal, Ajay Shah

a.10 - **2100436 Environmental Impacts and Techno-Economic Analysis of Bioadhesive Production** Presented by: Seyed Hashem Mousavi Avval University of Wisconsin-Madison, Madison Wisconsin; Seyed Hashem Mousavi-Avval, Kamalakanta Sahoo, Troy Runge, Richard Bergman

a.11 - **2100036 A Techno-Economic Model for Evaluating the Environmental and Economic Feasibility of Waste Treatment and Nutrient Recovery Technologies** Presented by: Shannon Banner North Carolina State University, Raleigh North Carolina; Shannon Banner, Kelly Zering, John Classen

a.12 - **2100120 Analysis of Alternative LED Light by Indoor Lettuce Production in Mexico** Presented by: Jorge Flores www.colpos.mx, Cuernavaca Utah Mexico; Jorge Flores-Velazquez, Daniel Fuentes

a.13 - **2100580 Effect of Fermentation Process to Improve Lipid and Ethanol Production from Corn Germ Meal, a Model Feedstock for Lipid Producing Energy Crops** Presented by: Yuyao Jia University of Illinois, Urbana-Champaign, Urbana Illinois; Yuyao Jia, Deepak Kumar, Jill Moser, Bruce Dien, Kent Rausch, Mike Tumbleson, Vijay Singh

a.14 - **2101072 Biochar-Driven Simplification of the Compositions of Cellulose-Pyrolysis-Derived Oil Coupled with the Promotion of Hydrogen Generation** Presented by: Chenxi Wang Washington State University, Richland Washington; Chenxi Wang, Hanwu Lei, Rongge Zou, Moriko Qian, Wendy Mateo

a.15 - **2100935 The use of Corn Stover-Derived Nanocellulose as a Stabilizer of Nanoemulsion** Presented by: Lingling Liu Iowa State University, Ames Iowa; Lingling Liu

a.16 - **2101070 Lignin-Based Hydrophobic Deep Eutectic Solvents for the Extraction of Micro- and Nanoplastics** Presented by: Yuxuan Zhang University of Kentucky, Lexington Kentucky; Yuxuan Zhang, Jameson Hunter, Wenqi Li, Jian Shi

Renewable Energy Resources and Technologies

Lightning Session

Organized by: Fei Yu

Session Moderator: Fei Yu

Sponsoring committee(s): ES-210 Renewable Power Generation Committee, ES-220 Biomass Energy & Industrial Byproducts

Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

2101214 Development of Sustainability Indicators for Wind Farms in North America Presented by: Jaime Thissen University of Illinois Urbana Champaign, Champaign Illinois; Jaime Thissen

2100879 *The Development of an Integrated GIS-Based Mixed-Integer Nonlinear Programming Model for Waste-to-Energy Systems in Western Canada* Presented by: Vinoj Kurian University of Alberta, Edmonton Alberta Canada; Md Mashum Billal, Roshni Mary Sebastian, Amit Kumar, Vinoj Kurian

2100229 *Anaerobic Digestion of Spent Compost and Peat from the Cultivation of Mushroom* Presented by: Alessandro Chiumenti University of Udine, Udine UD Italy; Alessandro Chiumenti, Silvia Tedesco, Francesco da Borso

2100230 *Anaerobic Digestion of Brackish and High Salinity Aquaculture Sludges* Presented by: Alessandro Chiumenti University of Udine, Udine UD Italy; Alessandro Chiumenti, Bartolomè Owono Owono, Giulio Fait, Matia Mainardis, Daniele Goi, Elisa Stella, Francesco da Borso

2100285 *Continuous Production of Ethyl Ester from Corn Oil by Liquid Plasma Catalysis* Presented by: Muhammad Aamir Bashir University of Idaho, Moscow Idaho; Muhammad Aamir Bashir, Sarah Wu, Shaobo Deng, Jun Zhu, Anilkumar Krosuri

2100806 *Simulation of Solar Irradiance Distribution under Agrivoltaic Facilities* Presented by: Youngjoon Jeong Seoul National University, Gwanak-gu Seoul South Korea; Youngjoon Jeong, Sangik Lee, Won Choi

2100799 *Low-Cost and High Durability of a New Solar Water Heater Design* Presented by: Ahmed Fawzy Eid Seoul National University, Seoul South Korea; Ahmed Fawzy Eid, Sangik Lee, Jonghyuk Lee, Yonugjoon Jeong, Byunghun Seo, Dongsu Kim, Yejin Seo, Choi Won

2101020 *The Potential of Solar Energy to Modernize African Agriculture* Presented by: Helen Miller Michigan State University, East Lansing Michigan; Ajit Srivastava, Helen Miller, Steve Marquie

2100927 *Applications of an Invex Optimization Approach for Competing Water Uses* Presented by: Steve Elgie KISTERS North America, Sacramento California; Steve Elgie, Jens Proche, Jorn Baayen

2100974 *Techno-Economic Analysis of Switchgrass-Based Combined Heat and Power System* Presented by: Ashish Manandhar The Ohio State University, Wooster Ohio; Ashish Manandhar, Ajay Shah

Techno-Economic and Life Cycle Assessment of Biomass Conversion

Lightning Session

Organized by: Yi Zheng

Session Moderator: Deepak Kumar

Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, PRS-280 Bioconversion and Bioprocesses

Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

2100409 *Life Cycle Assessment and Techno-Economic Analysis of Biochar Produced from Forest Residues Using Large-Scale Fixed and Smaller-Scale Portable Systems* Presented by: Kamalakanta Sahoo USDA Forest Products Laboratory, Madison Wisconsin; Rick Bergman, Troy Runge, Sudhagar Mani, Kamalakanta Sahoo

2100547 *Techno-Economic Feasibility Analysis of an Integrated Ethanol and Anthocyanin Coproduction Process Using Purple Corn Stover* Presented by: Chinmay Kurambhatti University of Illinois, Urbana-Champaign, Urbana Illinois; Chinmay Kurambhatti, Deepak Kumar, Vijay Singh

2100853 *Life Cycle Assessment of Switchgrass to Jet Fuel via a Novel Co-Fermentation of Sugar and CO₂* Presented by: Abhiram Siva Prasad Pamula Civil & Environmental Engineering, Oklahoma State University, Stillwater Oklahoma; Abhiram Siva Prasad Pamula, David J. Lampert, Hasan K. Atiyeh

2100446 Techno-Economic Analysis of a Grape Pomace Biorefinery: Production of Seed Oil, Polyphenols, and Biochar Presented by: Qing Jin Virginia Tech, Blacksburg Virginia; Qing Jin, Sean F. O'Keefe, Amanda C. Stewart, Andrew P. Neilson, Young-Teck Kim, Haibo Huang

2101079 Techno-Economic Feasibility Analysis of Biodiesel and Ethanol Co-Production from Lipid-Producing Energycane Presented by: Deepak Kumar SUNY ESF, Syracuse New York; Stephen P. Long, Vijay Singh, Deepak Kumar

2100655 Carbon Balance for Conventional and Cell-Cultured Meat Production Presented by: Gabrielle Myers Iowa State University, Ames Iowa; Gabrielle Myers, Raj Raman, Kate Jaros, Daniel Andersen

2100170 Life Cycle Assessment of a Pilot-scale Aquaponics Facility for Fish Waste Conversion into Food Presented by: Brendan Higgins Auburn University, Auburn Alabama; Rohit Kalvakaalva, Mollie Smith, Daniel Wells, David Blersch, Terry Hanson, Brendan Higgins

2100858 Techno-Economic Analysis of Hemp Production and Logistics in the U.S. Presented by: Asmita Khanal Ohio State University, Wooster Ohio; Ajay Shah, Asmita Khanal

2101195 Evaluate the Environmental Impact and Economic Viability of Mango Postharvest Technologies Used by Kenyan Farmers Presented by: Hory Chikez Iowa State University, Ames Iowa; Hory Chikez, Dirk Maier, Kurt Rosentrater

2100888 A Cost Assessment of Centralizing a Co-Digestion System for Biogas Production Presented by: Gabrielle Myers Iowa State University, Ames Iowa; Gabrielle Myers, Raj Raman, Daniel Andersen

2100258 Comparative Life Cycle Analyses and Impacts of Municipal Solid Waste Gasification and Landfilling Presented by: Angelika Ouedraogo Oklahoma State University, Stillwater Oklahoma; Angelika Ouedraogo, Robert Frazier, Ajay Kumar

The State of Agricultural Energy Efficiency /Biomass Feedstock Supply Characteristics

Lightning Session

Organized by: Scott Sanford

Session Moderator: Mark Elless; Chenlin Li

Sponsoring committee(s): ES-300 Electrical Utilization & Energy Apps, ES-310 Ag Lighting Group, ES-311 Plant Growth LED Lighting

Scheduled day and time: Thursday, July 15 11:30am - 12:30pm

2100641 USDA-NRCS Strategies to Address On-Farm Energy Conservation Presented by: Terri Ruch USDA NRCS, Washington DC; Terri Ruch

2100673 How Utility Energy Efficiency Incentive Programs Encourage Growers to Adopt LED Horticultural Lighting Presented by: Jeannie Sikora CLEAResult, Millersville Pennsylvania; Jeannie Leggett Sikora

2101071 Effect of Dimming Waveform on Lamp Performance in Poultry Housing Presented by: Joseph Purswell USDA, Mississippi State Mississippi; Joseph Purswell, Jeremiah Davis, Jesse Campbell

2100534 Comparison of Three Biomass Flowability Models using Cubical Triaxial Tester Data Sets Presented by: Hojae Yi Pennsylvania State University, University Park Pennsylvania; Christopher Lanning, Matthew Wamsley, James Slosson, James H. Dooley, Virendra M. Puri, Hojae Yi

2100715 Development of Empirical Correlation to Model Frictional Behavior of Aqueous Biomass Slurry Flow in Vertical Pipe Section Presented by: Amit Kumar University of Alberta, Edmonton Alberta Canada; Kashif Javed, Vinoj Kurian, Amit Kumar

2100533 Flow Behavior Prediction of Milled Biomass Feedstocks out of a Gravity Hopper Presented by: Hojae Yi
Pennsylvania State University, University Park Pennsylvania; Christopher Lanning, Matthew Wamsley, James
Slosson, James H. Dooley, Virendra M. Puri, Hojae Yi

2100716 Hydro-Transport of Lignocellulosic Biomass through Inclined Pipelines Presented by: Amit Kumar
University of Alberta, Edmonton Alberta Canada; Kashif Javed, Vinoj Kurian, Amit Kumar

**2101010 Incorporating Harvesting Regime Into a Duckweed Growth Model to Predict Optimal Biomass
Production** Presented by: Pandara Valappil Femeena The Pennsylvania State University, University Park
Pennsylvania; Ozgul Calicioglu, Mert Y. Sengul, Pandara Valappil Femeena, Rachel A. Brennan

Value-Added Chemicals and Materials

Lightning Session

Organized by: Yi Zheng

Session Moderator: Sushil Adhikari

Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products

Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

2100284 Production of Liquid Nitrogen Fertilizer by Air Activated Plasma Discharge in Water Presented by:
Sarah Wu University of Idaho, Moscow Idaho; Sarah Wu, Bishal Thapa, Yuan Yuan, Robinson Junior Ndeddy Aka,
Celiannie Rivera

2100449 Reaction Kinetic Study of Synthesis of Lubricity Improver Additive from Methyl Oleate Presented by:
Randy Maglinao Montana State University-Northern, Havre Montana; Randy Maglinao, Sandeep Kumar, Jase Kato,
Nicholas Hill, Mohammad-Moustafa

**2100970 A Systematic Analysis and Comparison of Lignin Valorization Approaches Using Superstructure
Optimization** Presented by: Yajie Wu Pennsylvania State University, University Park Pennsylvania; Yajie Wu,
Camila Gonzalez Arango, Stephen Chmely, Juliana Vasco-Correa

2100842 Fermentation of Almond Hull Extract into Astaxanthin Presented by: Sang Li Kansas state university,
Manhattan Kansas; Rong Zhu, Yi Zheng, Sang Li

**2100596 Biorefinery of Lignocellulosic Carbohydrates: Productions of Lipid and Ethanol through Engineered
Microbial Conversion** Presented by: Ming-Hsun Cheng University of Illinois, Urbana Illinois; Bruce Dien, Yong-Su
Jin, Jonghyeok Shin, Patricia Slininger, Nasib Qureshi, Vijay Singh

**2100660 Continuous Succinic Acid Production by Immobilized Actinobacillus Succinogenes in a Hollow Fiber
Membrane Bioreactor** Presented by: Lisbeth Vallecilla Yepez University of Nebraska Lincoln, Lincoln Nebraska;
Lisbeth Vallecilla Yepez, Mark R. Wilkins

2100911 Catalytic Conversion of Corn Starch to High-value Glucaric Acid Using Nitroxyl Radicals Presented by:
Mi Li University of Tennessee, Knoxville Tennessee; Mi Li, Emily Van Auken, Keonhee Kim, Nicole Labbe

2100993 Predicting the Antimicrobial Properties of Lignin Derivatives Using QSAR Models Presented by: Ryan
Kalinowski University of Kentucky, Lexington Kentucky; Qing Shao, Jian Shi, Ryan Kalinoski

2101158 Production of High-Solid Content Cellulose Nanofibrils from Fluff Pulp Presented by: Sudhagar Mani
University of Georgia, Athens Georgia; Prabakaran Graceraj Ponnusamy, Suraj, Sharman & Sudhagar Mani

**2101091 Almond Shell Lignin-Derived Carbon-Silicon Nanocomposite as High-Performance Anode Material
for Lithium-Ion Batteries** Presented by: Jian Shi University of Kentucky, Lexington Kentucky; Jian Shi, Wenqi Li,
Makua Vin-Nnajofofor, Yang-Tse Cheng

ESH - Ergonomics, Safety & Health

Innovations and Strategies for Safety and Health

Simulated Live Session

Organized by: Michael Pate

Session Moderator: Michael Pate

Sponsoring committee(s): ESH-04 Technology Exchange, ESH-03 Standards, ESH-04/1 Journal of Agricultural Safety and Health

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

2100998 Respirator Performance Tests Using a Manikin System in High Grain Dust Concentrations Presented by: Yang Geng Ohio State University, Columbus Ohio; Yang Geng, Lingying Zhao, Tiina Reponen, Dee Jepsen

2101006 Categorization and Analysis of Past Farm Fatality Incidents to Inform Autonomous Machine Design and Risk Analysis Presented by: Kelly Sandner University of Wisconsin-Madison, Madison Wisconsin; Kelly Sandner, John Shutske, Luke Powers

2100709 Review and Application of Large-Scale Livestock Biosecurity Measures to Small-Scale Farms Presented by: Glen Morris Purdue University, Lafayette Indiana; Shawn Ehlers, Glen Morris

2100047 Can Youth Reach Agricultural All-Terrain Vehicle Commands? Presented by: Guilherme De Moura Araujo University of California, Davis, Davis California; Guilherme De Moura Araujo, Farzaneh Khorsandi, Sami Kabakibo, Oliver Kreylos

2100720 Preventing Workplace Injury in Pig Production Systems: Applying Behavior Change Interventions for Safe Animal Handling Presented by: Heather Vanheeswijk University of Illinois Urbana-Champaign, Champaign Illinois; Angela Green-Miller, Josie Rudolphi, Heather Vanheeswijk

2100502 Farm Fatal Injury Trends in Illinois from 1999 to 2019 Presented by: Sihan Li University of Illinois Urbana-Champaign, Champaign Illinois; Robert Aherin, Salah Issa, Sihan Li

2101004 Improving Safety and Health in the Cattle Feedyard Industry Presented by: Aaron Yoder University of Nebraska, Omaha Nebraska; Suraj Adhikari, Athena Ramos, Risto Rautiainen, Aaron Yoder

Strategies and Considerations for Safety Programming and Technology

Simulated Live Session

Organized by: Michael Pate

Session Moderator: Michael Pate

Sponsoring committee(s): ESH-04 Technology Exchange, ESH-03 Standards, ESH-04/1 Journal of Agricultural Safety and Health

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2100657 Injuries Involving Skid Steers: What Can We Learn? Presented by: Serap Gorucu University of Florida, Gainesville Florida; Serap Gorucu, Bryan Weichelt

2100947 Assessing Risks Associated with Childhood Gasoline-Related Explosion, Fire and Burn Injuries in Agricultural Rural Settings with Case Studies Presented by: Mahmoud Nour Purdue University, West Lafayette Indiana; Mahmoud M. Nour, Yuan-Hsin Cheng, Ed Sheldon, William E. Field

2100046 Ability of Youth to Activate Agricultural All-Terrain Vehicles' Main Controls Presented by: Guilherme De Moura Araujo University of California, Davis, Davis California; Guilherme De Moura Araujo, Farzaneh Khorsandi, Anusheh Abdullah

2100012 *Agricultural All-Terrain Vehicle and Farmworkers* Presented by: Farzaneh Khorsandi The University of California, Davis, Davis California; Farzaneh Khorsandi, Guilherme De Moura Araujo, Hsiao-Yang Chou, Soheila Yavari

2101208 *Exploring Alternative Prevention Solutions to Reduce Grain Entrapments* Presented by: Salah Issa University of Illinois Urbana-Champaign, Champaign Illinois; Salah Issa, Daniel Gaither

2101005 *Safety in Agriculture for Youth: Maintaining a National Clearinghouse* Presented by: Aaron Yoder University of Nebraska, Omaha Nebraska; Linda Fetzer, Michael Pate, Aaron Yoder

2100951 *Development of Selected Safety Indicators for Breweries in North America* Presented by: Jaime Thissen University of Illinois Urbana Champaign, Champaign Illinois; Jaime Thissen

2100910 *Assessing Youth Safety Knowledge through the Agriculture Experience Tracker (AET)* Presented by: Michael Pate Utah State University, Logan Utah; Scott Smalley, Dustin Perry, Rebecca Lawver, Michael L. Pate, Alyx Shultz, Roger Hanagriff, Clay Ewell

2100427 *Tractor and Machinery Instructor Training: Impact of Sequential Professional Development* Presented by: Michael Pate Utah State University, Logan Utah; Michael L. Pate, Scott Smalley, Dustin Perry, Rebecca Lawver

ITSC - Information Technology, Sensors & Control Systems

3D Machine Vision for Sensing and Automation

Lightning Session

Organized by: Seung-Chul Yoon

Session Moderator: Seung-Chul Yoon

Sponsoring committee(s): ITSC-312 Machine Vision

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2100388 *Designs of a Customized Active 3D Scanning System for Food Processing Applications* Presented by: Dongyi Wang UMaryland; UArkansas, College Park Maryland; Dongyi Wang, Mohamed Ali, James Cobau, Yang Tao

2101127 *Modeling Realistic 3D Agriculture Scenes using Photometric Stereo-Based Approach and Its Application to Weed Detection* Presented by: Chengsong Hu Texas A&M University, College Station Texas; Alex Thomasson, Muthukumar Bagavathiannan, Chengsong Hu

2100847 *Phenotyping of Pine Tree Architecture with Stereo Vision and Deep Learning* Presented by: Mousumi Akter Auburn University, Auburn Alabama; Mousumi Akter, Nariman Niknejad, Yin Bao, Rafael Bidese Puhl, Kitt Payn, Jingyi Zheng

2100831 *In-Field Apple Size and Location Tracking Using Machine Vision to Assist Fruit Thinning and Harvest Decision-Making* Presented by: Omeed Mirbod Pennsylvania State University, University Park Pennsylvania; Omeed Mirbod, Daeun Choi, Long He, Paul Heinemann, James Schupp

2100428 *Plant Organ Segmentation from Point Clouds using Point-Voxel Convolutional Neural Networks* Presented by: Farah Saeed University of Georgia, Athens Georgia; Farah Saeed, Changying Li

2100289 *Kiwifruit Yield Estimation Using Deep learning and Binocular Stereo Vision on Android™ Smartphones* Presented by: Zhongxian Zhou Northwest A&F University, Yangling Shaanxi China; Zhongxian Zhou, Longsheng Fu

2101051 *Anglenet: Leaf Angle Detection and Characterization of Maize Plants in the Field Based on Stereo Vision and Deep Convolutional Neural Network* Presented by: Lirong Xiang Iowa State University, Ames Iowa; Lirong Xiang, Jingyao Gai, Yin Bao, Jianming Yu, Patrick S. Schnable, Lie Tang

Advanced Computational Approaches for Solving Agricultural and Biological Engineering Problems

Simulated Live Session

Organized by: Hugo Milan

Session Moderator: Hugo Milan

Sponsoring committee(s): ITSC-217 Computational Methods, Simulations & Applications

Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

2101113 *Estimating Heterogeneous Treatment Effects in Longitudinal Data with an Application in Precision Agriculture* Presented by: Hugo Milan Sao Paulo State University, Jaboticabal Sao Paulo Brazil; Michael Gorczyca, Hugo Milan, Gustavo Moura, Alex Maia, Kifle Gebremedhin, Sofia Triantafillou

2100786 *A Prediction Model for Greenhouse Temperature Control based on Recurrent Neural Network* Presented by: Yoon Hong Yi Seoul National University, Seoul South Korea; Hak-Jin Kim, Woo-Jae Cho, Dae-Hyun Jung, Joo-Shin Kim, Yoon Hong Yi

2100945 *Optimal Irrigation Scheduling Under Limited Water Supply* Presented by: Manuel Andrade University of Nevada, Reno, Reno Nevada; Manuel A. Andrade, Uriel Cholula, Susan A. O'Shaughnessy, Steven R. Evett

2100193 Apple Fruit Detection and Counting Based on Deep Learning and Trunk Tracking Presented by: Fangfang Gao Northwest A&F University, Yangling shaanxi China; Fangfang Gao, Tingyi Yang, Longsheng Fu

Biosensors for Food, Agriculture and Environment

Lightning Session

Organized by: Sui Ching Phung

Session Moderator: Fei Jia

Sponsoring committee(s): ITSC-230 Biosensors

Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

2100373 A New Extraction Method of Characteristic Parameters Related to Rheological Behavior Based on Impact Deformation Characteristics Presented by: Ke He China Agricultural University, Beijing Haidian China; Xiuzhi Luo, Ke He, Xiuying Tang, Yanlei Li

2100798 Validation Testing of a Laboratory-Made Hydroponic Ion-Specific Monitoring and Control System for Growing Tomato in Greenhouses Presented by: JooShin Kim Seoul National University, Seoul South Korea; JooShin Kim, Hak-Jin Kim, Woo-Jae Cho, Yoon-Hong Yi

2100585 A Paper-Based Colorimetric Aptasensor for the Detection of Gentamicin in Milk Presented by: Saipriya Ramalingam University of Guelph, Guelph Ontario Canada; Saipriya Ramalingam, Christopher M. Collier, Ashutosh Singh

2100845 An Ultrasensitive and Label-free Quartz Crystal Microbalance Biosensor Based on Gold Nanocages Capped with Aptamers for Rapid Detection of Thrombin Presented by: Xinge Xi University of Arkansas, Fayetteville Arkansas; Xinge Xi, Ningxiang Yu, Isabelle I. Niyonshuti, Lan Yao, Ying Fu, Jingyi Chen, Yanbin Li

2101092 Open Source Beehive Monitor Presented by: Nathan Sprague Purdue University, West Lafayette Indiana; John Evans, Eric Kong, Nathan Sprague

2101030 Real-Time Optical Analysis of a Colorimetric LAMP Assay for SARS-CoV-2 in Saliva Presented by: Daniel Jenkins University of Hawaii, Honolulu Hawaii; Lena Diaz, Brandon Johnson, Mohammad Arif, Michael Melzer, Daniel Jenkins

2101133 Smartphone-Based Portable Nitrate Sensor for Field Water Measurement Presented by: Wenye Li University of Illinois Urbana Champaign, Champaign Illinois; Logan Gang Liu, Angela Green-Miller, Wenye Li

Computational Fluid Dynamics (CFD) Applications in Agriculture

Simulated Live Session

Organized by: Christopher Choi

Session Moderator: Christopher Choi

Sponsoring committee(s): ITSC-217 Computational Methods, Simulations & Applications

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2100527 Drying Peanuts in a Modified Hopper-Bottom Trailer: CFD Modeling and Design Presented by: Christopher Butts USDA - Agricultural Research Service, Dawson Georgia; Chris Butts, Joseph McIntyre, Kendall Kirk, Benjamin Fogle, Aaron Turner, Brennan Teddy

2101055 Development of a Precision Air Jet System from a Positive-Pressure Plenum in a Dairy Barn using CFD Simulations and Experiments Presented by: Christopher Choi University of Wisconsin - Madison, Madison Wisconsin; Hanwook Chung, Seunghyeon Jung, Mario Mondaca, Kenneth Nordlund, Christopher Choi

2100396 Numerical Simulation of Internal Flow Field in Air Suction Grafting Rootstock Clamping Device for Melon Vegetables Presented by: Kang Wu Zhejiang University, Hangzhou Zhejiang China; Kang Wu, Jianzhong Lou, Chen Li, Wei Luo, Jianping Li

2100663 Drying Peanuts in a Modified Hopper Bottom Trailer: Evaluating Drying Performance Presented by: Brennan Teddy Clemson University, Clemson South Carolina; Teddy Brennan, Turner Aaron, Kirk Kendall, Fogle Benjamin, McIntyre Joseph, Butts Christopher

2101058 Enhancement of Heat Removal from Dairy Cows in Mechanically-Ventilated Dairy Housing Based on Computational Simulation Outcomes Presented by: Christopher Choi University of Wisconsin - Madison, Madison Wisconsin; Seunghyeon Jung, Hanwook Chung, Christopher Choi

2100333 Simulation of Flow Field of Air Jet Nozzle based on Fluent Presented by: Ke He China Agricultural University, Beijing Haidian China; Ke He, Xiuzhi Luo, Qinming Sun, Shuo Zhang, Xin Gao, Xiuying Tang

2100160 Numerical Analysis of Airflow Field Inside Cyclone Separator with Different Structural Parameters for Rapeseed Combine Harvester Presented by: Xingyu Wan Huazhong Agricultural University, Wuhan Hubei China; Xingyu Wan, Yitao Liao, Jiacheng Yuan, Jia Yang, Qingxi Liao

2101056 Application of CFD to Improve Scraped Surface Freezer Operation for Producing Healthier Frozen Desserts Presented by: Christopher Choi University of Wisconsin - Madison, Madison Wisconsin; Nugegoda Panditharatne, Lauren Sipple, Richard Hartel, Christopher Choi

2100946 Flat Fan Spray Nozzle Simulation by Means of CFD Presented by: Sam Marx University of Nebraska-Lincoln, Lincoln Nebraska; Sam Marx, Rodney Rohrer, Joe Luck

Computer Vision for Agricultural Automation

Lightning Session

Organized by: Dana Choi

Session Moderator: Dana Choi

Sponsoring committee(s):

Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

2100051 Strawberry Detection Based on Deep Learning Models Presented by: Zixuan He Washington State University, Prosser Washington; Zixuan He, Manoj Karkee, Priyanka Upadhyaya

2100112 Using images from a handheld camera to detect wheat bacterial leaf streak disease severities Presented by: Nusrat Jahan North Dakota State University, Fargo North Dakota; Nusrat Jahan, Zhao Zhang, Zhaohui Liu, Andrew Friskop, Paulo Flores, Jithin Mathew, Anup Kumar Das

2100309 Weed Identification Using Deep Learning Convolutional Neural Network Presented by: Sunil GC North Dakota State University, Fargo North Dakota; Yu Zhang, Cengiz Koparan, Mohammed Raju Ahmed, Kirk Howatt, Xin Sun, Sunil GC

2100558 Smartphone-Based Tool for Two-Spotted Spider Mite Detection in Strawberry Presented by: Congliang Zhou University of Florida, Gainesville Florida; Congliang Zhou, Won Suk Lee, Oscar E. Liburd, Ikbal Aygun

2100686 Crop Load Estimation in Wine Grapes Using Software Application Based on Deep Learning Algorithms for Object Detection Presented by: Priyanka Upadhyaya Washington State University, Prosser Washington; Santosh Bhusal, Abhisesh Silwal, Xin Zhang, Shenglian Lu, Manoj Karkee, Priyanka Upadhyaya

2100742 Leveraging Transfer Learning in ArcGIS Pro to Detect "Doubles" in Sunflower Field Presented by: Nitin Rai North Dakota State University, Fargo North Dakota; Nitin Rai, J. Paulo Flores

2100868 Application of Mask Region-based Convolutional Neural Network on Asparagus Growth Identification Presented by: Hsien-Feng Hsiung National Taiwan University, Taipei Taiwan; Hsien-Feng Hsiung, Shih-Yu Lee, Jen-Cheng Wang, Joe-Air Jiang, Li-Yu Daisy Liu, Ming-Hsien Hsieh, Shih-Fang Chen

2100898 Simplifying Apple Flower/Fruit Counting: A Weakly Supervised Approach Presented by: Uddhav Bhattarai Washington State University, Prosser Washington; Uddhav Bhattarai, Sushma Thapa, Qin Zhang, Manoj Karkee

2101061 Assessment of Water Stress in Vineyards Using on-the-Go Hyperspectral Imaging and Machine Learning Algorithms Presented by: Sushma Thapa Washington State University, Prosser Washington; Chenchen Kang, Geraldine Diverres, Manoj Karkee, Qin Zhang, Markus Keller, Sushma Thapa

2101064 Sugarcane Aphid Visual Detection on Sorghum using CNN Presented by: Zhaohui Li Iowa State University, Ames Iowa; Joshua Peschel, Zhaohui Li

Connectivity, Cloud Computing, and Internet of Things in Agriculture

Simulated Live Session

Organized by: Sierra Young

Session Moderator: Sierra Young

Sponsoring committee(s): ITSC-254 Emerging Information Systems; ITSC-217 Computational Methods, Simulations & Applications

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2100617 Design and Evaluation of an IoT-Testbed for Precision Indoor Farming Presented by: Madhu Lekha Guntaka Purdue University, West Lafayette Indiana; Madhu Lekha Guntaka, Dharmendra Saraswat, Petrus Langenhoven

2100877 Internet of Things (IoT)-Based Precision Irrigation with LoRaWAN Technology Applied to Vegetable Production Presented by: Long He The Pennsylvania State University, State College Pennsylvania; Haozhe Zhang, Long He, Francesco Di Gioia, Daeun Dana Choi, Paul Heinemann

2100464 How to Develop a Multi-facet QC Procedure for a Ground-Based Weather Monitoring Network Presented by: Chi Zhang University of Florida, Gainesville Florida; Chi Zhang, Morgan Gunter, Beck Peyton, Kevin Denis, Songzi Wu, Ziwen Yu, William Lusher

2100971 Promoting Sensor-based Irrigation Scheduling in South Carolina Presented by: Udayakumar Sekaran Clemson University, Blackville South Carolina; Jose Payero, Bayleah Cooper, Udayakumar Sekaran, Rebecca Davis, Jonathan Croft, Nathan Smith, Michael Marshall

2101198 An AI-Based Flow Meter Readings Recognition Framework in an Agriculture IoT Setting Presented by: Xin Qiao University of Nebraska-Lincoln, Scottsbluff Nebraska; Le Liu, Weizhen Liang, Joseph Oboamah, Yeyin Shi, Xin Qiao

2101199 Development of a LoRaWAN Research and Extension Platform in Rural Western Nebraska Presented by: Weizhen Liang University of Nebraska-Lincoln, Scottsbluff Nebraska; Joseph Oboamah, Xin Qiao, Le Liu, Weizhen Liang

2100480 Integration of Crop Phenology Models with Cloud Computing in a Decision-support System Presented by: Daniel Perondi University of Florida, Gainesville Florida; Clyde W. Fraisse, Vinicius A. Cerbaro, Mauricio A. Z. Karrei, Noemi Guindin, Daniel Perondi

2101126 Enabling Visualization and Processing of Location Based Data via OADA's Client Selectable Live Data Graphs Presented by: Aaron Neustedter Purdue University, West Lafayette Indiana; Aaron Neustedter, Tomohiro Arakawa, Yaguang Zhang, Fabio Castiblanco, Alex Layton, Andrew Balmos, Aaron Ault, James Krogmeier, Dennis Buckmaster

2100514 Evaluating WiFi Based Vehicle to Vehicle Networking Presented by: Andrew Balmos Purdue University, West Lafayette Indiana; James Krogmeier, Dennis Buckmaster, Andrew Balmos

2100859 Utilizing an Interconnected IoT Device Network as a Decision Support System for Autonomous Agricultural Vehicles Presented by: Aaron Etienne Purdue University, West Lafayette Indiana; Aaron Etienne

Discrete Element Modelling (DEM) Applications in Agriculture

Lightning Session

Organized by: Mehari Tekeste

Session Moderator: Mehari Tekeste

Sponsoring committee(s): ITSC-217 Computational Methods, Simulations & Applications

Scheduled day and time: Tuesday, July 14 11:30am - 12:30pm

2101149 EDEM Investigation and Experimental Evaluation of Abrasive Wear Resistance Performance of Bionic Micro-Thorn and Convex Hull Geometrically Coupled Structured Surface Presented by: Zhihong Zhang Kunming University of Science and Technology, Kunming Yunnan China; Zhihong Zhang, Guobiao Zuo, Shuaihui Gan, Zhaoyang Chen, Liangliang Zhao, Stephen Carr

2100372 Modeling Dust Generation during Grain Handling Presented by: Yumeng Zhao Purdue University, West Lafayette Indiana; Marvin Petingco, Ronaldo Maghirang, Mark Casada, Kingsly Ambrose, Yumeng Zhao

2100542 A History-Dependent Contact Model for Discrete Element Modeling of Deformable Loblolly Pinewood Chips Presented by: Feiyang Chen Clemson University, Clemson South Carolina; Feiyang Chen, Yidong Xia, Qiushi Chen, Jordan Klinger

2101201 Performance Evaluation of Threshing Efficiency of a Combine According to Threshing Tooth Arrangement Presented by: Jun-Ho Lee Chungnam National University, Yuseong-gu Daejeon South Korea; Jun-Ho Lee, Seung-Min Baek, Seung-Yun Baek, Nam-Gyu Lee, Seok-Pyo Moon, Hyeon-Ho Jeon, Md Abu Ayub Siddique, Dae-Hyun Lee, Yong-Joo Kim

2100814 Parameter Optimization and Experimental Studies on Sugarcane Chopper Harvester Extractors Presented by: Weiqing Li China Agricultural University, Beijing China; Weiqing Li, Shaochun Ma, Haonan Xing, Jun Qian, Jiwei Hu, Fenglei Wang

2100604 Experimental Study on Mechanical Properties of Sugarcane Stalks and Leaves Presented by: Jun Qian China Agricultural University, Beijing China; Jun Qian, Shaochun Ma, Weiqing Li, Jiwei Hu, Jing Bai, Fenglei Wang

Emerging Technologies for Biological Sensing

Lightning Session

Organized by: Sui Ching Phung

Session Moderator: XingGe Xi

Sponsoring committee(s): ITSC-230 Biosensors

Scheduled day and time: Monday, July 12 11:30am - 12:30pm

2100337 Research Progress of Pest Detection Technology for Stored Grain Based on Odor-Biotechnology Presented by: Han Shaoyun China Agricultural University, Beijing China; Shaoyun Han, Shuo Zhang, Kai Wu, Xiuying Tang, Yang Xu

2100338 Development of Peanut Moldy Odour Information Acquisition System based on MOS Gas Sensor Array Presented by: Han Shaoyun China Agricultural University, Beijing China; Shuo Zhang, Kefei Yang, Shaoyun Han, Kai Wu, Qinming Sun, Xin Gao, Xiuying Tang

2101143 Isolation and Binding Properties of Imipenem Exposed Salmonella Typhimurium with Magnetic Nanoparticles Presented by: Oznur Caliskan-Aydogan Michigan State University, East Lansing Michigan; Oznur Caliskan-Aydogan, Evangelyn Alolija

2101120 Rapid Identification of Dominant Spoilage Fungus of Apple by Surface Enhanced Raman Scattering Spectroscopy Presented by: Chuang Guo Jiangsu University, Zhenjiang Jiangsu China; Chuang Guo, Quansheng Chen, Xiaobo Zou

2100678 Ascochyta Blight Detection in Chickpea Using Chemical and Optical Sensing Systems Presented by: Chongyuan Zhang Washington State University, Pullman Washington; Tony Chen, Weidong Chen, Sindhuja Sankaran, Chongyuan Zhang

2100936 Utilization of Magnetic Nanoparticles for Extraction and Concentration of Bacteria in Food Matrices Presented by: Emma Dester Michigan State University, East Lansing Michigan; Saad Sharief, Evangelyn Alocilja, Emma Dester

2101042 Scalable Diagnostic Card for Multiplexed Lamp-Based Optical Gene Detection Presented by: Daniel Jenkins University of Hawaii, Honolulu Hawaii; Daniel M. Jenkins, Lena Diaz, Michael Melzer, Mohammad Arif

2100562 Identification of the Apple Spoilage Causative Fungi and Prediction of the Spoilage Degree Using Gas Sensors Presented by: Chuang Guo Jiangsu University, Zhenjiang Jiangsu China; Chuang Guo, Zhiming Guo, Li Sun, Min Zuo, Quansheng Chen, Hesham R. El-Seedi, Xiaobo Zou

2100841 On-Line Moisture-Sensing System using Multi-Frequency Microwave Signals Optimized by Novel Two-Stage Frequency Selection Framework Presented by: Jinyang Zhang Zhejiang University, Hangzhou Zhejiang China; Jinyang Zhang, Yin Bao, Dongdong Du, Jun Wang, Zhenbo Wei

Hyperspectral Imaging Advances & Applications

Lightning Session

Organized by: Afef Marzougui

Session Moderator: Afef Marzougui

Sponsoring committee(s): ITSC-348 Electromagnetics & Spectroscopy

Scheduled day and time: Thursday, July 15 10:00am - 11:30am

2100891 Spectral-Spatial Hyperspectral Image Classification based on Deep Learning for Shiga-Toxin Producing Escherichia Coli (STEC) Serotyping Presented by: Seung-Chul Yoon USDA - Agricultural Research Service, Athens Georgia; Seung-Chul Yoon, Kurt Lawrence, Bosoon Park, Norasak Kalchayanand, Tommy Wheeler

2101117 Fusion of Visible and Near-Infrared Hyperspectral Images at 400-2,500 NM for Detecting Foreign Materials on Poultry Meat Products Presented by: Seung-Chul Yoon USDA-ARS, Athens Georgia; Soo Chung, Seung-Chul Yoon, Bosoon Park

2100363 Rapid Evaluation of Matcha Quality Using Hyperspectral Microscope Imaging Technology Presented by: Qin Ouyang Jiangsu University, Zhenjiang Jiangsu China; Bosoon Park, Quansheng Chen, Rui Kang, Qin Ouyang

2100948 Optimal Wavelength Selection for Blueberry Buds Damage Detection Due to Spring Freeze Using Hyperspectral Imaging Presented by: Ramesh Sahni Washington State University, Prosser Washington; Ramesh K. Sahni, Momtanu Chakraborty, Lav R. Khot, Gwen-Alyn Hoheisel

2100348 Rapid Classification of Deoxynivalenol Levels in Barley Using Hyperspectral imaging Presented by: Wen-Hao Su China Agricultural University, Beijing China; Wen-Hao Su

2100439 Classification of Herbicides in Early Growth Wheat using Hyperspectral Imaging with Shallow Convolutional Neural Network Presented by: Hangjian Chu Zhejiang University, Hangzhou Zhejiang China; Hangjian Chu, Chu Zhang, Yong He, Yufei Liu

2100787 Field Application of Hyperspectral Imaging for Weed Identification Presented by: Billy Ram North Dakota State University, Fargo North Dakota; Billy Ram, Mohammed Raju Ahmed, Yu Zhang, Xin Sun

2100497 Detecting and Monitoring the Progress of Downy Mildew Disease in Watermelon by Utilizing UAV-Based Hyperspectral Imaging and Machine Learning Presented by: Jaafar Abdulridha University of Florida, Immokalee Florida; Jaafar Abdulridha, Yiannis Ampatzidis, Jawwad Qureshi, Ozgur Batuman, Pamela Roberts, Sri Charan Kakarlas

2100084 Alfalfa Yield Prediction Using UAV-based Hyperspectral Imagery and Machine Learning Presented by: Zhou Zhang University of Wisconsin-Madison, Madison Wisconsin; Zhou Zhang, Luwei Feng, Yuchi Ma, Parker Williams, Jessica Drewry, Brian Luck

2100884 Remote Assessment of Biocontrol Efficacy via Hyperspectral Imaging: Thrips on the Invasive Brazilian Peppertree Presented by: Stephen Lantin University of Florida, Gainesville Florida; Sedonia Steininger, Varun Puri, Daniel Ammann, Melanie Correll, Aditya Singh, Stephen Lantin

Imaging Technologies for High Throughput Phenotyping

Simulated Live Session

Organized by: Haiyan Cen

Session Moderator: Haiyan Cen; Yuzhen Lu

Sponsoring committee(s): ITSC-312 Machine Vision

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2100602 Development of an Open-Source Root Phenotyping System Presented by: Jianfeng Zhou University of Missouri, Columbia Missouri; Jing Zhou, Heng Ye, Henry Nguyen, Jianfeng Zhou

2100591 A Field-Based Multifunctional High Throughput Crop Phenotyping Platform Presented by: Yu Zhang North Dakota State University, Fargo North Dakota; Yu Zhang, Sunil GC, Mohammed Raju Ahmed, Cristiano Costa, Austin Eide, Billy Ram, Cengiz Koparan, Xin Sun

2100494 New Methodology for Extracting Reflectance Data from Aerial Imagery in Large Scale Presented by: Hamid Jafarbiglu UC Davis, Davis California; Hamid Jafarbiglu, Alireza Pourreza, German Zuniga-Ramirez

2100058 A Novel Skeletonization Algorithm Combined with Hierarchical Segmentation for Phenotyping Siliques of Oilseed Rape Presented by: Zhihong Ma Zhejiang University, Hangzhou Zhejiang China; Zhihong Ma, Dawei Sun, Haiyan Cen

2100496 Deep Learning-Based Saliency Maps for the Quantification of Grape Powdery Mildew at the Microscopic Level Presented by: Tian Qiu Cornell University, Ithaca New York; Tian Qiu, Anna Underhill, Surya Sapkota, Lance Cadle-Davidson, Yu Jiang

2100469 Improved Field-Phenomics Protocol for Selecting Superior Pea Breeding Lines using UAV and Satellite-Based Remote Sensing Presented by: Afef Marzougui Washington State University, Pullman Washington; Afef Marzougui, Rebecca J. McGee, Stephen Van Vleet, Sindhuja Sankaran

2100206 Robust Plant Segmentation Based on Image Enhancement and Automatic Thresholding Presented by: Yuzhen Lu Mississippi State University, Mississippi State Mississippi; Sierra Young, Yuzhen Lu

2100548 Fluttering Leaves to Quantify Leaf's Stiffness Presented by: Sunghwan Jung Cornell University, Ithaca New York; Matthieu Fuchs, Alireza Navid Hooshanginejad, Jisoo Yuk, Sunghwan Jung

2100738 Anchor-Free Deep Convolutional Neural Network for Plant and Plant Organ Detection and Counting Presented by: Chenjiao Tan Northwest A&F University, Yangling Shaanxi China; Chenjiao Tan, Changying Li, Dongjian He, Huaibo Song

Information Technology, Sensors & Control Systems POSTER SESSION

Poster Session

Organized by: Haiyan Cen

Session Moderator: Haiyan Cen; Lav Khot

Sponsoring committee(s):

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

a.1 - 2100515 *Using Google Sheets to the Bridge the Gap between Context Aware Applications and*

Spreadsheets Presented by: Andrew Balmos Purdue University, West Lafayette Indiana; Andrew Balmos, Alex Layton, Aaron Ault, James Krogmeier, Dennis Buckmaster

a.2 - 2101136 *A Model-Driven Tractability Tool Supporting Field Operation Logistics* Presented by: Samuel Noel Purdue University, Lafayette Indiana; Samuel Noel, Dennis Buckmaster, Andrew Balmos, James Krogmeier

a.3 - 2101014 *Thermal Signature Based Method for Construction of Predictive Computational Model of Thermal Stress Level of Dairy Cattle* Presented by: Alex Vinicius da Silva Rodrigues Universidade de Sao Paulo - USP, Pirassununga Sao Paulo Brazil; Alex Rodrigues, Veronica Pacheco, Luciane Martello, Edson Sardinha, Andre Pereira, Rafael de Sousa

a.4 - 2100734 *Using the IBM Watson Studio Cognitive Computing Framework to Model a Dairy Cattle Heat Stress Classifier Based on the Infrared Thermal Signature* Presented by: Andre Levi Viana Pereira Universidade de Sao Paulo, Pirassununga Sao Paulo Brazil; Andre Levi Viana Pereira, Luciane Silva Martello, Veronica Madeira Pacheco, Alex Vinicius da Silva Rodrigues, Edson Jose de Souza Sardinha, Rafael Vieira de Sousa

a.5 - 2100755 *Reinforcement Learning-Based Path Tracking Study for Autonomous Tractor via Simulation* Presented by: Chan-Woo Jeon Seoul National University, Seoul South Korea; Chan-Woo Jeon, Hak-Jin Kim, Changho Yun, Minseok Gang, Xiongzhe Han

a.6 - 2100772 *Development of Anomaly Detection Algorithm for Reservoir Water Levels Based on Deep Learning* Presented by: Mi-Hye Yang Hankyong National University, Anseong-si Gyeonggi-do South Korea; Mi-Hye Yang, Won-Ho Nam

a.7 - 2100190 *In-Silico Simulation of Efflux Pump Inhibition in Candidatus Liberibacter Asiaticus by Antimicrobial Peptides* Presented by: Haoqi Wang Texas A&M University, College Station Texas; Haoqi Wang, Nirmitee Mulgaonkar, Samavath Mallawarachchi, Kranthi Mandadi, Sandun Fernando

a.8 - 2100194 *Identification of Meteorological Factors Affecting the Timing of Prescribed Burning in Flint Hills through Regression Modeling using Machine Learning Techniques* Presented by: Akinibile Demilade Kansas State University, Manhattan Kansas; Akinibile Demilade, Zifei Liu

a.9 - 2101175 *Spatiotemporal Modeling and Simulation of COVID-19 Spread in Poultry Processing Plants* Presented by: Olga Kemenova Georgia Institute of Technology, Atlanta Georgia; Olga Kemenova, Paula Gomez, Khatereh Hadi, Matthew Swarts

a.10 - 2101206 *Variety Trial Validation: A Framework to Incorporate on-Farm Data* Presented by: Raul Sebastian Texas A&M University, College Station Texas; Raul Sebastian, Robert G. Hardin, Edward M. Barnes, Jason K Ward, Wesley M. Porter, Michael T. Plumblee, John D. Wanjura

a.11 - 2101240 *Dry Matter Dynamics of Cassava Roots: A Meta-Analysis of Experimental Data* Presented by: Patricia Moreno-Cadena University of Florida, Gainesville Florida; Patricia Moreno-Cadena, Nikolay Bliznyuk, Meklit Tariku, Pieter Pypers, Senthold Asseng, Kodjovi Senam Ezui, Julian Ramirez-Villegas, Luis Augusto Becerra Lopez-Lavalle, Gerrit Hoogenboom

- b.1 - **2100807 Artificial Intelligence Applied to Agroecology: A Model for Brazilian Territory** Presented by: Matheus Sasso Centro de Pesquisa e Desenvolvimento em Telecomunicações(CPQD), Campinas Sao Paulo Brazil; Matheus Gustavo Avles Sasso, Paula Costa
- b.2 - **2100019 Robotics in Agriculture: Advances and Considerations for Technology Development** Presented by: Jerry James de la Torre De La Salle University, Manila Manila Philippines; Jerry James M. de la Torre, Alvin B. Culaba, Edwin S. Calilung, Alvin Y. Chua
- b.3 - **2100426 A High-Level Task Planning of Autonomous Robots Carrying Multiple Herbicides and Treating Specific Weed Types** Presented by: Georgios Adosoglou University of Florida, Gainesville Florida; Georgios Adosoglou, Seonho Park, Yiannis Ampatzidis, Panos M. Pardalos
- b.4 - **2100489 Random Forest for LiDAR and Image-Based Wetland Identification** Presented by: Jade Gerlitz Iowa State University, Ames Iowa; Jade Gerlitz, Vitor Souza Martins, Amy Kaleita, Brian Gelder
- b.5 - **2100756 Design of a Pollinating Robotic System for Loblolly Pine** Presented by: Piyush Pandey North Carolina State University, Raleigh North Carolina; Piyush Pandey, Kitt G. Payn, Austin J. Heine, Sierra Young
- b.6 - **2100566 Comparison of Deep Learning Models for Corn Disease Identification, Tracking, and Severity Estimation using Images Acquired from UAV-Mounted and Handheld Sensor** Presented by: Aanis Ahmad Purdue University, West Lafayette Indiana; Aanis Ahmad, Dharmendra Saraswat, Aly Gamal, Gurmukh Johal
- b.7 - **2101088 LoRa Range Testing for Use in Agriculture** Presented by: Logan Heusinger Purdue University, West Lafayette Indiana; Logan Heusinger, John Evans
- b.8 - **2100158 Study on Robotic Inspection Planning in Large-scale Chicken House** Presented by: Min Zhou China Agricultural University, Beijing China; Min Zhou, Yang Li
- c.1 - **2101100 Can Spatio-Temporal Structural Analysis of Remotely Sensed and Socioeconomic Data Help Identify Drivers of Land Cover Change?** Presented by: Julie Peeling University of Florida, Gainesville Florida; Julie Peeling, Aditya Singh, Jasmeet Judge
- c.2 - **2101147 Cell Morphology and Cell Size Changes of Imipenem Exposed E. coli and Salmonella Typhimurium** Presented by: Oznur Caliskan-Aydogan Michigan State University, East Lansing Michigan; Oznur Caliskan-Aydogan, Evangelyn Alcilja
- c.3 - **2100468 Digital Twin-Driven Prediction and Control of an Anaerobic Digestion based Biorefinery** Presented by: Lijun Wang North Carolina A&T State University, Greensboro North Carolina; Lijun Wang, Bahare Salehi, Bo Zhang
- c.4 - **2100608 Remote Video Stream Activity Recognition using Spatiotemporal Convolutional Neural Networks for Greenhouse Workload Analysis** Presented by: Liang-Chien Liu National Taiwan University, Taipei China; Liang-Chien Liu, Ta-Te Lin
- c.5 - **2100189 An Overview of Water Quality Monitoring in IoT Based Aquaculture** Presented by: Dipika Roy Universiti Putra Malaysia, Serdang Selangor Malaysia; Dipika Roy, Rashid Shariff, Hashfalina Man, Norulhuda Ramli, Thinagaran Perumal, Mohamed Shariff
- c.6 - **2100487 Druggability Assessment of Precursor Membrane Protein as a Target for Inhibiting the Zika Virus** Presented by: Nirmitee Mulgaonkar Texas A&M University, College Station Texas; Nirmitee Mulgaonkar and Sandun Fernando

- c.7 - **2100488 Molecular Recognition of Clinically Approved Drugs as Inhibitors of SARS-CoV-2 Spike RBD and ACE2 Complex** Presented by: Nirmitee Mulgaonkar Texas A&M University, College Station Texas; Nirmitee Mulgaonkar, Haoqi Wang and Sandun Fernando
- c.8 - **2100317 Improvement of Cotton Emergence Mapping and Feasibility of Exploring the Relationship between Emergence, Subsequent Growth and Environment using UAV Imagery** Presented by: Aijing Feng University of Missouri, Columbia Missouri; Aijing Feng, Jianfeng Zhou, Earl Vories and Kenneth A. Sudduth
- c.9 - **2101135 Integration of Machine Learning Techniques and Distributed Temperature Sensing Systems for High-Resolution Characterization of Field Scale Spatiotemporal Variability of Soil Moisture Content** Presented by: Mahmoud Shehata North Carolina State University, Raleigh North Carolina; Mahmoud Shehata, Pierre Gentine, Natalie Nelson, Chadi Sayde
- c.10 - **2101252 Developing an Aeroponic Smart Experimental Greenhouse for Controlling Irrigation and Plant Disease Detection using Deep Learning and IoT** Presented by: Mohammadreza Narimani University of Tehran, Karaj Alborz Iran; Mohammadreza Narimani, Ali Hajiahmad, Ali Moghimi, Reza Alimardani, Shahin Rafiee, Amir Hossein Mirzabe
- c.11 - **2100914 In-Season Sweetpotato Yield Forecasting through Machine Learning and Satellite Remote Sensing** Presented by: Mariella Carbajal Carrasco North Carolina State University, Raleigh North Carolina; Mariella Carbajal-Carrasco and Natalie Nelson
- c.12 - **2100791 Comparing Machine Learning Techniques for Throughput Estimation using Partial Data** Presented by: Steffen Schwich TU Braunschweig, Brunswick Lower Saxony Germany; Steffen Schwich, Jan Schattenberg, Ludger Frerichs
- c.13 - **2100757 Capacity Limit of Deep Learning Methods on Scenarios of Pigs in Farrowing Pen under Occlusion** Presented by: Endai Huang City University of Hong Kong, Hong Kong Hong Kong; Endai Huang, Axiu Mao, Maria Camila Ceballos, Thomas D. Parsons, Kai Liu
- c.14 - **2100796 Development of Reservoir Operation and Water Allocation Model for Optimal Operating Policy using Machine Learning Techniques and Climate Phenomenon Information** Presented by: Won-Ho Nam Hankyong National University, Anseong Gyeonggi South Korea; Won-Ho Nam, Taegon Kim
- d.1 - **2100661 Convolutional Neural Network Web Application for Aiding Field Management in Wild Blueberry** Presented by: Patrick Hennessy Dalhousie University, Truro Nova Scotia Canada; Patrick J. Hennessy, Travis J. Esau, Arnold W. Schumann, Qamar U. Zaman, Scott N. White, Aitazaz A. Farooque
- d.2 - **2100099 Recognition Method of Origin *Gastrodia Elata* Based on Machine Vision** Presented by: Zhang Zimei China Agricultural University, Beijing Haidian China; Zheng Zhian, Gao Lei, Wang Rongyan, Zimei Zhang
- d.3 - **2100100 Identification of Whether *Gastrodia Elata* Blume has been Fumigated by Sulfur Based on Machine Vision Technology** Presented by: Zhang Zimei China Agricultural University, Beijing Haidian China; Zheng Zhian, Li Aichao, Chen Shufeng, Wang Wenjie, Jiang Dalong, Zimei Zhang
- d.4 - **2100345 The Variation Recognition of *Gastrodia Elata* Based on Machine Vision** Presented by: Zhang Zimei China Agricultural University, Beijing Haidian China; Zimei Zhang, Zhian Zheng, Andi Chen, Shanyu Wang, Yiyao Xu
- d.5 - **2100188 Online Detection of Abnormal Chicken Manure Based on Machine Vision** Presented by: Min Zhou China Agricultural University, Beijing China; Min Zhou, Junhui Zhu

- d.6 - **2100295 Accurate Conversion Method of Surface Bruise Size in On-Line Detection of Spherical Fruit**
Presented by: Yankun Peng China Agricultural University, Beijing China; Le Liu, Yankun Peng, Long Li
- d.7 - **2100322 Acquiring Navigation Deviation in Farmland by Fusing Satellite and Visual Information**
Presented by: Zenghong Ma Zhejiang Sci-Tech University, Hangzhou Zhejiang China; Cheng Yin, Zenghong Ma, Zeyi Tao, Xiaoqiang Du, Guofeng Zhang
- d.8 - **2100318 Extracting Picking Point of Single Ripe Tomato in Clustering Tomatoes Based on Deep Learning and Ellipse Fitting** Presented by: Xiaoqiang Du Zhejiang Sci-Tech University, Hangzhou Zhejiang China; Zhichao Meng, Zenghong Ma, Pengcheng Wang, Leiying He, Xiaoqiang Du, Chuanyu Wu
- d.9 - **2100332 Visual Acquisition Algorithm of Current Crop Location Information for Intra-Row Weeding Control in Paddy Fields** Presented by: Xiaoqiang Du Zhejiang Sci-tech University, Hangzhou Zhejiang China; Zhuolin Li, Zeyi Tao, Zenghong Ma, Xiaoqiang Du, Chuanyu Wu
- d.10 - **2100237 Object Detection Technique Applied to Cattle Production Sites - Identifying Individual Japanese Black Cows** Presented by: Shinsuke Konno Iwate University, Tsuruoka Yamagata Japan; Shinsuke Konno, Tomohiro Mori, Kenichi Horiguchi, Mitsuhiko Katahira
- d.11 - **2100498 Image-Patch Classification-Based Tillage Region Detection for Autonomous Tractor** Presented by: Dae-Hyun Lee Chungnam National University, Daejeon Daejeon South Korea; Wan-Soo Kim, Hyeon-Ho Jeon, Kyeong-Min Kang, Yong-Joo Kim, Dae-Hyun Lee
- d.12 - **2100760 Dataset Creation for Potato Plant Disease Detection and Classification using a Camera Mounted on a Sprayer** Presented by: Imran Hassan Dalhousie University, Halifax Nova Scotia Canada; Imran Hassan, Ahmad Al-Mallahi, Humphrey Maambo
- d.13 - **2100804 Weed Classification using Machine Learning and Deep Learning Models** Presented by: Harsh Pathak North Dakota State University, Fargo North Dakota; Harsh Pathak, C. Igathinathane, Kirk Howatt
- d.14 - **2100178 Weed Identification using Hyperspectral Imaging Technology under Greenhouse Environment**
Presented by: Mohammed Raju Ahmed North Dakota State University, Fargo North Dakota; Mohammed Raju Ahmed, Zhang Yu, Billy Ram, Austin Eide, Xin Sun
- e.1 - **2100300 Nondestructive Rapid Detection of Quality Parameters of Chilled Ham Based on Visible/Near Infrared and Hyperspectral Imaging Technology** Presented by: Qinghui Guo China Agricultural University, Beijing Haidian China; Renhong Zhao, Yankun Peng, Qibin Zhuang, Qinghui Guo, Fachao Jiang
- e.2 - **2100302 Nondestructive Detection of Pork Fat Content Based on Hyperspectral Spectroscopy** Presented by: Qinghui Guo China Agricultural University, Beijing Haidian China; Yang Li, Yankun Peng, Yongyu Li, Qibin Zhuang, Qinghui Guo
- e.3 - **2100626 Rapid Determination of Ofloxacin Residues in Honey by Surface-Enhanced Raman Spectroscopy**
Presented by: Yan Shuai China Agricultural University, Beijing Haidian China; Yan Shuai, Li Yongyu, Peng Yankun, Ma Shaojin
- e.4 - **2101066 Brand Classification and Storage Time Prediction of Commercial Infant Milk Formula using NIR Spectroscopy and Chemometrics** Presented by: Renxi Kang University College Dublin, Dublin Dublin Ireland; Renxi Kang, Xiao Wang, Lisa E. Henihan, Colm P. O'Donnell
- e.5 - **2100524 Using LiDAR to Measure Alfalfa Canopy Height** Presented by: Tucker Sheffield University of Kentucky, Lexington Kentucky; Tucker Sheffield, Joseph Dvorak, Cynthia Arnold, Bo Smith

- e.6 - **2100636 Evaluation of Machine Learning Methods for Relating UV/Vis Absorbance Spectra to Water Quality Parameters** Presented by: Joe Carter University of Florida, Gainesville Florida; Joe Carter, Eban Bean, and Aditya Singh
- e.7 - **2100335 Effects of Different Pretreatment and Modeling Methods on Soil Moisture Content Detected by Near Infrared Spectroscopy** Presented by: Ke He China Agricultural University, Beijing Haidian China; Xin Gao, Bing Lu, Ke He, Xiuying Tang
- e.8 - **2100815 Deep Learning Artificial Neural Networks for Detection of Fruit Maturity Stage in Wild Blueberries** Presented by: Craig MacEachern Dalhousie University, Truro Nova Scotia Canada; Craig MacEachern, Travis Esau, Arnold Schumann, Patrick Hennessy, Qamar Zaman
- e.9 - **2100824 Precision Livestock Farming Big Data (PLFBD): Physiological and Environmental Data** Presented by: Hugo Milan Sao Paulo State University, Jaboticabal Sao Paulo Brazil; Hugo Milan, Ales SC Maia, Cintia CM Costa, Michel T Gorczyca, Gustavo AB Moura, Patric A Castro, Kristen M Perano, Vinicius FC Fonseca, Bharath Hariharan, Marcos Chiquitelli Neto, Kifle G Gebremedhin
- e.10 - **2100599 Big Data in Agriculture: A Review** Presented by: Harsh Pathak North Dakota State University, Fargo North Dakota; Harsh Pathak, C. Igathinathane, Oveis Hassanijalilian
- e.11 - **2100545 Assessing the Impact of Agriculture Operations on Quality of Data from Sensor Arrays in a Controlled Environment Plant Production System** Presented by: Jean Pompeo University of Florida, Gainesville Florida; Jean Paul Pompeo, Ziwen Yu, Ying Zhang, Chi Zhang, Songzi Wu
- e.12 - **2100274 A Multi-Crop Model for Optimal Machinery and Grain Transportation in Distributed Farm Systems** Presented by: Chelsea Peterson University of Illinois, Urbana Illinois; Peterson, C. M., Spranger Correia de Oliveira, A. P., Uen, T-S., Rodriguez, L. F., Solomon, S. G., Sowers, R. B.
- f.1 - **2100980 Development and Testing of an Active Remote Sensor-Based Nitrogen Application System Integrated with a Lateral Move Irrigation System** Presented by: Stewart Bell Clemson University, Clemson South Carolina; Stewart Bell, Bulent Koc, Joe Maja, Jose Payero, Michael Marshall, Ahmed Khalilian
- f.2 - **2100552 Multisource Remote Sensing Field Monitoring for Improving Crop Production Management** Presented by: Yanbo Huang USDA ARS GSARU, Mississippi State Mississippi; Yanbo Huang, Gary Feng, Haile Tewolde
- f.3 - **2100752 An Algorithm to Control Camera Power Mounted on Sprayer for on-the-go Imaging System using Image Subtraction Method** Presented by: Mozammel Bin Motalab Dalhousie University, Truro Nova Scotia Canada; Mozammel Bin Motalab, Ahmad Al-Mallahi
- f.4 - **2100789 Design and Test of Closed-Loop Fertilizer Control System Based on PID** Presented by: Yihao Liu CAAMS, Beijing China; Yihao Liu, Hui Wang, Liming Zhou, Huijuan Bai, Lili Wang, Hanlu Jiang, Gaoyong Xing
- f.5 - **2100844 Design of Electrodes and a Cascade of Microfluidic Channels for Dielectrophoresis-Based Water Purifying Device** Presented by: Dongsu Kim Seoul National University, Gwanak-Gu Seoul South Korea; Dongsu Kim, Sang-ik Lee, Jonghyuk Lee, Youngjoon Jeong, Byunghun Seo, Yejin Seo, Won Choi
- f.6 - **2100785 Mobile Robot Platform Configuration for Validation of Autonomous Agricultural Vehicle: Localization, Navigation and Tracking** Presented by: Changho Yun Seoul National University, Seoul South Korea; Changho Yun, Hak-jin Kim, Chan-Woo Jeon, Minseok Gang, Seung-jin Park, Ye Been Hwang, Heechang Moon

f.7 - 2100696 Development of Sensor System for the Internet of Things (IoT)-based Automated In-Field Monitoring to Support Crop Improvement Programs Presented by: Worasit Sangjan Washington State University, Pullman Washington; Worasit Sangjan, Arron H. Carter, Michael O. Pumphrey, Vadim Jitkov, Sindhuja Sankaran

Instructional Case Studies with Data Sets for YOUR Instruction

Live Session

Organized by: Dennis Buckmaster

Session Moderator: Dennis Buckmaster

Sponsoring committee(s): ITSC-254 Emerging Information Systems, EOPD-203 Undergraduate & Graduate Instruction

Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

2101305 Two-Week Introductory Python Module Presented by: James Krogmeier Purdue University

2101306 Geographic Information Systems Instruction Presented by: Dharmendra Saraswat Purdue University

2101307 Generating Value of Soil Nutrient Data by Creating Prescription Maps with Open-Source and Farming Specific Software Presented by: Alex McLemore Abraham Baldwin Agriculture College

2101308 Interpreting Tractor Performance Data Presented by: Matthew Digman University of Wisconsin - Madison

2101309 Modeling Disease Outbreak: Combining Observed Data and Theory Presented by: Amy Kaleita Iowa State University

2101310 Analysis of Bale Compression Data to Quantify Energy Consumption Presented by: Megan Marshall Penn State University

Machine Learning and Data Science for Big Data in Agriculture and Natural Resources

Simulated Live Session

Organized by: Zhou Zhang

Session Moderator: Zhou Zhang

Sponsoring committee(s): ITSC-254 Emerging Information Systems, NRES-21 Hydrology Group

Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

2100871 Assessment of the Spatial and Temporal Patterns of Cover Cropping Practices in the Western Lake Erie Basin Presented by: Kushal KC The Ohio State University, Columbus Ohio; Kushal KC, Sami Khanal

2100683 Cloud Compute Enabled High Resolution ET Mapping for Grapevine Irrigation Management Presented by: Abhilash Chandel Washington State University, Prosser Washington; Basavaraj Amogi, Lav Khot, Troy Peters, Claudio Stockle, Abhilash Chandel

2100685 Decision-Support System for Precision Irrigation in Vineyards Presented by: Chenchen Kang Washington State University, Prosser Washington; Chenchen Kang, Manoj Karkee, Qin Zhang, Markus Keller, Troy Peters, Rosbelys Geraldine Diverres Naranjo, Sushma Thapa

2100291 Identifying Tomato Diseases from Leaf Images Using Deep Convolutional Neural Networks Presented by: Hsueh-Hung Cheng National Taiwan University, Taipei Taiwan; Hsueh-Hung Cheng, Yu-Lun Dai, Chu-Ping Lin, Jin-Hsing Huang, Shih-Fang Chen, Yan-Fu Kuo

2100793 Linking Historical Drought Severity and Drought Awareness from Big Data-Driven Google Trends Presented by: Seung-Beom Woo Hankyong National University, Anseong Gyeonggi-do South Korea; Seung-Beom Woo, Won-Ho Nam

2101082 Machine Learning Methods for Predicting Site-Specific Profitability from Sensor-Based Nitrogen Applications Presented by: Chunxia (Chelsea) Wu University of Nebraska-Lincoln, Lincoln Nebraska; Chunxia Wu, Joe Luck, Laura Thompson, Laila Puntel, Samantha Teten

2100885 Ranch Forage Prediction Web Tool Presented by: Subhashree Navaneetha Srinivasagan North Dakota State University, Fargo North Dakota; Igathinathane Cannayen, John Hendrickson, David Archer, Mark Liebig, Jonathan Halvorson, Scott Kronberg, David Toledo, Subhashree Navaneetha Srinivasagan

2100500 Soybean Variety Selection using UAV High-Throughput Phenotyping and Deep Learning Presented by: Jing Zhou University of Missouri, Columbia, Columbia Missouri; Jing Zhou, Jianfeng Zhou, Andrew Scaboo, Dennis Yungbluth, Pengyin Chen, Henry Nguyen

2100085 Forecasting County-level Corn Yields Using Multi-source Remote Sensing Data and Bayesian Neural Network Presented by: Zhou Zhang University of Wisconsin-Madison, Madison Wisconsin; Yuchi Ma, Zhou Zhang, Yanghui Kang, Mutlu Ozdogan

Machine Vision for Agriculture and Food Processing

Lightning Session

Organized by: Young K. Chang

Session Moderator: Young K. Chang

Sponsoring committee(s): ITSC-312 Machine Vision

Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

2100259 SoyMonitoringNet: A Deep Convolutional Neural Network Based Image Processing Framework for Monitoring the Growth of Soybean Crops Presented by: Nipuna Chamara A. H. M. University of Nebraska, Lincoln Nebraska; Nipuna Chamara, Khalid Alkady, Hongyu Jin, Frank Bai, Ashok Samal, Yufeng Ge

2100870 Application of Convolutional Neural Networks on the Development of Plant-Parasitic Nematode Image Identification System Presented by: Yu-Tang Chang National Taiwan University, Taipei Taiwan; Hsien-Hua Lai, Yu-Tang Chang, Jiue-In Yang, Shih-Fang Chen

2100605 Automated Size Measurement and Weight Estimation Of Grass Carp in Bending State Based on Computer Vision Presented by: Congcong Lee Zhejiang University, Hangzhou Zhejiang China; Congcong Li, Jianping Li, Songming Zhu

2100437 Tree-based Deep Convolutional Neural Network for Hierarchical Identification of Low-resolution Insect Images Presented by: Dan Jeric Arcega Rustia National Taiwan University, Taipei Taiwan; Dan Jeric Arcega Rustia, Ya-Fang Wu, Pei-Yu Shih, Sheng-Kuan Chen, Jui-Yung Chung, Ta-Te Lin

2100458 Automatic Postharvest Strawberry Bruise Detection Using Deep Learning Presented by: Xue Zhou University of Florida, Gainesville Florida; Xue Zhou, Yiannis Ampatzidis, Won Suk Lee, Shinsuke Agehara

2100493 Prediction of Citrus Yield With AI Using Ground-Based Fruit Detection and UAV Imagery Presented by: Vinay Vijayakumar University of Florida, Immokalee Florida; Vinay Vijayakumar, Lucas Costa, Yiannis Ampatzidis

2100495 Citrus Fruit Maturity Prediction Utilizing UAV Multispectral Imaging and Machine Learning Presented by: Israel Ojo University of Florida, Immokalee Florida; Israel Ojo, Lucas Costa, Yiannis Ampatzidis, Fernando Alferez, Sanjay Shukla

2100770 Macadamia Kernel Oil Content Prediction using Hyperspectral Imaging Technique Presented by: Chayan Kumer Saha Bangladesh Agricultural University, Mymensingh Bangladesh Bangladesh; Anisur Rahman, Shuai Wang, Md Monjurul Alam, Chayan Kumer Saha, Huirong Xu

2100557 Lightweight Cow Face Recognition Algorithm Based on Few-Shot Learning for Edge Computing and IoT Applications Presented by: Chen Yue Shao National Taiwan University, Taipei Taiwan; Yue-Shao Chen, Cheng-Yu Kuan, Jih-Tay Hsu, Ta-Te Lin

2100386 Identification of Newt Contacts Utilizing Machine Vision Techniques Presented by: McKensie Nelms The University of Tennessee Knoxville, Knoxville Tennessee; McKensie Nelms, Matthew Gray, Hao Gan

2100727 Monitoring Dimensional and Pigmental Changes in Different Wheat Varieties Stored at Different Moisture Levels Presented by: Bababode Kehinde University of Kentucky, Lexington Kentucky; Bababode Adesegun Kehinde, Michael Montross, Michael Sama, Sam McNeill

2100912 Imaging Durum Wheat Kernels to Quantify Vitreousness Presented by: Daniel Brabec USDA-ARS-CGAHR, Manhattan Kansas; Daniel Brabec, Lester Pordesimo

Machine Vision for Precision Agriculture and Robotics

Simulated Live Session

Organized by: Dana Choi

Session Moderator: Dana Choi

Sponsoring committee(s): ITSC-312 Machine Vision, MS-54 Precision Agriculture

Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

2100315 A Monocular Distance Measurement Method of Orange Based on the Changes of Target Pixels Presented by: Jie Liu Huazhong Agricultural University, Wuhan Hubei China; Yan Li, Yingqi Li, Dingke Li, Dianzhuo Zhou, Jie Liu

2100347 Development of a Seed Treatment Technique for Automatic Identification of Soybean Plants Presented by: Wen-Hao Su China Agricultural University, Beijing China; Ji Sheng, Qing-Yang Huang, Wen-Hao Su

2100422 Detection of Apples in Orchard Using Deep Neural Network with Single and Multiple Cameras Presented by: Pengyu Chu Michigan State University, East Lansing Michigan; Pengyu Chu, Kyle Lammers, Zhaojian Li, Renfu Lu

2100519 Robotic Rehang with Machine Vision Presented by: Konrad Ahlin Georgia Tech Research Institute, Atlanta Georgia; Tevon Walker, Konrad Jeffrey Ahlin, Benjamin Joffe

2100539 Autonomous Smart Sprayer for Precision Weed Management Using Machine Vision and AI Presented by: Vinay Vijayakumar University of Florida, Immokalee Florida; Victor Partel, Yiannis Ampatzidis, Abhisesh Silwal, George Kantor, Vinay Vijayakumar

2100607 Deep Learning Based Semantic Segmentation for Automated Pruning of Apple Trees Presented by: Yi Wei China Agricultural University, Beijing China; Jun Qian, Yi Wei, Shaochun Ma, Yujian Xin, Jiwei Hu, Zhengling Ding, Fenglei Wang

2100759 Real-time Weed Detection and Removal Using Deep Learning and Laser Presented by: Canicius Mwitta University of Georgia, Tifton Georgia; Glen Rains, Canicius Mwitta

2100843 Graph Neural Networks for Plant Organ Tracking Presented by: Daniel Petti University of Georgia, Athens Georgia; Daniel Petti, Changying Li

2101080 Infield Peanut Pod Counting using Deep Neural Networks for Yield Estimation Presented by: Rafael Bidese Puhl Auburn University, Auburn Alabama; Rafael Bidese, Yin Bao, Alvaro Sanz-Saez, Charles Chen

2101121 Developing Deep Learning Object Detector Models using Synthetically-Generated Data to Detect Livestock in Images and Videos Presented by: Armin Moghadam San Jose State University, San Jose California; Armin Moghadam, Joshua Peschel

Mechatronics in UAVs

Lightning Session

Organized by: Yiannis Ampatzidis

Session Moderator: Hemanth Dakshinamurthy

Sponsoring committee(s): ITSC-318 Mechatronics & Biorobotics

Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

2100894 Automated Soil Moisture Content Measurement Using Unpiloted Aerial Vehicles Presented by: Hemanth Narayan Dakshinamurthy North Carolina State University, Raleigh North Carolina; Sierra Young, Hemanth Narayan Dakshinamurthy

2101047 Unmanned Aerial Vehicle Data Mule over a Sensor Node Station Network in Maize and Soybean Presented by: Jasreman Singh University of Nebraska-Lincoln, Lincoln Nebraska; Jasreman Singh, Yufeng Ge, Derek Heeren, Geng Bai, Christopher Neale, Wayne Woldt, Mitchell Maguire, Suresh Kashyap

2101023 Development of Image-based Data Processing Methods for UAVs in Peanut and Cotton Production Presented by: Wade Young Oklahoma State University, Stillwater Oklahoma; Wade Young, John M. Long, Rebecca Bennett, Ning Wang, Paul Weckler

2101169 Crop Health Variability Assessment of Cover Crop Integrated Soybean Based on Aerial Imagery Presented by: Peter Larbi University of California, Parlier California; Peter Ako Larbi, John Rupe

2100474 UAV-based Orchard 3D Mapping and Estimation of Photosynthetically Active Radiation (PAR) for Almond Potential Yield Forecasting Presented by: Xin Zhang University of California, Davis, Davis California; Xin Zhang, Alireza Pourreza, Kyle Cheung, German Zuniga-Ramirez, Hamid Jafarbiglu, Bruce Lampinen, Kenneth Shackel

2100499 Selection of Soybean Progeny Lines using Transferred Yield Estimation Models Based on UAV Imagery and Deep Learning Presented by: Jing Zhou University of Missouri, Columbia, Columbia Missouri; Jing Zhou, Jianfeng Zhou, Andrew Scaboo, Dennis Yungbluth, Pengyin Chen, Henry Nguyen

2100556 An Unmanned Aerial Vehicle for Greenhouse Navigation and Video-Based Tomato Phenotypic Data Collection Presented by: Jing Heng Lin National Taiwan University, Taipei Taiwan; Jing Heng Lin, Ta-Te Lin

2101185 The Tethered Aircraft Unmanned System (TAUS) Operational Performance Validation for a Reliable Deployment Sensing Atmospheric Variables Presented by: Daniel Rico University of Nebraska - Lincoln, Omaha Nebraska; Daniel Rico, Carrick Detweiler, Francisco Munoz-Arriola

2100966 Evaluation of a Spraying UAV for Precision Weed Management Presented by: Cengiz Koparan North Dakota State University, Fargo North Dakota; Cengiz Koparan, Billy Ram, Kelvin Betitame, Yu Zhang, Xin Sun

2100571 Evaluation of Semantic Segmentation for Assessing Accuracy of Weed Identification at Different Growth Stages Based on UAS Imagery Presented by: Varun Aggarwal Purdue University, West Lafayette Indiana; Dharmendra Saraswat, Varun Aggarwal

Robotics and Co-Robotics for Agriculture and Natural Resources

Simulated Live Session

Organized by: Santosh Pitla

Session Moderator: Peyman Nematzadeh

Sponsoring committee(s): ITSC-318 Mechatronics & Biorobotics, ITSC-312 Machine Vision

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2100102 Orchard SLAM Using Row Based Loop Closure and Skeleton Topological Row Map Presented by: Zhenghao Fei University of California, Davis, Davis California; Chen Peng, Stavros Vougioukas, Zhenghao Fei

2100107 Digitalizing and Controlling a Conventional Tractor for Autonomous Farming Work Presented by: Hao Wang Beijing Research Center of IEA, Beijing China; Hao Wang, Yaxin Ren, Wei Qiang Fu, Zhijun Meng

2100340 Navigation Path Detection of Mobile Harvesting Robot in Spindle Orchard Presented by: Guangrui Hu Northwest A&F University, Yangling Shaanxi China; Guangrui Hu, Jun Chen

2100506 Online Trajectory Generation for Obstacle Avoidance for Mobile Robots in Orchards Presented by: Chen Peng University of California, Davis, Davis California; Zhenghao Fei, Stavros Vougioukas, Chen Peng

2100985 3D Camera-Based Autonomous Navigation System for Row Crop Production Presented by: Austin Pickering Oklahoma State University, Stillwater Oklahoma; Austin Pickering, Garrett Aranda, Ning Wang, John M. Long, Paul Weckler

2100788 Development of the Integrated Control System for an Intelligent Agricultural Vehicle Presented by: Wonjae Cho Institute of Agricultural Machinery, Tsukuba Ibaraki Japan; Wonjae Cho, Kazunobu Hayashi, Yusuke Takahashi, Nang Nguyen Van, Kota Motobayashi

Spectroscopic Sensing and Imaging of Soil, Plant and Agriculture Produce

Lightning Session

Organized by: Shih-Fang Chen

Session Moderator: Shih-Fang Chen

Sponsoring committee(s): ITSC-348 Electromagnetics & Spectroscopy

Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

2100298 Detection of Salbutamol in Fresh Muscle Based on Solid SERS Substrate Presented by: Qinghui Guo China Agricultural University, Beijing Haidian China; Wenlong Zou, Yankun Peng, Qinghui Guo, Deyong Yang, Kuanglin Chao

2101041 Quality and Shelf-Life Determination of Strawberries Using Hyperspectral Imaging Presented by: Colm O'Donnell University College Dublin, Dublin Ireland Ireland; Anastasia Ktenioudaki, Carlos Esquerre, Maria Cecilia do Nascimento Nunes, Colm O'Donnell

2100865 Development of Convolutional Neural Network Based Models for the Prediction of Specialty Coffee Aroma Using Gas Chromatography-Mass Spectrometry Presented by: Tzu-Kuan Yu National Taiwan University, Taipei Taiwan; Meng-Chien Hsueh, Tzu-Kuan Yu, Yu-Tang Chang, Shu-Pin Hung, Juin-Ming Lu, Jia-Hung Peng, Shih-Fang Chen

2100609 Determination of Perchlorate in Tea using SERS With Cysteine-Modified Silver Film/Polydimethylsiloxane Substrate Presented by: Ping Chen Jiangsu University, Zhenjiang Jiangsu China; Zhiming Guo, Ping Chen, Mingming Wang, Alberta Osei Barimah, Quansheng Chen, Hesham R. El-Seedi, Xiaobo Zou

2100818 Transfer of a Calibration Model From a Benchtop to a Handheld NIR Spectrometer to Predict Nitrogen Content of Warm-Season Forage Presented by: Isaac Rukundo University of Nebraska-Lincoln, Lincoln Nebraska; Isaac R. Rukundo, Mary-Grace C. Danao, Robert B. Mitchell, Curtis L. Weller

2100922 Development of a Low-cost Micro-spectrometer for Assessing Plant Nutrient Status and Monitoring Responses to Stresses. Presented by: Varun Puri University of Florida, Gainesville Florida; Varun Puri, Stephen Lantin, Naqeeb Cahacci, Aditya Singh

2100323 A Portable Device up with Finger-tip Sized Spectrometer to Apple Quality Determination Presented by: Hao Li Northwest A&F University, Xian Shaanxi China; Li Hao, Shen Maosheng, Zhao Juan

2100329 An Automatic FluoSpec 2 System for Measuring Canopy Solar-Induced Chlorophyll Fluorescence in the Field for Long-Term Presented by: Li Zhai Zhejiang university, hangzhou Zhejiang China; Li Zhai, Lei Zhou, Zhengjun Qiu, Haiyan Cen

2100287 Ripeness Classification Of Oil Palm Fresh Fruit Bunches Using Optical Spectrometer And Support Vector Machine Presented by: Goh Jia Quan Universiti Putra Malaysia, Serdang Selangor Malaysia; Goh Jia Quan, Abdul Rashid Bin Mohamed Shariff, Nazmi Mat Nawi

2100325 Study on Quality Model of Apple During Controlled Atmosphere Storage Based on VIS/NIR Spectroscopy Presented by: Maosheng Shen Northwest A&F University, Xian Shaanxi; M.S. Shen, H. Li, B. Zhang, M.S. Zhang, Y.G. Pu, A. Chen, J. Zhao

2101165 Retrieve Leaf Water and Nitrogen Status from VIS–NIR–SWIR Spectroscopy: Potential of a Hybrid Inversion Method Presented by: Jiating Li University of Nebraska-Lincoln, Lincoln Nebraska; Jiating Li, Nuwan Wijewardane, Yufeng Ge, Yeyin Shi

2100328 Nondestructive Detection of Moldy Core in Apples Based on One-dimensional Convolutional Neural Networks Presented by: Zhongxiong Zhang Northwest A&F University, Yangling Shannxi China; Z.Z. Zhang, H.L. Liu, B. Li, Y.G. Pu, J. Zhao, J. Hu

Tools and Technology for High Throughput Phenotyping

Lightning Session

Organized by: Sindhuja Sankaran

Session Moderator: Sindhuja Sankaran

Sponsoring committee(s):

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2100681 Canopy Segmentation of Ground-Based Images for Nitrogen Stress Detection in Cotton Presented by: Vaishali Swaminathan Texas A&M University, College Station Texas; Vaishali Swaminathan, J Alex Thomasson, Nithya Rajan

2100174 Seed Phenotyping on Neural Networks using Domain Randomization and Transfer Learning Presented by: Venkata Siva Kumar Margapuri Kansas State University, Manhattan Kansas; Venkat Margapuri, Mitchell Neilsen

2100942 A Video Processing Pipeline for Equine Biomechanical Parameters Extraction and Gait Analysis Presented by: Vinika Gupta Auburn University, Auburn Alabama; Vinika Gupta, Ariana West, Yin Bao, Samantha Brooks, Elizabeth Staiger

2101119 A Drone Imaging Application to Monitor Black Cherry Flowering and Regeneration in Alleghany National Forest in Pennsylvania Presented by: Tyler Reimer The Pennsylvania State University, State College Pennsylvania; Dana Choi, Tyler Reimer

2100784 Solutions to Detect and Extract Plot Level Data from Field Trials using UASS Imagery to Support High throughput Phenotyping – A Review Presented by: Nitin Rai North Dakota State University, Fargo North Dakota; Nitin Rai, J. Paulo Flores

2100695 Pasture Productivity Assessment under Mob Grazing and Fertility Management using Remote Sensing Techniques Presented by: Worasit Sangjan Washington State University, Pullman Washington; Worasit Sangjan, Lynne Carpenter-Boggs, Tipton D. Hudson, Sindhuja Sankaran

2100316 Characteristics in Cotton Canopy Temperature under Various Soil Conditions at Different Growth Stages Using UAV-Based Thermal Imagery Presented by: Aijing Feng University of Missouri, Columbia Missouri; Aijing Feng, Jianfeng Zhou, Earl Vories, Kenneth A. Sudduth

2100148 Sun-Induced Chlorophyll Fluorescence Spectral Indices: A Potential Way to Estimate Leaf Photosynthetic Pigments Presented by: Yu'an Zhou Zhejiang University, Hangzhou Zhejiang Province China; Yu'an Zhou, Liang Wan, Shuobo Chen, Haiyan Cen

2100872 Application of Region-based Convolution Neural Network on Tea Diseases and Harming Insects Identification Presented by: Chuan-Che Lin National Taiwan University, Taipei Taiwan; Xue-Ming Chen, Chuan-Che Lin, Shiou-Ruei Lin, Shih-Fang Chen

MS - Machinery Systems

Advances in Cotton Engineering

Lightning Session

Organized by: Jason Ward

Session Moderator: Jason Ward

Sponsoring committee(s): MS-23/7/3 Cotton Engineering

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2100116 *Lighting Independent Detection of In-Field Plastic Contamination* Presented by: Mathew Pelletier
USDA-ARS, Lubbock Texas; John D. Wanjura, Greg A. Holt, Mathew Pelletier

2100622 *Utilization and Processing of John Deere's Harvest Identification (HID) Data* Presented by: Luke
Fuhrer University of Georgia, Tifton Georgia; Wesley Porter, Edward Barnes, Kyle Johnsen, Luke Fuhrer

2100450 *Testing of Commercial Cottonseed Delinting Prototype - Phase 1* Presented by: Greg Holt USDA-ARS,
Lubbock Texas; John Wanjura, Mathew Pelletier, Tom Wedegaertner, Greg Holt

2101173 *Evaluating Soil Electrical Conductivity to Assess Cotton Planting Parameters in Fields with High Variability* Presented by: John Long Oklahoma State University, Stillwater Oklahoma; Gavin McCullough, Seth Byrd,
John Long

2100731 *Real-Time Calibrated Cotton Yield Monitor* Presented by: Jianing He Texas A&M University, Rockford
Michigan; J. Alex Thomasson, Ruixiu Sui, John Wanjura, Mathew Pelletier, Jianing He

2101054 *Performance Evaluation of a Plastic Removal System for a Cotton Gin Module Feeder* Presented by:
Adeyemi Adeleke Texas A & M University, College Station Texas; Adeyemi A. Adeleke, Robert Hardin IV, Mathew
Pelletier

2101087 *Improving the Performance of the GoldenLion Contamination Cleaner* Presented by: Derek Whitelock
USDA-ARS SW Cotton Ginning Research Lab, Las Cruces New Mexico; Paul Funk, Carlos Armijo, Derek Whitelock

2101152 *Development of a Machine-Vision Guided Cover Damage Detection System for Round Cotton Modules*
Presented by: Md Zafar Iqbal Texas A&M University, College Station Texas; Md Zafar Iqbal, Robert G. Hardin, Tianyi
Wang, Jason K. Ward, John D. Wanjura

2100472 *Evaluation of Foreign Matter Content and Fiber Quality Between Conventional Basket and Round Module Building Pickers - Project Update* Presented by: John Wanjura USDA ARS CPPRU, Lubbock Texas; Greg
Holt, Mathew Pelletier, John Wanjura

Advances in Soil-Plant-Machine Dynamics and Systems Simulation I

Simulated Live Session

Organized by: Thomas Way

Session Moderator: Thomas Way

Sponsoring committee(s): MS-45 Soil-Plant-Machine Dynamics

Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

2100010 *Single-Tire Testing on an Artificial Soil Mix To Validate Motion Resistance Ratio Models* Presented by:
Mehari Tekeste Iowa State University, Ames Iowa; Mehari Tekeste, Matthew Schramm, Brian Steward, Thomas
Way

2100223 *Bionic Design of Sandfish (Scincus scincus) Head Inspired Subsoiler Tine and Its Performance Evaluation by DEM* Presented by: Zhihong Zhang Kunming University of Science and Technology, Kunming Yunnan
China; Zhihong Zhang, Shuaihui Gan, Guobiao Zuo, Liangliang Zhao, Zhaoyang Chen, Stephen Carr

2100330 Structural Design and Test of Outlet on Deep Fertilizer Shovel of Combined Precision Rape Seeder Presented by: Jie Liu Huazhong Agriculture University, Wuhan Hubei China; Liping Gao, Yitao Liao, Qingxi Liao, Jie Liu, Hui Chen

2100553 Analysis of Traction Performance of the Electric Tractor by Performing Traction Test Presented by: Seungyun Baek Chungnam National University, Daejeon South Korea; Seung-Yun Baek, Yong-Joo Kim

2100578 Corn Emergence and Grain Yield Impacts of Large Central Fill Planters Equipped with Wing Downforce Presented by: Andrew Klopfenstein The Ohio State University, Columbus Ohio; Ryan Tietje, Chris Wiegman, Elizabeth Hawkins, John Fulton, Scott Shearer, Andrew Klopfenstein

2100823 Analysis of Tire Pressure Influence on Contact Area and Productivity Presented by: Jason Schuster John Deere, Waterloo Iowa; Jason Schuster

2100040 Tractor and Central-Fill Planter Tire Inflation Pressure Effects on Corn Yield and Soil Physical Properties Presented by: Mehari Tekeste Iowa State University, Ames Iowa; Mehari Tekeste, Thomas Way, Mark Hanna, Sally Brodbeck, Brad Harris, Kenneth Brodbeck

2100889 Evaluation of Soil-Tire Interface Pressure Distribution and Contact Area from Various Tire/track Technologies and Configurations Presented by: Md Rayhan Shaheb The Ohio State University, Columbus Ohio; Md. Rayhan Shaheb, Andrew Klopfenstein, Ryan W. Tietje, Christopher R. Wiegman, Claudia Di Dio, Alberto Scarfagna, Kevin Herink, Norberto Herbener, Scott A. Shearer

2100822 Analysis on Yaw Rate of Agricultural Tractor during Plow Tillage Operation Presented by: Hyeon Ho Jeon Chungnam National University, Gung Dong, Yu Seong Gu Dae Jeon South Korea; Hyeon-Ho Jeon, Nam-Gyu Lee, Wan-Soo Kim, Yong-Joo Kim

2101101 Tractive Performance of Rubber Track and MFWD Tractors Presented by: Thomas Way USDA-ARS NSDL, Auburn Alabama; Thomas R. Way, Mehari Tekeste

Advances in Soil-Plant-Machine Dynamics and Systems Simulation II

Lightning Session

Organized by: Thomas Way

Session Moderator: Thomas Way

Sponsoring committee(s): MS-45 Soil-Plant-Machine Dynamics, MS-54 Precision Agriculture, MS-58

Agricultural Equipment Automation

Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

2101021 Challenges and Opportunities of Active Sensor-Based Nitrogen Management in Maize Presented by: Samantha Teten University of Nebraska - Lincoln, Lincoln Nebraska; Joe Luck, Tyler Smith, Laura Thompson, Laila Puntel, Chunxia (Chelsea) Wu, Smantha Teten

2100004 Investigating the Applicability of a Smartphone's LiDAR Technology for Porosity Determination of Vegetation for Wind Erosion Research Presented by: Howell Gonzales The Potomac HS - PGCPs, Oxon Hill Maryland; Howell Gonzales

2100444 Scalability of Yield Monitor Data for Supporting On-Farm Research Presented by: Alysia Gauci The Ohio State University, Columbus Ohio; A.A. Gauci, A. Lindsey, S.A. Shearer, D. Barker, E.M. Hawkins, J.P. Fulton

2100528 Remote Sensing and Precision Agriculture Technologies for Crop Disease Detection and Management Presented by: Chenghai Yang USDA-ARS, College Station Texas; Chenghai Yang

2100484 Remote-controlled Ground Penetrating Radar (GPR) for Tree Root Detection and Mapping Presented by: Sri Charan Kakarla University of Florida, Immokalee Florida; Sri Charan Kakarla, Jaafar Abdulridha, Yiannis Ampatzidis

2101011 Modeling Hard and Soft Field Boundaries and Crop Presence for Automatic In-Field Vehicle Routing Presented by: Joseph Dvorak University of Kentucky, Lexington Kentucky; Joseph Dvorak, Tucker Sheffield

2100890 Prediction of Fatigue Life for Tractor Transmission Spiral Bevel Gear using Torque Estimation Model during Tillage Operation Presented by: Wan-Soo Kim Chungnam National University, Daejeon South Korea; Wan-Soo Kim, Yong-Joo Kim

2100435 Development and Verification of Simulation Model for HMT of Agricultural Tractor Presented by: Seungmin Baek Chungnam National University, Daejeon South Korea; Seung-Min Baek, Wan-Soo Kim, Dae-Hyun Lee, Yong-Joo Kim

2100554 Fuel Efficiency Simulation of PST Tractor Based on Engine Throttle Level Presented by: Md Abu Ayub Siddique Chungnam National University, Daejeon South Korea; Seung-Min Baek, Wan-Soo Kim, Yong-Joo Kim, Dae-Hyun Lee, Md Abu Ayub

2100907 Modeling Off-Road Hybrid Hydro-Electro-Mechanical Powertrains Presented by: John Haughery Millersville University of Pennsylvania, Millersville Pennsylvania; John R Haughery, Brian L Steward, Saxon J Ryan, R Gallolu Kankanamalage

2100311 Applying Deep Learning for Tiller Detection by Field Robot in Rice Cultivation Presented by: Dhirendranath Singh UGAS, Iwate University, Tsurouka Yamagata Japan; Dhirendranath Singh, Shigeru Ichiura, Thanh Tung Nguyen, Mitsuhiko Katahira

2101016 Energy and Cost Analysis of Row Crop Machinery Presented by: Eric Kong Purdue University, West Lafayette Indiana; Eric Kong, John Evans, John Lumkes

Innovations in Precision Ag

Lightning Session

Organized by: Ajay Sharda

Session Moderator: Simerjeet Virk

Sponsoring committee(s): MS-54 Precision Agriculture, MS-58 Agricultural Equipment Automation, ITSC-353 Instrumentation & Controls

Scheduled day and time: Thursday, July 15 10:00am - 11:30am

2100559 Influence of Field-Specific Planned Driving Strategies on Turnaround Times Presented by: Heinz Bernhardt Technical University of Munich, Freising Bavaria Germany; Matthias Stettmer, Maximilian Treiber, Valentin Heizinger, Heinz Bernhardt

2100105 Development and Test of an RGB-D Camera-based Rock Detection System and Path Optimization Algorithm in an Indoor Environment Presented by: Jithin Mathew North Dakota State University, Fargo North Dakota; Jithin Mathew, Yu Zhang, Paulo Flores, Cannayen Igathinathane, Zhao Zhang

2100404 Comparing the Performance of Proximal and Remote Sensing for Hay Yield Estimation Presented by: Kyuho Lee University of Missouri, Columbia Missouri; Kenneth A. Sudduth, Jianfeng Zhou, Scott T. Drummond, Kyuho Lee

2101200 Variability of Gauge-Wheel Loads Resulting from a Hydraulic Downforce System and the Impacts on Corn Seeding Depth and Emergence Presented by: Luan Oliveira Auburn University, Auburn Alabama; Luan Oliveira, Brenda Ortiz, Rouverson Silva, Thomas Way, Mailson Oliveira, Greg Pate

2101167 *An in-Field, Automated Data Acquisition Method for Evaluating Bermudagrass (Cynodon Species)*

Qualities Presented by: Peyman Nematzadeh Oklahoma State University, Stillwater Oklahoma; Peyman Nematzadeh, Ning Wang, Austin Pickering, Yanqi Wu

2100616 *Planter Speed and Downforce as Components in Seed Uniformity, Emergence, and Final Yield in Corn and Peanut*

Presented by: Andrew Russell University of Georgia, Tifton Georgia; Andrew Russell, Wesley Porter, Simerjeet Virk, Pamela Sapp, Corey Bryant

2100943 *Evaluating Efficacy of in-Orchard Apple Sunburn Mitigation Techniques Using Crop Physiology Sensing System*

Presented by: Rakesh Ranjan Washington State University, Prosser Washington; Rakesh Ranjan, Basavaraj R. Amogi, Lav R. Khot, R. Troy Peters, Bernardita V. Sallato Camona

2101211 *Does the Applied Gauge-Wheel Loads Have Influence on Seeding Depth and Soil Structure?*

Presented by: Luan Oliveira Auburn University, Auburn Alabama; Luan Oliveira, Brenda Ortiz, Rouverson Silva, Thomas Way, Mailson Oliveira, Greg Pate

2100146 *Using Aerial Imagery Coupled with Machine and Deep Learning Algorithms to Assess Goss's Wilt Disease Severity in Corn*

Presented by: Anup Kumar Das North Dakota State University, Fargo North Dakota; Anup Kumar Das, Andrew Friskop, Paulo Flores, Cannayen Igathinathane, Jihin Mathew, Zhao Zhang

2101180 *Quantifying Real-Time Opening Disk Load to Assess Compaction and Potential for Planter Control*

Presented by: Ajay Sharda Kansas State University, Manhattan Kansas; Sylvester Badua, Braden Mishler, Ajay Sharda, Danial Flippo

2101174 *Quantifying Extent of Turn Compensation Technology Utilization on Planters for Corn Planting*

Presented by: Ajay Sharda Kansas State University, Manhattan Kansas; Braden Mishler, Sylvester Badua, Ajay Sharda, Daniel Flippo, Ignacio Ciampitti

Machinery Systems POSTER SESSION

Poster Session

Organized by: Bruce Hawkins

Session Moderator: Bruce Hawkins

Sponsoring committee(s): MS-01 POSTER SESSION

Scheduled day and time: Wednesday, July 14 10:00am - 11:30am; 1:00pm - 2:30pm

a.1 - **2100162 *Design and Optimization of King Grass Silage Harvesting Cutting Blade*** **Presented by:** Lu Zhu China Agricultural University, Beijing China; Zhulu

a.2 - **2100163 *Design and Optimization of King Grass Silage Harvesting Cutting Blade*** **Presented by:** Lu Zhu China Agricultural University, Beijing China; Lu Zhu, Decheng Wang, Yong You, Xuening Zhang

a.3 - **2100128 *On the Importance of Waste Heat Recovery and Utilization*** **Presented by:** Chong Li China Agricultural University, Beijing China; Chong Li, Jing Lin, Decheng Wang

a.4 - **2100906 *Agricultural Development and Machinery usage in Uzbekistan*** **Presented by:** Brian Steward Iowa State University, Ames Iowa; Mansur Amonov, Brian L Steward, Bakhadir Mirzaev

a.5 - **2100313 *A Grain Production System Analysis Towards Scalable Machine Systems*** **Presented by:** Niels Dybro University of Illinois, Muscatine Iowa; Niels Dybro, Cody Allen, Claus A.G. Sørensen, Tony E. Grift, Alan C. Hansen

a.6 - **2100492 *An Automated Delivery System for Therapeutic Materials Using Needle-Based Trunk Injection To Treat HLB Affected Citrus*** **Presented by:** Vinay Vijayakumar University of Florida, Immokalee Florida; Vinay Vijayakumar, Leigh Archer, Yiannis Ampatzidis, Ute Albrecht, Ozgur Batuman

- a.7 - **2100242 Household Forage Harvester** Presented by: Xiang Yuan China Agricultural University, Beijing China; Xiang Yuan, Decheng Wang, Jing Lin
- a.8 - **2100243 Analysis of Starch Gelatinization Characteristics by Rapid Viscometer** Presented by: Xiang Yuan China Agricultural University, Beijing China; Xiang Yuan, Decheng Wang, Haifeng Zhang
- a.9 - **2100168 Sensor Optimisation and the Design of a Scanning Platform for Electromagnetic Imaging of Defects over Large Plates** Presented by: Ziwen Guo China Agricultural University, Beijing China; Weihua Yang, Ziwen Guo
- a.10 - **2100327 Study on the Physical Properties of Mixture of Fertilizer Particles and Coniothyrium Minitans of Combined Precision** Presented by: Jie Liu Huazhong Agriculture University, Wuhan Hubei China; Yitao Liao, Liping Gao, Hui Chen, Qingxi Liao, Jie Liu
- a.11 - **2100370 Grassland Soil-Root Complex and its Research Methods** Presented by: Hong yi Lin China Agricultural University, Beijing China; Hongyi Lin, Xuening Zhang, Yong You, Decheng Wang
- a.12 - **2100339 Design and Experiment of an Automatic Separating and Embedding Machine for Rice Potted-Seedling Tray** Presented by: Tengfei Shen Zhejiang Sci-Tech University, Hangzhou City Zhejiang Province China; Zeqiang Sun, Xiaoqiang Du, Cheng Yin, Tengfei Shen, Yaxin Yu, Jianneng Chen
- b.1 - **2100011 Soil-To-Machine Testing and Simulation** Presented by: Mehari Tekeste Iowa State University, Ames Iowa; Mehari Tekeste
- b.2 - **2100778 Test and Analysis of Corn Threshing Performance Based on the Method of First Discretization and Then Threshing** Presented by: Shinsuke Xiong China Agricultural University, Beijing China; Yihao Liu, Shi Xiong, Huijuan Bai, Kang Niu, liming Zhou, Shenghe Bai, Xinping Li, Yazhou Wen
- b.3 - **2100391 The Design And Production Experiment of Grass Braiding Forming Machine with Adaptively Feeding Device** Presented by: Yuting Chen Beijing Institute of Graphic Communication, Beijing China; Shuai Li, Jiao Xu, Yingxue Li, Yuting Chen
- b.4 - **2100901 Analytical Modeling Soil Reaction Forces on Rotary Tiller** Presented by: Brian Steward Iowa State University, Ames Iowa; Bakhadir Mirzaev, Brian L. Steward, Farmon Mamatov, Mehari Tekeste, Mansur Amonov
- b.5 - **2100371 Design of Ditching Machine in Forage Plot** Presented by: Hong yi Lin China Agricultural University, Beijing China; Hongyi Lin, Yong You, Decheng Wang
- b.6 - **2100392 Performance Simulation of Seed Metering Device Based on Edem** Presented by: Hong yi Lin China Agricultural University, Beijing China; Hongyi Lin, Yong You, Decheng Wang
- b.7 - **2101083 Technical and Economic Feasibility of the Anticipated Hurl Fertilization in the Bean Sowing Line Considering Different Cropping Systems** Presented by: Carlos Volpato IFMG Instituto Federal de Minas Gerais, Betim Minas Gerais Brazil; Ronald Barbosa, Carlos Volpato, Marcia Amancio
- b.8 - **2101172 Design and Research on Electric Crawler Rotary Tillage and Ridging Integrated Operation Machine in Shed House** Presented by: Feng Xiaohui Hebei Agricultural University, Baoding Hebei Province China; Feng Xiaohui, Yi Jinggang, Wang Hainan, Ma Junyuan, Liu Huayang
- b.9 - **2101112 Simulating Optimization of Working Parameters of Stubble Breaking Device in Corn-Wheat Two Crops a Year Region in North China** Presented by: Xiuhua Zhang Hebei Agricultural university, Baoding Hebei China; Zhang Xiuhua, Wang Jingzheng, Lao Fuxing, Wang Jian, Yi Jinggang

- b.10 - **2100101 Utilization of Low Ground Pressure Tire Technology in Cotton Harvesting Equipment** Presented by: Diogenes Antille CSIRO Agriculture and Food, Canberra Australian Capital Territory Australia; Mehari Z. Tekeste, Duc Ngo Cong, Craig P. Baillie, Diogenes L. Antille
- b.11 - **2100239 Design and Analysis of Tulip Bulb Buds Correcting Device** Presented by: Yu Chen China Agricultural University, Beijing China; Jinpeng Diao, Yan Yang, Xiteng Zheng, Yu Chen
- c.1 - **2100324 Design and Simulation of a Rope-Driven End-Effector for Tomato Picking Robot** Presented by: Zenghong Ma Zhejiang Sci-Tech University, Hangzhou Zhejiang China; Wei Zeng, Zenghong Ma, Pengcheng Wang, Xiaoqiang Du, Tengfei Shen, Chuanyu Wu
- c.2 - **2100077 Evaluation of a First-Come-First-Serve, Arm-to-Fruit Assignment Policy for a Multi-Armed Harvesting Robot in a Simulated Orchard Environment** Presented by: Natalie Pueyo Svoboda UC Davis, Davis California; Natalie Pueyo Svoboda, Stavros Vougioukas
- c.3 - **2100319 Design of a Camellia Oleifera Canopy Shaker with Elliptical Trajectory Excitation** Presented by: Tengfei Shen Zhejiang Sci-Tech University, Hangzhou City Zhejiang Province China; Tengfei Shen, Xiaoqiang Du, Zeqiang Sun, Zenghong Ma, Guofeng Zhang, Yongqing Cao, Xiaohua Yao
- c.4 - **2100403 High-Clearance Chassis Design of Camellia Oleifera Fruit Vibratory Harvester** Presented by: Tengfei Shen Zhejiang Sci-Tech University, Hangzhou City Zhejiang Province China; Chen Ning, Yin Qian, Zhaojie Zhang, Tengfei Shen, Xiaoqiang Du, Guofeng Zhang Anguo Hu
- c.5 - **2100166 Experiment on Mechanical Properties of King Grass Stem** Presented by: Ziwen Guo China Agricultural University, Beijing China; Ziwen Guo, Zhiqin Wang, Weihua Yang, Hongda Wang
- c.6 - **2100612 Research and Development of an Electric-Hydraulic System for Height Control of Sugarcane Harvester Base Cutter** Presented by: Zhengliang Ding China Agricultural University, Beijing China; Zhengliang Ding, Shaochun Ma, Fenglei Wang, Haonan Xing, Jing Bai, Jiwei Hu
- c.7 - **2100613 Key Technologies on Crop Dividers of Sugarcane Harvester: A Review** Presented by: Bai Jing China Agricultural University, Beijing China; Jing Bai, Shaochun Ma, Fenglei Wang, Haonan Xing, Zhengliang Ding, Jiwei Hu
- c.8 - **2100126 Determination of Ammonium Nitrogen and Soluble Carbohydrate in Alfalfa Silage** Presented by: Yangyang Liao China Agriculture University, Beijing Haidian China; Yangyang Liao, Haifeng Zhang, Decheng Wang, Yong You
- c.9 - **2100341 Research on Cross-Ridge Mobile Robot Combining Autonomous Navigation and Computer Vision for Transplantation of Seedlings** Presented by: Yu Chen China Agricultural University, Beijing China; Yuhao Zhu, Jiping Fan, Xiangqian Dong, Xiteng Zheng, Yu Chen
- c.10 - **2101176 Simulation of Ridge Leveling Process based on EDEM/FEM Coupling Algorithm** Presented by: Liu Huayang Hebei Agricultural University, Baoding Hebei Province China; Liu Huayang, Yi Jinggang, Feng Xiaohui, Qiao Yongchang
- c.11 - **2101178 Pair Roll Type Shrimp Classifier Parameter Optimization and Testing** Presented by: Ma Junyuan Hebei Agricultural University, Baoding Hebei Province China; Wang Zehe, Zhang Xiuhua, Yi Jinggang, Kong Degang, Yuan Yongwei, Ma Junyuan

- c.12 - **2101109 Design and Simulation of Taking-Putting Seedling Manipulator for Plug Seedling Transplanter** Presented by: Xiuhua Zhang Hebei Agricultural university, Baoding Hebei China; Wang Peng, Zhang Xiuhua, Huang Fukun, Huang Shuo, Jing Maokai
- c.13 - **2101111 Design of Movable Plug Seedling Seeder for Greenhouse Vegetables** Presented by: Xiuhua Zhang Hebei Agricultural university, Baoding Hebei China; Jing Maokai, Miao Qingbo, Zhang Xiuhua, Yuan Yongwei, Wang peng, Yang Shuhua
- d.1 - **2100344 A Kind of Mobile Roof Snow Removal Device** Presented by: Yuting Chen Beijing Institute of Graphic Communication, Beijing China; Shuai Li, Yuting Chen, Yingxiao Pan, Xiaolong Liu
- d.2 - **2100080 Some Recent Trends in Tractor Test Performance** Presented by: John Schueller University of Florida, Gainesville Florida; John K. Schueller, Andrew Morley, Matt Tortorella
- d.3 - **2100125 Mixed Fermentation of Alfalfa Silage Primarily Feed Research** Presented by: Yangyang Liao China Agriculture University, Beijing Haidian China; Yangyang Liao, Haifeng Zhang, Decheng Wang, Yong You
- d.4 - **2100445 Spinner-Disc Spreader Calibration Process Streamlined through Mobile Application Usage** Presented by: Alys Gauci The Ohio State University, Columbus Ohio; A.A. Gauci, S. Zhu, J. Pan, J.P. Fulton, and R. Colley III
- d.5 - **2100698 Design and Test of the Airflow Adjustment Test Bench for Orchard Air-Assisted Spraying** Presented by: Hanjie Dou Northwest A&F University, Beijing China; Hanjie Dou, Changyuan Zhai, Wei Zou, Xiu Wang, Liping Chen
- d.6 - **2100719 Optimization and Evaluation of Commercial Ozonated Water Sprayer Retrofit towards Winterform Pear Psylla Management** Presented by: Mark Schrader Washington State University, Prosser Washington; Mark Schrader, Anura Rathnayake, Gwen Hoheisel, Elizabeth Beers, Lav R. Khot
- d.7 - **2100732 Airblast Spray Drift Assessment in a Modern Orchard System at Dormant and Full Canopy Growth Stages** Presented by: Anura Rathnayake Washington State University, Prosser Washington; Anura Rathnayake, Lav Khot, Gwen Hoheisel, Harold Thistle, Milt Teske, Mike Willett
- d.8 - **2100020 Measuring the Threshing Force of Three Common Rice Varieties under Dynamic Condition** Presented by: Farzaneh Khorsandi The University of California, Davis, Davis California; Soheila Yavari, Ezatolah Askari Asli Ardeh, Farzaneh Khorsandi
- d.9 - **2100028 Current Status and Development Trend of Non-Stop Round Bale Harvesting for Forage Grass** Presented by: Xuening Zhang China Agricultural University, Beijing China; Xiaolong Huan, Decheng Wang, Xuening Zhang, Hongjian Wu, Yinhao Jin
- d.10 - **2100127 Overview and Prospect of Biomass Gasification for Methane Production** Presented by: Chong Li China Agricultural University, Beijing China; Chong Li, Jing Lin, Decheng Wang
- d.11 - **2100123 Present Situation of Improved Machinery for Grassland Seeding and Mixed Seeding Technology** Presented by: Yangyang Liao China Agriculture University, Beijing Haidian China; Yangyang Liao, Haifeng Zhang, Decheng Wang, Yong You
- d.12 - **2100167 Design of Hammer Type Forage Stalk Grinder** Presented by: Ziwen Guo China Agricultural University, Beijing China; Ziwen Guo, Zhiqin Wang, Weihua Yang, Hongda Wang, Zhongzheng Li

d.13 - **2100008 Predicting the Hydraulic Properties of Compacted Soils: Model Validation** Presented by: Diogenes Antille CSIRO Agriculture and Food, Canberra Australian Capital Territory Australia; Duc Ngo-Cong, Diogenes L. Antille, Martinus Th. van Genuchten, Mehari Z. Tekeste, Craig P. Baillie

Precision Agricultural Utilization in Chemical and Fertilizer Application

Lightning Session

Organized by: Ajay Sharda

Session Moderator: Ajay Sharda

Sponsoring committee(s): MS-54 Precision Agriculture, MS-23/6 Application Sys & US TAG ISO TC23/SC6

Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

2100745 Influence of Nozzle Type on Spray Coverage, Pest Control and Yield in Peanuts Presented by: Simerjeet Virk University of Georgia, Tifton Georgia; Eric Prostko, Robert Kemerait, Mark Abney, Glen Rains, Cody Powell, D.Scott Carlson, James Jacobs, William Tyson, Simerjeet Virk

2100880 Influence of Boom Height on the Drift of Agricultural Sprays in a Low Speed, Recirculating Wind Tunnel Presented by: Steven Fredericks Winfield United, River Falls Wisconsin; Steven A Fredericks, Elizabeth Alonzi

2101190 Field Evaluation of Turn Compensation Feature of Pulse Width Modulation (PWM) – Equipped Agricultural Sprayer Presented by: Jonathan Fabula Kansas State University, Manhattan Kansas; Jonathan Fabula, Ajay Sharda

2100038 Characterization of Volumetric Droplet Size Distributions from PWM-Controlled Hollow-Cone Nozzles Designed for Variable-Rate Air-Assisted Sprayers Presented by: Ramon Salcedo Cidoncha The Ohio State University, Wooster Ohio; Ramón Salcedo, Heping Zhu, Hongyoung Jeon, Erdal Ozkan, Zhiming Wei, Emilio Gil

2101053 Design, Development and Control System Evaluation of a Site-Specific On-Target Liquid Application System for an In-Row Autonomous Platform Presented by: Prashanta Pokharel Kansas State University, Manhattan Kansas; Prashanta Pokharel, Ajay Sharda, Daniel Flippo, Guanghui Wang, Brian McCornack

2100588 Dynamic Performance Evaluation of a Direct Inject Variable Rate Broadcast Spray System Presented by: William Walker Mississippi State University, Mississippi State Mississippi; Gary D. Chesser Jr., J. Wes Lowe, Daniel B. Reynolds, William Walker

2101162 Preliminary Evaluation of a Turbidity Sensor-Based System to Monitor Concentration of Simulated Pesticide Mixture for in-Line Injection Systems Presented by: Zhihong Zhang Kunming University of Science and Technology, Kunming Yunnan China; Zhihong Zhang, Heping Zhu, Zhiming Wei, Ramon Salcedo

2101237 Reservoir Size and Functionality Optimization for Efficient Spray Applications in Modern Apple Orchard Using Pneumatic Spray Delivery Based Fixed Spray System Presented by: Ramesh Sahni Washington State University, Prosser Washington; Ramesh K. Sahni, Rakesh Ranjan, Lav R. Khot, Gwen-Alyn Hoheisel, Matthew J. Grieshop

2100733 Optimizing the Base Spray Rates for Efficient Intelligent Sprayer Applications in Modern Apple Orchard Systems Presented by: Anura Rathnayake Washington State University, Prosser Washington; Anura Rathnayake, Ramesh Sahni, Lav Khot, Gwen Hoheisel, Heping Zhu

2100204 N-Time: An Automated Decision Support Software for Sensor-Based Fertigation Management Presented by: Jackson Stansell University of Nebraska - Lincoln, Lincoln Nebraska; Brian Krienke, Daran Rudnick, Hongfeng Yu, Tyler Smith, Joe Luck, Jackson Stansell

2100718 Field-Scale Horticultural Oil Thermootherapy Delivery System: A-Proof-of-Concept and Preliminary Results Presented by: Mark Schrader Washington State University, Prosser Washington; Mark Schrader, Anura Rathnayake, Lav Khot

2100441 Mass Flow Sensor for Pneumatic Fertilizer Application Equipment Presented by: John Fulton Ohio State University, Columbus Ohio; J. Fulton, R. Colley III, A. Gauci, S.A Shearer, E.M. Hawkins

Robotics and Mechanization for Specialty Crops I

Simulated Live Session

Organized by: Long He

Session Moderator: Long He

Sponsoring committee(s): MS-48 Specialty Crop Engineering

Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

2100185 Development and Evaluation of a Novel Band-Steam Applicator for Controlling Soilborne Pathogens and Weeds in Lettuce Presented by: Mark Siemens University of Arizona, Yuma Arizona; Mark C. Siemens, Victor Godinez, Nicholas Bahr, Steven Fennimore

2100261 Path Planning in a Constraint Environment for Robotic Apple Tree Pruning Presented by: Azlan Zahid Pennsylvania State University, Biglerville Pennsylvania; Azlan Zahid, Md Sultan Mahmud, Long He

2100384 Filed Evaluation of Harvest Efficiency of Table Olive Trees using a Combining of Trunk Shaker and Canopy Shaker Presented by: Taymaz Homayouni University of California Merced, Merced California; Taymaz Homayouni, Arash Toudeshki, Reza Ehsani

2100421 Evaluation of End Effector Designs for a Vacuum-Based Robotic Apple Harvesting System Presented by: Nathan Dickinson Michigan State University, East Lansing Michigan; Nathan Dickinson, Kyle Lammers, Kaixiang Zhang, Zhaojian Li, Renfu Lu

2100601 Developing a Cable-Driven Robotic Weeder for Organic Vining Vegetable Production Presented by: Jianfeng Zhou University of Missouri, Columbia Missouri; Xi Xiong, Reid J. Smeda, Malek Necibi, Yousuf El-Jayyousi, Jianfeng Zhou

2100423 Development and Evaluation of a New Vacuum-Based Robotic Apple Harvesting System Presented by: Renfu Lu USDA/ARS, East Lansing Michigan; Renfu Lu, Kyle Lammers, Kaixiang Zhang, Pengyu Chu, Nathan Dickinson, Zhaojian Li, Renfu Lu

2100486 Deep Learning-based Autonomous Downy Mildew Detection and Severity Estimation in Vineyards Presented by: Ertai Liu Cornell University, Ithaca New York; Ertai Liu, Kaitlin M. Gold, David Combs, Lance Cadle-Davidson, Yu Jiang

2101125 Challenges and Solutions in Designing an End-Effector for Robotic Cotton Harvesting Presented by: Hussein Gharakhani Mississippi State University, Starkville Mississippi; Hussein Gharakhani, J. Alex Thomasson

Robotics and Mechanization for Specialty Crops II

Lightning Session

Organized by: Long He

Session Moderator: Long He

Sponsoring committee(s):

Scheduled day and time: Wednesday, July 14 2:30pm - 3:30pm

2100134 Robotic Extraction of Chesapeake Crab Meat Presented by: Mohamed Ali University of Maryland, College Park Maryland; Mohamed Ali, Anjana Kalhari Hevaganinge, Dongyi Wang, James Cobau, Yang Tao

2100299 Design of Intelligent Horizontal Poria cocos Peeling Machine Presented by: Wang Wenjie, China; Wenjie Wang, Zhian Zheng, Lei Gao, Xiongchu Zhang, Zimei Zhang, Rongyan Wang

2100262 Evaluation of Branch Cutting Torque Requirements Intended for Robotic Apple Tree Pruning Presented by: Azlan Zahid Pennsylvania State University, Biglerville Pennsylvania; Azlan Zahid, Md Sultan Mahmud, Long He

2101037 Fruit-Removal Dynamics for Robotic Green-Fruit Thinning Presented by: Magni Hussain Pennsylvania State University, State College Pennsylvania; Magni Hussain, Long He, Paul Heinemann, James Schupp

2100555 Development and Assessment of a Wearable Waist-Assistive Exoskeleton for Agricultural Tasks Presented by: ShuWen Hsu National Taiwan University, NewTaipei Taiwan; Shu-Wen Hsu, Ta-Te Lin

2100132 Development of An Automatic Airflow Control System for Precision Sprayers Based on Tree Canopy Density Presented by: Md Sultan Mahmud The Pennsylvania State University, University Park Pennsylvania; Md Sultan Mahmud, Azlan Zahid, Long He

2100397 Design and Experiment of Clamping Device for Grafting Rootstock of Melon Vegetables Presented by: Kang Wu Zhejiang University, Hangzhou Zhejiang China; Kang Wu, Wei Luo, Jianzhong Lou, Chen Li, Jianping Li

2100964 Development of a Cedar Foliage Harvester Presented by: Wade Young Oklahoma State University, Stillwater Oklahoma; Wade Young, Chase Visina, Barry Bachman, Heath Moorman, Paul Weckler, Niels Maness

2100670 Mask R-CNN Based King Flowers Identification for Precise Apple Pollination Presented by: Xinyang Mu The Pennsylvania State University, State College Pennsylvania; Xinyang Mu, Long He

Specialty Crop Engineering: Advanced Technologies for Specialty Crop Production

Live Session

Organized by: Reza Ehsani

Session Moderator: Reza Ehsani

Sponsoring committee(s): MS-48 Specialty Crop Engineering

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

2101311 Leveraging Robotics and AI for 4D Assessment of Plant and Produce Health Presented by: Jnaneshwar Das Arizona State University

2101312 Maximizing Production of Export-Quality Table Grapes on a Chilean Farm using Precision Farming Technologies and Techniques Presented by: Dvoralai Wulfsohn Geco Enterprises

2101313 AI Techniques in Precision Agriculture; the Good, the Bad, and What Should not be -U-g-l-y- (Crossed). What if We were to Listen to Farmers? Presented by: Frantz Lohier Green Light Ag

2101314 Bridging the Digital Divide with a Biophysical Model THEN Machine Learning Presented by: Young Kim Digital Harvest

2101315 The Internet of Thing (IoT) Technologies for Precision Agriculture Presented by: Cherie Kagan University of Pennsylvania

2101316 AgriTech - The Future Blend of Agricultural Sciences and Engineering Presented by: Gary McMurray Georgia Institute of Technology

2101317 Electric Tractor Presented by: Mark Schwager Monarch Tractor

2101318 PrecisionAg & Automation Technologies for Specialty Crop Production Management Presented by: Lav Khot Washington State University

UAS Applications and Precision Agricultural Utilization in Agriculture I

Simulated Live Session

Organized by: Hongyoung Jeon

Session Moderator: Hongyoung Jeon

Sponsoring committee(s): MS-23/6 Application Sys & US TAG ISO TC23/SC6, MS-60 Unmanned Aerial Systems

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2100023 One-Person Pattern Testing System for Spray Drones Presented by: Randy Price LSU AgCenter, Alexandria Louisiana; Daniel Martin, Randy Price

2101115 Applications by Unmanned Aerial Vehicle and Fixed-Wing Aircraft for Alfalfa Insect Pest Control: A Comparative Study of Efficacy, Residue, and Crop Coverage Presented by: Xuan Li FMC Stine Research Center, Newark Delaware; Xuan Li, D. Ken Giles, John T. Andaloro, Rachael Long, Edward B. Lang, Lawrence J. Watson, Issa Qandah

2100779 RTK-UAV Monitoring of Oat Cover Crop Termination by a Straight-Bar Roller-Crimper Amid Weeds Presented by: Muhammad Zakaria Hossain Tokyo University of Agriculture and Tech, Ami machi Japan; Muhammad Zakaria Hossain, Masakazu Komatsuzaki

2100846 Towards a Better Understanding of Unmanned Aerial Spraying Systems (UASS) and an Update on Development of the ISO Standards Presented by: Edward Bals Micron Sprayers Ltd, Bromyard Herefordshire United Kingdom; Edward Bals

2100817 Development and Implementation of R Scripts for Semi-Automatic Plot Delineation in QGIS to Support Small Plots and on-Farm Research Presented by: Diego Jose Gris North Dakota State University, Fargo North Dakota; Paulo Flores, Diego Jose Gris

2101048 Performance Analysis of YOLOV3 for Volunteer Cotton Detection in Early Growth Corn Fields Presented by: Pappu Yadav Texas A&M University, College Station Texas; Alex Thomasson, Robert Hardin, Karem Meza, Juan Enciso, Jorge Solorzano, Roberto Rodriguez, Tianyi Wang, Xiongze Han, Pappu Yadav

2101076 Improve Leaf Area Index Estimation with Multimodal High Resolution Remotely Sensed Information and Machine Learning Algorithms Presented by: Lin Wang University of Nebraska-Lincoln, Lincoln Nebraska; Lin Wang, Jiating Li, Lin Zhao, Biquan Zhao, Geng Bai, Yufeng Ge, Yeyin Shi

2101104 BRDF Effect in UAV Remote Sensing and Empirical Improvement Methods: A Case Study of Cotton Root Rot Identification Presented by: Tianyi Wang Texas A&M AgriLife, Dallas Texas; Tianyi Wang, J. Alex Thomasson

2100812 Integration of Multisensor with ISOBUS Equipped Static Sprayer performing Based on Prescription Map Presented by: Alimohammad Shirzadifar Dalhousie University, Truro Nova Scotia Canada; Alimohammad Shirzadifar, Ahmad Al-Mallahi, Manoj Natarajan

UAS Applications and Precision Agricultural Utilization in Agriculture II

Lightning Session

Organized by: Michael Sama

Session Moderator: Michael Sama

Sponsoring committee(s): MS-60 Unmanned Aerial Systems

Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

2100025 Crop Variability Detection with Low-Cost Retail Store Type Drones and Cameras Presented by: Randy Price LSU AgCenter, Alexandria Louisiana; Randy Price

2100119 Applying a Deep Feature-based Dynamic Model on Aerial Imagery for Lodging Detection of Small Grain Crops Presented by: Zhao Zhang North Dakota State University, Fargo North Dakota; Zhao Zhang, Cannayen Igathinathane, Paulo Flores, Joel Ransom, Yiannis Ampatzidis, Jithin Mathew

2100186 Corn Stand Uniformity Estimation and Mapping using UAV Imagery and Deep Learning Presented by: Chin Nee Vong University of Missouri, Columbia Missouri; Lance S. Conway, Jianfeng Zhou, Newell R. Kitchen, Kenneth A. Sudduth, Chin Nee Vong

2100187 Early Corn Stand Count of Different Cropping Systems Using UAV Imagery and Deep Learning Presented by: Chin Nee Vong University of Missouri, Columbia Missouri; Lance S. Conway, Jianfeng Zhou, Newell R. Kitchen, Kenneth A. Sudduth, Chin Nee Vong

2100376 Yield Prediction of Biomass Sorghum Using Temporal Variable Estimates of Unmanned Aerial Systems (UAS), and Random Forest Approach Presented by: Jose Carlos Chavez Ortiz Texas A&M AgriLife Research Center, Weslaco Texas; Jorge Solorzano, Ayrton Laredo, Juan Enciso, Jose Carlos Chaves Ortiz

2100654 UAV Remote Sensing-Based Phenotyping to Evaluate Drought Stress in Turfgrass Presented by: Tianyi Wang Texas A&M AgriLife, Dallas Texas; Tianyi Wang, Ambika Chandra, Meghyn Meeks, Dennis Genovesi

2100976 Techno-Economic Analysis of Implementing UAV Technologies for Crop Health Monitoring Presented by: Ashish Manandhar The Ohio State University, Wooster Ohio; Ashish Manandhar, Sami Khanal, Ajay Shah

2101159 Applying Computer Vision to Detect Heads of Proso Millet from UAV Images Presented by: Biquan Zhao Univ of Nebraska-Lincoln, Lincoln Nebraska; Biquan Zhao, Rituraj Khound, Dipak Santra, Yeyin Shi

2101187 Impact of Camera Lens Angle and sUAS Flying Altitude on Spatial Corn Canopy Temperature Evaluation Presented by: Manoj Gadhwal Kansas State University, Manhattan Kansas; Manoj Gadhwal, Ajay Sharda, Harman Singh Sangha, Deon van der Merwe

2100629 Evaluation of the Impacts of Tillage and Winter Cover Crops on Soil Water Availability for and Yield of Cotton Using UAV-Acquired Data Presented by: Sayantan Samanta Texas A&M University, Collage Station Texas; Sayantan Samanta, Sushil K. Himanshu, Anjin Chang, Tian Zhang, Jasdeep Singh, Srinivasulu Ale, Paul DeLaune, Jinha Jung, Cristine L. S. Morgan, Edward Barnes

2101235 High Throughput Canopy Characterization of a Commercial Apple Orchard Using a Small UAS Equipped With a Consumer-Grade RGB Imager Presented by: Lav Khot Washington State University, Prosser Washington; Gajanan S. Kothawade, Abhilash K. Chandel, M. Jacob Schrader, Anura Rathnayake, Lav R. Khot

NRES - Natural Resources & Environmental Systems

A: Emerging Contaminants, Pathogens, Antibiotic Resistance; B: Manure, Agricultural Byproduct Mgmt

Lightning Session

Organized by: Aaron Mittelstet; Lauren Ahiablame

Session Moderator: Linda Schott

Sponsoring committee(s): NRES-253 Riparian Zones, Floodplains, & Wetlands, NRES-28 Ecological Engineering

Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

2100094 Carbon Monoxide Content of Exhaust Emissions from Road Transport Tractor Engines: A Case Study of Ogbomoso, Oyo State, Nigeria. Presented by: Adewunmi Taiwo Ladoke Akintola University of Technology, Ogbomoso Oyo Nigeria; Ademola Owoo, Adewunmi Taiwo

2100462 Evaluation of Manure Associated Antibiotic Resistance Genes from Multiple Swine Confinements across Iowa Presented by: Timothy Neher Iowa State University, Ames Iowa; Timothy Neher, Michelle Soupier, Adina Howe, Dan Andersen, Maggie O'Neill

2101035 Spatial and Temporal Patterns of PFAS Occurrence at a Wastewater Beneficial Reuse Site in Central Pennsylvania Presented by: Olivia Mroczko The Pennsylvania State University, State College Pennsylvania; Olivia Mroczko, Heather Preisendanz, Christopher Wilson, Tamie Veith, Michael Mashtare, John Watson, Herschel Elliott

2101223 Influence of Common Veterinary Antibiotics on Treatment Wetland Ecosystem Services at the Mesocosm Scale Presented by: Matthew Russell University of Nebraska - Lincoln, Lincoln Nebraska; Tiffany Messer, Shannon Bartelt-Hunt, Dan Snow, Richard Smith, Deborah Repert, Ariel Reed, Matthew Russell

2101236 High Temperature Rotary Drum Composting and Solid-Liquid Separation Impact on Antibiotic Resistance Presented by: Carlton Poindexter University of Maryland, College Park Maryland; Carlton Poindexter, Andrea Yarberry, Stephanie Lansing, Clifford Rice, Christine Georgakakos, Curt Gooch

2101186 Reduction of Antimicrobial Resistance in Beef Cattle Manure during Alkaline Stabilization of Pen Floor Material in Animal Feedlot Presented by: Noelle Atieno Mware University of Nebraska- Lincoln, Lincoln Nebraska; Noelle Atieno Mware, Kent Eskridge, Amy Schmidt, Galen Erickson, Shannon Bartelt-Hunt, Xu Li

2100700 Emissions of Greenhouse Gas and Ammonia from an Intensive Wheat Site Affected by Different Fertilization Practices Presented by: Zhongkai Zhou Jiangsu Academy of Agricultural Sciences, Nanjing Jiangsu China; Zhongkai Zhou, Dianlin Yang, Jianning Zhao, Haifang Zhang, Lili Wang

2100869 Assessing the Nebraska AgSitePlanner On-demand Support for Responsible Livestock Production and Expansion Presented by: Juan Carlos Ramos Sanchez University of Nebraska-Lincoln, Lincoln Nebraska; J. Ramos, A. Millmier Schmidt, M. Zelt

2100088 Removing Barriers for Adoption of Biochar Treatment to Mitigate Gaseous Emissions from Manure: Can common binders improve the performance of powder and pelletized biochar? Presented by: Sam O'Brien Iowa State University, Ames Iowa; Samuel O'Brien, Jacek Koziel, Baitong Chen, Ryan Ungs, Cail Donkersloot, Cameron Cimino, Chumki Banik, Eric Cochran

2100062 Heavy Metals in Hydrochar Produced from Dairy Manure via Hydrothermal Carbonization Presented by: Brian He University of Idaho, Moscow Idaho; Zheting Bi, Lide Chen, Brian He

Anaerobic Digestion, Composting, and Greenhouse Gas Emissions

Lightning Session

Organized by: Lide Chen

Session Moderator: Douglas Hamilton

Sponsoring committee(s): NRES-27 Ag Byproducts & Animal Mortality Systems, PRS-707 Food & Organic Waste Management & Utilization

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2100989 *Production and Application of Compost Products from Dairy Manure and Almond Waste as Soil Amendment on California Almond Orchards* Presented by: Abdolhossein Edalati UC Davis, Davis California; Yike Chen, Allan Chio, Tyler Barzee, Hamed El-Mashad, Sat Darshan S. Khalsa, Pramod Pandey, Ruihong Zhang, Abdolhossein Edalati

2100574 *Composting Poultry Mortality with Biochars Made from Different Feedstocks* Presented by: Yuchuan Wang University of Illinois Urbana-Champaign, Champaign Illinois; Yuchuan Wang, Neslihan Akdeniz

2100245 *Preliminary Analysis of GHG Emissions Reduction of Manure Management Scenarios Including Covered Long-Term Storage, Anaerobic Co-digestion, and Energy Offsets* Presented by: Lauren Ray Cornell University, Ithaca New York; Lauren Ray, Peter E. Wright, Curt A. Gooch

2101007 *Techno-Economic Analysis of Dairy Manure Compost Pelletizing Process* Presented by: Femi Alege Washington State University, Pullman Washington; Femi Peter Alege, Xiangyu Gu, Haiying Tao, Gilbert Miito, Pius Ndegwa

2100801 *Anaerobic Co-Digestion of Food Waste and Polyhydroxybutyrate (PHB)* Presented by: Yushi Li University of Florida, Gainesville Florida; Ana Martin-Ryals, Yushi Li

2100173 *Greenhouse Gas Emissions and Mitigation Potential of Piled Cattle Manure as Practiced by Smallholder Farmers in Uganda* Presented by: Jill Mugisa North Carolina State University, Raleigh North Carolina; Joseph Galiwango, John Sempiira, William Kisaalita, Jill Mugisa

2100266 *Metagenomics Reveals Microbiome Changes with Lignocellulose Biomass Addition in Anaerobic Co-Digesters Treating Swine Wastewater* Presented by: Megan Boland North Carolina State University, Raleigh North Carolina; Megan Boland, Jay Cheng

Aquatic Ecosystem Engineering

Lightning Session

Organized by: Laurent Ahiablame

Session Moderator: Steven Hall

Sponsoring committee(s): NRES-28 Ecological Engineering, MS-60 Unmanned Aerial Systems, NRES-21 Hydrology Group

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2100809 *Design and Implementation of an Automated Propeller Motor System for In-Pond Raceway Aquaculture* Presented by: Joseph Dvorak University of Kentucky, Lexington Kentucky; Bo Smith, Joseph Dvorak

2101166 *Sampling and Estimation of Surface Phytoplankton Concentrations in Brackish Environments via Autonomous Surface and Aerial Vehicles* Presented by: Russell Smith North Carolina State University, Raleigh North Carolina; Russell Smith, Sierra Young, Steven Hall

2100881 *Paddlewheel Water Mixing in Split Ponds Used for Catfish Production* Presented by: David Brune University of Missouri, Columbia Missouri; David Brune, Gregory Schwartz, Brian Ott

2100522 *Automation in Marine Larviculture* Presented by: Steve Hall NCSU Bio and Ag Engineering, Raleigh North Carolina; Steven Hall, Michael Frinsko

2100215 *Assessing the Effect of Ultrafine Bubble Injectors on Dissolved Oxygen for Agricultural Waters.*

Presented by: Sandra M. Guzman University of Florida, Fort Pierce Florida; Eduart A. Murcia-Botache, Brandon A. Quinn, Sandra M. Guzman

2100523 *Smart Systems to Enhance Sustainability and Add Value to Marine Aquaculture* *Presented by:* Steve Hall NCSU Bio and Ag Engineering, Raleigh North Carolina; Steven Hall, Matthew Campbell, Vashti Campbell, Alex Geddie, Michael Frinsko, Marlon Greensword, Rifat Hasan, Nitesh Kasera, Charles Malveaux, Diplina Paul, Melody Thomas, Daniel Smith, Russell Smith, Sierra Young

BMP Research 1: Agricultural Conservation Practice Implementation and Assessment

Lightning Session

Organized by: Anita Thompson

Session Moderator: Paula Steiner; Laxmi Prasad

Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-225 Conservation Systems

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

Panelists: William (Bill) Reck USDA-NRCS, Washington DC; Chris Hay Iowa Soybean Association, Ankeny Iowa; Jeffrey Kast The Ohio State University, Columbus Ohio; Yongping Yuan USEPA, Durham North Carolina; Maryam Samimi Oklahoma State University, Stillwater Oklahoma

2100203 *Effectiveness of Residue and Tillage Management on Water Pollutant Reduction From Agricultural Areas* *Presented by:* Laxmi Prasad University of Wisconsin Madison, Madison Wisconsin; Laxmi Prasad, Lydia Koropecykj-Cox, Anita M Thompson, Francisco J Arriaga, Yongping Yuan

2100563 *Performance Effectiveness and Cost Effectiveness of Agricultural Conservation Practices in Reducing Nutrient Losses* *Presented by:* Yongping Yuan USEPA, Durham North Carolina; Ruth Book, Kyle Douglas-Mankin, Lydia Koropecykj-Cox, Laura Christianson, Tiffany Messer, Reid Christianson, Yongping Yuan

2100679 *Eating the Metaphorical Elephant: Meeting Nitrogen Reduction Goals in the Upper Mississippi River Basin* *Presented by:* Chris Hay Iowa Soybean Association, Ankeny Iowa; Gary Feyereisen, Chris Hay, Reid Christianson, Matt Helmers

2101184 *Selection and Placement of Conservation Practices Using the Agricultural Conservation Planning Framework (ACPF) and the Soil and Water Assessment Tool (SWAT)* *Presented by:* Ritesh Karki The Pennsylvania State University, University Park Pennsylvania; Ritesh Karki, Cibir Raj, Tamie L. Veith, Heather E. Preisendanz, Jonathan M. Duncan, Peter J. Kleinman

2100830 *Efficiency Analysis of Machine Learning Models for Simulating Nitrate Movement in Soils from Illinois State* *Presented by:* Luciano Alves de Oliveira University of Illinois, Urbana Illinois; Joao Nicoletti, Jarbas Miranda, Richard Cooke, Laura Christianson, Luciano Alves de Oliveira

2100646 *Simulating Impacts of Shifting Farmer Attitudes and Beliefs toward Agricultural Conservation on Water Quality* *Presented by:* Jeffrey Kast The Ohio State University, Columbus Ohio; Jeffrey Kast, Robyn Wilson, Margaret Kalcic, Douglas Jackson-Smith, Nicholas Breyfogle, Jay Martin

2100041 *A Comparison of the USDA-Natural Resources Conservation Service and the ASABE Standards Process* *Presented by:* Ruth Book USDA-NRCS, Washington DC; Clarence Prestwich, Ruth Book

2100658 *USDA's Natural Resources Conservation Service (NRCS) Response to the 2018 the Farm Bill Required Review of All Existing National Conservation Practice Standards* *Presented by:* William (Bill) Reck USDA-NRCS, Washington DC; William Reck, Betsy S. Dierberger, Clarence Prestwich

2100978 Effects of Different Best Management Practices on Water Quality Indicators in the Arroyo Los Olmos Watershed, Texas Presented by: Ricardo Torres Texas A&M University - Kingsville, Kingsville Texas; Ricardo J. Torres, Luis Carmona, Tushar Sinha

2100875 Evaluating Irrigation Interventions for Agricultural Resiliency under Future Water Scarcity in a Desert River Basin Presented by: Maryam Samimi Oklahoma State University, Stillwater Oklahoma; Maryam Samimi, Ali Mirchi, Saleh Taghvaeian, Daniel Moriasi, Zhuping Sheng, David Gutzler, Sara Alian, William Hargrove

2100454 Modeling the Effectiveness of Agricultural Conservation Practices in the Western Lake Erie Basin: What We Have Learned and Where to Go from Here Presented by: Lydia Koropecykj-Cox USEPA / ORISE, Raleigh North Carolina; Yongping Yuan, Lydia Koropecykj-Cox

2100937 Developing a Hydrological Model for BMPs Assessment in an Intensely Cultivated and Tile-Drained Hydrology for Current and Future Climatic Conditions Presented by: Areba Syed Iowa State University, Ames Iowa; Areba Syed, Ji Yeow Law, Leigh Ann Long, Michelle Soupir, Rob Malone

BMP Research 2: Cover Crops and Soil Moisture

Simulated Live Session

Organized by: Fouad Jaber

Session Moderator: Dennis Flanagan

Sponsoring committee(s): NRES-21 Hydrology Group, NRES-22 Erosion Control Group, NRES-24 Irrigation Group

Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

2101319 Impact of Cover Crops on Soil-Water Dynamics, Soil Physical Properties and Evapotranspiration Presented by: Suat Irmak Professor and Department Head, Agricultural and Biological Engineering Department, Penn State University, State College, Pennsylvania

2100117 Analysis of the Intra-Annual Variations in Soil Moisture Throughout the Missouri and Arkansas-White-Red River Basins Presented by: Emily Nottingham Kansas State University, Manhattan Kansas; Emily R. Nottingham, Stacy L. Hutchinson, JM Shawn Hutchinson

2100097 Effect of Plant Density and Planting Date on Maize Crop Growth, Yield and Water Use Efficiency Presented by: Koffi Djaman New Mexico State University, Las Cruces New Mexico; Koffi Djaman, Dallen Begay, Samuel Allen, Suat Irmak

2100647 Spatial Variability in Plant Biomass and Water Use Characteristics in Miscanthus Presented by: Andrew Hillman North Carolina State University, Raleigh North Carolina; Sierra Young, Chadi Sayde, Andrew Hillman

2100216 Lignin-Based Hydrogel for Water Retention in Silt Loam Soil Presented by: Toby Adjuik University of Kentucky, Lexington Kentucky; Toby Adjuik, Sue E. Nokes, Michael D. Montross, Ole Wendroth

2100769 Assessing the Evolution of Soil Moisture and Vegetation Conditions using the Evaporative Demand Drought Index (EDDI) during Flash Drought in South Korea Presented by: Hee-Jin Lee Hankyong National University, Anseong Gyeonggi-do South Korea; Hee-Jin Lee, Won-Ho Nam

2100352 Modeling the Impacts of Cover Crops on Soil Water Availability, Soil Health and Cotton Yield in the Texas Rolling Plains Presented by: Jasdeep Singh Texas A&M AgriLife Research, Vernon Texas; Jasdeep Singh, Srinivasulu Ale, Paul B. DeLaune, Sushil K. Himanshu, Edward M. Barnes

2100773 Evaluation of GRACE Satellite-derived Surface Soil Moisture and Groundwater Product for Drought Risk Assessment over Agricultural Regions of East Asia Presented by: Min-Gi Jeon Hankyong National University, Anseong Gyeonggi-do South Korea; Min-Gi Jeon, Won-Ho Nam

2100448 Evaluating Soil Health Benefits of Winter Wheat Cover Crop in Cotton Production Systems Presented by: Sushil Himanshu Texas A&M AgriLife Research, Vernon Texas; Sushil Himanshu, Srinivasulu Ale, Paul DeLaune, Jasdeep Singh, Edward Barnes

2100568 Assessing Watershed-scale Impacts of Adopting Soil Management Practices on Water Conservation and Sediment and Nutrient Loadings Presented by: Sayantan Samanta Texas A&M University, Collage Station Texas; Sayantan Samanta, Srinivasulu Ale, Cristine L. S. Morgan, Dianna Bagnall

2100929 Resistance of Chromolaena Odorata Treated Pinus Caribaea Wood Against Ganoderma Lucidum and Sclerotium Rolfsii Presented by: Adelodun Majekobaje Louisiana State University, Baton Rouge Louisiana; Adelodun Majekobaje, Nusirat Sadiku, Yekin Ogunsanwo, Ademola Hammed

2100659 Determination of Optimal Planting Dates and Assessing Climate Variability Impacts on Guar Production in the Texas Rolling Plains and High Plains Presented by: Rene Francis Simbi Mvuyekure Texas A&M University, College Station Texas; Rene Francis Simbi Mvuyekure, Srinivasulu Ale, Rajan Shrestha, Curtis Adams, Sushil Himanshu, Ken Boote, Calvin Trostle, Vijay Singh, Gerrit Hoogenboom

2100737 Improved Predictions of Crop Water Requirements for Field Grown Tomatoes in a Humid Climate Presented by: Naresh Kumar Arumugagounder Thangaraju McGill University, Montreal Quebec Canada; Naresh Kumar A. Thangaraju, Samuel Ihuoma, Chandra A. Madramootoo

2100839 Quantifying Soil Macropore Characteristics under Different Land Uses using Computed Tomography Presented by: Suman Budhathoki Auburn University, Auburn Alabama; Suman Budhathoki, Jasmeet Lamba, Puneet Srivastava, Colleen Williams, Francisco Arriaga, K.G. Karthikeyan

2100763 Assessment of the Impacts of Tillage, Nitrification Inhibitors and Cover Crops on Nitrous Oxide Emissions over Winter and Early Spring Presented by: Kosoluchukwu Ekwunife McGill University, St Anne de Bellevue Quebec Canada; Chandra Madramootoo, Naeem Abbasi, Kosoluchukwu Ekwunife

2100764 Effects of Fertilizer Rates on Nitrous Oxide Emissions on Two Soil Types Presented by: Kosoluchukwu Ekwunife McGill University, St Anne de Bellevue Quebec Canada; Chandra Madramootoo, Naeem Abbasi, Kosoluchukwu Ekwunife

2100878 Crop Yield and Water Quality Effects of Cover Cropping in the Western Lake Erie Basin Presented by: Kushal KC The Ohio State University, Columbus Ohio; Kushal KC, Sami Khanal

Drainage Research, Education, and Management Advances

Lightning Session

Organized by: Jane Frankenberger

Session Moderator: Vinayak Shedekar

Sponsoring committee(s): NRES-23 Drainage Group, EOPD-203 Undergraduate & Graduate Instruction, EOPD-208 Extension

Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

2100069 LiDARThAn: A One Click QGIS Plugin for LiDAR Thinning Presented by: Falasy Anamelechi University of Illinois, Urbana-Champaign, Urbana Illinois; Falasy Anamelechi, Richard Cooke

2100156 Effect of Drainage Water Management on Surface Runoff Presented by: Vinayak Shedekar The Ohio State University, Columbus Ohio; Kevin W. King, Jed Stinner, Margaret C. Kalcic, Vinayak Shedekar

2100220 Impact of Shallow Drains on Corn Yield: A Synthesis of Drainmod Simulations across the Eastern USA Presented by: Ehsan Ghane Michigan State University, East Lansing Michigan; Ehsan Ghane, Manal Askar

2100625 Impact of Drainage Water Management on Hydrology, Nutrient Losses, and Crop Productivity at the Watershed-Scale Presented by: Jacob Wood Univ. of Illinois at Urbana-Champaign, Urbana Illinois; Manas Khan, Richard Cooke, Rabin Bhattarai, Jacob Wood

2100729 Drainage Water Management in Tile-Drained Histosols: Two Case Studies Presented by: Bhesram Singh McGill University, Sainte Anne de Bellevue Quebec Canada; Bhesram Singh, Chandra Madramootoo

2101116 Water Sample Holding Times at Appropriate Temperature, Filtering, and Storage Conditions for Accurate Analysis of Soluble Reactive Phosphorus Presented by: Zouheir Massri Michigan State University, East Lansing Michigan; Z. Masri, A. N. Nunn, E. Ghane, A. Seybold, J. R. Piwarski, J. Adams, J. Asher

2101098 Modelling Water Table Rise Under Subirrigation with Two Pipe Perforation Characteristics Presented by: Naresh Gaj McGill University, Montreal Quebec Canada; Naresh Gaj, Chandra A. Madramootoo

2100466 Simulating the Watershed Scale Water Quality Impacts of Drainage Water Management in the Western Lake Erie Basin, USA Presented by: Asmita Murumkar Ohio State University, Columbus Ohio; Jay Martin, Margaret Kalcic, Kevin King, Vinayak Shedekar, Sushant Mehan, Haley Kujawa, Asmita Murumkar

2101003 Water Quality Benefits of Drainage Water Recycling: Preliminary Results of a Field Experiment in Eastern North Carolina Presented by: Hossam Moursi North Carolina State University, Raleigh North Carolina; Hossam Moursi, Mohamed Youssef, Chad Poole

2100155 Water Balance Assessments in Ohio's Tile-drained Landscape Presented by: Vinayak Shedekar The Ohio State University, Columbus Ohio; Kevin W. King, Margaret C. Kalcic, Vinayak Shedekar

2100177 Preliminary Results of Testing DRAINMOD-P at a Farmland Receiving Organic and Inorganic Fertilizers Under No-till Management in Michigan Presented by: Manal Askar Michigan State University, East Lansing Michigan; Manal Askar, Ehsan Ghane, Jason Piwarski, Yousef Abdalaal, Sami Shokrana, Babak Dialameh, Zouheir Massri

2100834 Evaluating Drainage Water Recycling in Central Iowa: Long-Term Yield and Financial Implications Presented by: Matthew Helmers Iowa State University, Ames Iowa; Samuel Phillips, Matt Helmers, Chris Hay, Sotirios Archontoulis

Ecological Engg: System Responses, Woodchip Bioreactors, Forest Roads, Hydraulic Structures-HYBRID

Simulated Live Session

Organized by: Laurent Ahiablame

Session Moderator: Niroj Aryal

Sponsoring committee(s): NRES-28 Ecological Engineering

Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

2100583 Stepped Spillway Design from Chute to Stilling Basin Overview Presented by: Sherry Hunt USDA-ARS HERU, Stillwater Oklahoma; Kem Kadavy, Sherry Hunt

2100109 Student Engineering Designs to Restore a Lake and Promote Resilience in Coastal North Carolina Presented by: Randall Etheridge East Carolina University, Greenville North Carolina; Raymond Smith, Linda D'Anna, Cindy Grace-McCaskey, Randall Etheridge

2100490 Illinois Bioreactors in Action: 20 Site-Years of Nitrate Reduction Performance from On-Farm Woodchip Bioreactors Presented by: Bryan Maxwell University of Illinois Urbana Champaign, Urbana Illinois; Bryan Maxwell, Laura Christianson, Reid Christianson, Richard Cooke, Gregory McIsaac

2100900 Hydro-geomorphological Responses of a Channelized Floodplain to Agricultural Practices Presented by: Fnu Sumaiya Virginia Tech, Blacksburg Virginia; Fnu Sumaiya, Sumaiya Sumaiya, Nicholas Christensen, Jonathan Czuba

2100491 Woodchip Bioreactors in Spain: A Case Study on Impacts of Agricultural Nutrient Loads on the Mar Menor Ecosystem and Nature-Based Solutions Presented by: Bryan Maxwell University of Illinois Urbana Champaign, Urbana Illinois; Bryan Maxwell, Carolina Díaz-Garcia, Jose Alvarez-Rogel, Laura Christianson, Juan Jose Martinez-Sanchez

2100810 Assessing on-Site Sewage Management System Density by Monitoring Macroinvertebrate Diversity Presented by: Jonathan Fox University of Georgia, Watkinsville Georgia; Jonathan Fox, Gary L. Hawkins, Darold P. Batzer, Dorcas Franklin

2100199 Plant and Rhizosphere Processes That Prevent Groundwater Contamination from Metals and Nitrates Presented by: Jonae Wood North Carolina A&T State University, Greensboro North Carolina; Jonae Wood, Niroj Aryal

2101069 The Evaluation of Side Channel Spillway Capacity according to Weir Shape using FLOW-3D Presented by: Yejin Seo Seoul National University, Seoul South Korea; Yejin Seo, Jonghyuck Lee, Won Choi

2100826 Water and Nitrate Movement in Woodchip Bioreactors using HYDRUS Model Presented by: Luciano Alves de Oliveira University of Illinois, Urbana Illinois; Luciano Alves de Oliveira, Jarbas Miranda, Richard Cooke, Laura Christianson

2100228 A Survey of Hydraulic Properties for Bioreactor Woodchips Available Across the U.S. Midwest Presented by: Gabriel Johnson University of Illinois Urbana-Champaign, Urbana Illinois; Gabriel Johnson, Laura Christianson, Reid Christianson, Richard Cooke

Erosion in Fields and Stream: Research, Modeling, and Case Studies

Lightning Session

Organized by: Anita Thompson

Session Moderator: Vahid Rahmani; Anita Thompson

Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-223 Erosion Control Research

Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

2100143 Soil Erosion Measurement and Modeling Research Presented by: Sanghyun Lee University of Illinois, Urbana Illinois; Sanghyun Lee, Maria Chu, Jorge Guzman

2101224 Determination of the Erosion Rate of Some IMO State Soils Using a Prototype Erosion Rig Presented by: Gregory Obiechefu University of Agriculture and Env Sci, Umuagwo, Nr Owerri Imo State Nigeria; Obiechefu, Gregory. C., Ali, Placidus. Emerson, Kodak

2100306 Determination of Channel Forming Discharges for a Great Plains River Using a Numerical Model Presented by: Megan Carr North Carolina State University, Raleigh North Carolina; Megan Carr, Lucie Guertault, Garey Fox

2100479 Potential Changes in Rainfall Erosivity under Climate Change in the Southeastern United States Presented by: Takhellambam Bijoychandra Singh Auburn University, Auburn Alabama; Takhellambam Bijoychandra Singh, Puneet Srivastava, Jasmeet Lamba, Ryan McGehee, Hemendra Kumar, Di Tian

2100896 Evaluating Watershed and Stream-Channel Drivers of In-Stream Turbidity in Virginia and North Carolina Presented by: Elizabeth Pratt Virginia Tech, Alexandria Virginia; Elizabeth Pratt, Jonathan Czuba, Amy Villamagna, Zachary Easton, Kyle Strom

2100957 Regional Variability of Soil Properties and Erodibility Parameters of Streambanks: An Empirical Approach and its Implications on Erosion Rate Predictions Presented by: Alexis Swanson North Carolina State University, Raleigh North Carolina; Celso F. Castro-Bolinaga, Periann Russell, Alexis Swanson

2100042 Gully Erosion – An Ongoing Battle Presented by: Clarence Prestwich USDA-NRCS, Washington DC; Clarence Prestwich, Ruth Book, Jon Fripp

2100848 Capturing the Downstream Fining Pattern by Stream Orders in the Contiguous U.S. Presented by: Manoj Jha North Carolina A&T State University, Greensboro North Carolina; Dawit Asamen, Manoj Jha, Peter Allen, Jeffrey Arnold, Michael White

Evapotranspiration in Irrigation Management

Lightning Session

Organized by: Troy Peters

Session Moderator: Vivek Sharma; Troy Peters

Sponsoring committee(s): NRES-24 Irrigation Group, NRES-244 Irrigation Management

Scheduled day and time: Thursday, July 15 11:30am - 12:30pm

2101077 Light Intensity Reduction Effects on Growth and Yield of Amaranthus Hybridus Under Irrigation Scheduling Presented by: Temitayo Ewemoje University of Ibadan, Ibadan Oyo Nigeria; Temitayo Abayomi Ewemoje, Habeeb Adedotun Alabi, David Adewale Ajekiigbe, Mayowa Emmanuel Salawu, Samuel Adeyemi Bamidele, Busayo Samuel Ayeni

2100639 Impact of Water and Nitrogen Availability on Maize Evapotranspiration and Soil Water Trends under High Frequency Sprinkler Irrigation Presented by: Bradley King USDA ARS NWISRL, Kimberly Idaho; Bradley King, David Tarkalson, Dave Bjorneberg

2100251 Spatial Downscaling of Modis Evapotranspiration Using Landsat-8 Data and Surface Energy Balance System Presented by: Jeongho Han University of Illinois Urbana Champaign, Urbana Illinois; Jeongho Han, Jorge A. Guzman, Maria L. Chu

2100572 Prediction of Daily Reference Evapotranspiration Using Machine Learning Algorithms across the Central United States Presented by: Sunil Kumar Bhandari Kansas State University, Manhattan Kansas; Sunil K Bhandari, Vahid Rahmani

2100730 Examining Weather Station Aridity in the Oklahoma Mesonet Presented by: Aseem Singh Oklahoma State university, Stillwater Oklahoma; Aseem Singh, Saleh Taghvaeian, Ali Mirchi

2101219 Comparison of Different Surface Energy Balance Models in Estimation of Crop Evapotranspiration in Semi-Arid to Arid Inter-Mountain Terrain Presented by: Vivek Sharma UF, Gainesville Florida; Bibek Acharya, Vivek Sharma

2101085 Field Evaluation of Conventional and Downhole TDR Soil Water Sensors for Irrigation Scheduling in a Clay Loam Soil Presented by: Gary Marek USDA-ARS, Bushland Texas; Steve Evett, Thomas Marek, Kevin Heflin, Jourdan Bell, David Brauer, Gary Marek

2101221 Evaluation of the FAO-56 Penman-Monteith (FAO-56PM) Model, the Blaney-Morin-Nigeria and other ET Models using Climatic Data from South East Nigeria. Presented by: Gregory Obiechefu University of Agriculture and Env Sci, Umuagwo, Nri Owerri Imo State Nigeria; Gregory Obiechefu, Kodak Emerson

2100231 Water Budgeting of Irrigated Lowland Rice Using Drum Culture Technique for Increased Water Productivity Presented by: Pallakonda Revathi PJTSAU, Jagtial Telangana India; P. Revathi, K. B. Suneetha Devi, Dr. R. Uma Reddy, R. Ravi

Extreme Event Hydrologic and Water Quality Modeling

Simulated Live Session

Organized by: Anita Thompson

Session Moderator: Jasmeet Lamba; Cibin Raj

Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-224 Sediment and Associated Pollutants

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2101320 Using Advances in Climate Science for Reducing Climate Variability and Extreme Event Impacts

Presented by: Puneet Srivastava University of Maryland, College Park Maryland;

2100866 Trends of Climate Extremes Under CMIP6 for Selected Regions in Ethiopia

Presented by: Fiakdu Getachew University of Florida, Homestead Florida; Haimanote Bayabil, Gerrit Hoogenboom, Fiakdu Getachew

2100459 Understanding Flood Water Quality Dynamics Using Flood Modeling and Contact Time Estimates

Presented by: Emine Fidan North Carolina State University, Raleigh North Carolina; Emine Fidan, Natalie Nelson, Josh Gray, Ryan Emanuel, Angela Harris

2100354 Assessing the General Algal Bloom (Gab) Risk Level in a Highly Cultivated Watershed under Future

Climate Projections *Presented by:* Congyu Hou UIUC, Urbana Illinois; Congyu Hou, Maria Librada Chu, Jorge Alberto Guzman Jaimes, Alejandra Botero-Acosta

2100598 Evaluation of Global-Scale Satellite-Assisted Precipitation Products for Meteorological Drought Risk

Assessment in East Asia *Presented by:* Young-Sik Mun Hankyong National University, Anseong Gyeonggi-do South Korea; Young-Sik Mun, Won-Ho Nam

2100702 System Dynamics Modeling for Drought Preparedness Based on Complex Water Resources Systems

Presented by: Dong-Hyun Yoon Hankyong National University, Anseong Gyeonggi-do South Korea; Dong-Hyun Yoon, Won-Ho Nam

2100610 Estimation of Watershed-Scale Irrigation Return Flow by Monitoring and Canal Network Modeling for Agricultural Water Management

Presented by: Ha-Young Kim Hankyong National University, Anseong South Korea; Ha-Young Kim, Won-Ho Nam

2100573 Climate Risk Assessment of Soybean Production in the US Southeastern Coastal Plain

Presented by: Daniel Perondi University of Florida, Gainesville Florida; Michael J. Mulvaney, Joseph Iboyi, Eban Z. Bean, Rogerio de Souza Noia Junior, Mahesh Bashyal, Clyde W. Fraisse, Daniel Perondi

2100577 Projected Flooding Associated with Future Extreme Rainfall using the Design Rainfall Approach

Presented by: Anna Jalowska USEPA, RTP North Carolina; A. M. Jalowska, T. L. Spero, D. E. Line, B. Doll, J. H. Bowden, J. Kurki-Fox

2100703 Flood Vulnerability Assessment of Eastern North Carolina Industrial Swine Operations using GIS

Methodologies *Presented by:* Jacqueline Welles North Carolina State University, Raleigh North Carolina; Jacqueline Welles, John Classen

2100751 Spatio-temporal Assessment of Regime Shifts in Extreme Precipitation in Illinois

Presented by: Manas Khan University of Illinois (UIUC), Champaign Illinois; Manas Khan, Rabin Bhattacharai

2100939 Analysis of Hydrologic Responses to Land Cover Changes and Rainfall Variability of a Mixed-Use

Watershed *Presented by:* Muhammed Chowdhury Texas A&M University-Kingsville, Kingsville Texas; Muhammed A Chowdhury, Tushar Sinha, Vinay Kumar

2101110 Quantifying Surface Water and Groundwater Availability in the Brazos River Basin, Texas Presented by: Hao-Po Chang Texas A&M University-Kingsville, Kingsville Texas; Hao-Po Chang, Tushar Sinha, Vinay Kumar

Green Infrastructure Solutions

Lightning Session

Organized by: Laurent Ahiablame; Aaron Mittelstet

Session Moderator: Aaron Mittelstet

Sponsoring committee(s): NRES-28 Ecological Engineering, NRES-253 Riparian Zones, Floodplains, & Wetlands

Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

2100965 Defining Green Infrastructure Across the Urban-Rural Divide: A Case Study of the Little Arkansas Watershed Presented by: Trisha Moore Kansas State University, Manhattan Kansas; Rong Graber, Anish Holla, Trisha Moore

2101068 Incorporating Green Infrastructure and Nature Based Systems into Hazard Mitigation Plans Presented by: Fouad Jaber Texas A&M AgriLife, Dallas Texas; Fouad Jaber

2100680 Where Does the Water Go? Uncovering Flow Paths and Groundwater Interactions in Stormwater Conveyance Structures Presented by: Thomas DeBell North Carolina State University, Raleigh North Carolina; Thomas DeBell, Chadi Sayde, Barbara Doll

2100255 Using EPA SWMM LID Controls to Target Green Stormwater Infrastructure Retrofits: A Modeling Study in Dallas, TX Presented by: Mikela Pryor Texas A&M University, Dallas Texas; Bardia Heidari Haratmeh, Fouad Jaber, Mikela Pryor

2101142 A Novel Floating Treatment Wetland Design Strategy for Improving Stormwater Wet Pond Water Quality Treatment Presented by: Molly Landon North Carolina State University, Raleigh North Carolina; Molly Landon, William Hunt, Jeffrey Johnson

2100248 Green Stormwater Infrastructure's Modeled Flood Resilience in an Ultra-urban Coastal Headwatershed Presented by: Caleb Mitchell North Carolina State University, Raleigh North Carolina; William Hunt, Caleb Mitchell

2101093 Subsurface-Flow Gravel Wetlands: An Innovative Tool for Mimicking Natural Hydrology to Improve Water Quality Presented by: Caleb Mitchell North Carolina State University, Raleigh North Carolina; William Hunt, Sarah Waickowski, Caleb Mitchel

2100031 Improvement of Simulating Sub-daily Hydrological Impacts of Rainwater Harvesting for Landscape Irrigation with Rain Barrels and Cisterns in the SWAT Model Presented by: Siyu Li University at Albany SUNY, Albany New York; Siyu Li, Yaoze Liu, Young Gu Her, Jingqiu Chen

2100217 Comparison of Temperature Trends Associated With Three Types of Pavements Presented by: Lu-Ming Chen University of Illinois Urbana-Champaign, Urbana Illinois; Paul Davidson, Lu-Ming Chen

Irrigation Management Research

Lightning Session

Organized by: Derek Heeren

Session Moderator: Gary Marek; Mary Love Tagert

Sponsoring committee(s): NRES-24 Irrigation Group, NRES-244 Irrigation Management

Scheduled day and time: Monday, July 12 11:30am - 12:30pm

2100054 Data-driven Site-specific Zone Irrigation Management in Almonds and Walnuts in California Presented by: Isaya Kisekka University of California Davis, Davis California; Srini Peddinti, Allan Fulton, Isaya Kisekka

2100415 Evaluation of Different Negligible Drainage Flux for Field Capacity Estimation and its Implication on Irrigation Depth for Major Soil Types in Alabama, USA Presented by: Bruno Patias Lena Auburn University, Auburn Alabama; Bruno P. Lena, Luca Bondesan, Brenda V. Ortiz, Everton A. R. Pinheiro, Guilherme T. Morata, Hemendra Kumar

2100623 Comparison of a Pump-Up Chamber and a Pressure “Bomb” for Measuring Leaf Water Potential in Sweet Corn and Green Beans Presented by: Fitsum Teshome University of Florida, Homestead Florida; Fitsum T. Teshome, Haimanote K. Bayabil, Christian Bartell, Bruce Schaffer

2100269 Applications of the Technology Acceptance Model in SmartAg Decision Support Tools for Florida Specialty Crop Producers to Select Alternative Water Sources Presented by: Raminder Kaur University of Florida, Gainesville Florida; Raminder Kaur, Jonathan Adam Watson

2101094 High-Frequency Unmanned Aircraft Flights for Crop Canopy Imaging During Moisture-Stress and Subsequent Irrigation Presented by: Suresh Pradhyun Kashyap University of Nebraska - Lincoln, Lincoln Nebraska; Suresh Pradhyun Kashyap, Derek Heeren, Wayne Woldt, Christopher Neale, Suat Irmak, Yeyin Shi, Mitchell Maguire, Sandeep Bhatti, Jasreman Singh

2100643 Automated Drip Irrigation for Tomato and Watermelon Production in the Red River Valley Presented by: Uday Bhanu Prakash Vaddevolu North Dakota State University, Fargo North Dakota; Uday Bhanu Prakash Vaddevolu, Xinhua Jia, Chiwon Lee, Thomas Scherer, Dongqing Lin, Justin Lester

2100541 Comparison of Four Crop Water Stress Index Models in Irrigation Scheduling of Cotton Presented by: Qiong Su Texas A&M University, College Station Texas; Qiong Su, Srinivasulu Ale, Curtis Adams, Jasdeep Singh, Sushil Himanshu, Vijay P. Singh

2100508 Irrigation Scheduling Methods: A Review of Past Experiences, Contemporary Advances and Future Prospects in the United States Presented by: Anthony Amori University of Nebraska-Lincoln, Lincoln Nebraska; Haishun Yang, Anthony Amori

Irrigation Research: Micro, Deficit, Variable Rate, and Other Technologies

Lightning Session

Organized by: Derek Heeren

Session Moderator: Sandra Guzman; Juan Enciso

Sponsoring committee(s): NRES-24 Irrigation Group, NRES-245 Microirrigation

Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

2100257 A Variable Rate Irrigation Decision Support System Performance in the US Eastern Coastal Plain Presented by: Kenneth Stone USDA-ARS, Florence South Carolina; Susan O'Shaughnessy, Alejandro Andrade, Steven Evett, Kenneth Stone

2100530 Comparing Downwind Evapotranspiration Suppression in LESA and MESA Irrigation Systems Presented by: Behnaz Molaei Washington State University, Prosser Washington; Behnaz Molaei, R. Troy Peters, Abhilash K. Chandel, Lav R. Khot, Claudio O. Stockle, Collin Campbell

2100983 Mapping of Center Pivot Irrigation Systems in South Carolina Presented by: Udayakumar Sekaran Clemson University, Blackville South Carolina; Jose Payero, Bayleah Cooper, Udayakumar Sekaran

2100765 Effects of Water Quality and Nitrogen Applied on Soil Salinity and Cotton Growth under Drip Irrigation in Arid Region Presented by: Jiusheng Li China Institute of Water Resources and Hydropower Research, Beijing China; Chao Ma, Jun Wang, Jiusheng Li, Yanfeng Li

2101189 Beneficial Impact of an Air-Injected Subsurface Drip Irrigation System on Crop Yield and Removal of Contaminants Using Runoff from a Feedlot Presented by: Henry Gonzalez University of Nebraska-Lincoln, Scottsbluff Nebraska; Xin Qiao, Matteo D'Alessio, Chittaranjan Ray, Henry Gonzalez

2100811 Evaluating Spatial and Temporal Variations in Subfield Level Crop Water Demands Presented by: Travis Wiederstein Kansas State University, Manhattan Kansas; Travis Wiederstein, Vaishali Sharda, Jonathan Aguilar, Ajay Sharda, Trevor Hefley, Ignacio Ciampitti

2100624 Canopy Temperature Dynamics of Sweet Corn and Green Beans Under A Variable Rate Irrigation System Presented by: Fitsum Teshome University of Florida, Homestead Florida; Fitsum T. Teshome, Haimanote K. Bayabil

2101114 Impact of Irrigation Technologies on Withdrawals and Consumptive Use of Water Presented by: Eric Wilkening University of Nebraska-Lincoln, Lincoln Nebraska; Eric Wilkening, Derek M. Heeren, Doug Hallum, Jennifer Schellpeper, Derrel L. Martin

2100576 Variable-Rate Irrigation Management in the Mississippi Delta Presented by: Ruixiu Sui USDA ARS, Stoneville Mississippi; Ruixiu Sui, Jonnie Baggard

2100550 Simulated Deficit Irrigation and Climate Change Effects on Sunflower Production in Eastern Colorado with CSM-CROPGRO-Sunflower in RZWQM2 Presented by: Huihui Zhang USDA-ARS, Fort Collins Colorado; Jing Zhang, Huihui Zhang, Matthew Sima, Thomas Trout, Robert Malone, Li Wang

2100447 Evaluation of Efficient Crop-Growth-Stage-Based Deficit Irrigation Strategies for Cotton Production in the Texas High Plains Presented by: Sushil Himanshu Texas A&M AgriLife Research, Vernon Texas; Sushil Himanshu, Srinivasulu Ale, Jourdan Bell, Yubing Fan, James Bordovsky, Dennis Gitz, David Brauer

2100294 Response of Deficit Irrigation on Soil CO₂ and N₂O Emissions in Greenhouse Tomato Fields Presented by: Chen Hui Huazhong Agricultural University, Wuhan Hubei China; Hui Chen, Zihui Shang, Yan Zhu, Huanjie Cai

Modeling of Hydrology and Water Quality in Surface, Sub-Surface and Groundwater Systems

Lightning Session

Organized by: Fouad Jaber

Session Moderator: Jasmeet Lamba

Sponsoring committee(s): NRES-21 Hydrology Group

Scheduled day and time: Thursday, July 15 10:00am - 11:30am

2100921 Hydrology Simulation of a Subsurface-Drained Agricultural Field using RZWQM2 Presented by: Sami Shokrana Michigan State University, East Lansing Michigan; Sami Shokrana, Manal Askar, Zhiming Qi, Ehsan Ghane

2101225 Fate of Pesticide Residues in Vegetative Filter Strips in Long-Term Exposure Assessments: VFSSMOD Development and Analysis Presented by: Rafael Munoz-Carpena University of Florida, Gainesville Florida; Rafael Munoz-Carpena, Stefan Reichenberger, Robin Sur, Klaus Hammel

2100271 Long-Term Simulation of Snow Cover and Potential Impacts on Seasonal Soil Frost Dynamics over Croplands across Canada Presented by: Ziwei Li McGill University, Montreal Quebec Canada; Ziwei Li, Zhiming Qi

2100342 Simulating Water Yield and ET of an Atlantic Coastal Plain Forest under Longleaf Pine Restoration using MIKESHE model Presented by: Devendra Amatya USDA Forest Service, Cordesville South Carolina; Mohamed D. Hamidi, Carl Trettin, Zhaohua Dai, Devendra Amatya

2100353 Hydrostratigraphic Modeling Using Airborne Electromagnetic (AEM) Data: Comparisons of Different Inversion Models Presented by: Nafiyad Kawo University of Nebraska-Lincoln, Lincoln Nebraska; Nafiyad Kawo, Jesse Korus

2100275 Comparing Multiobjective Evolutionary Algorithms for Model Calibration and Optimal Fertilizer Management Presented by: Chelsea Peterson University of Illinois, Urbana Illinois; Peterson, C. M., Rodriguez, L. F.

2100520 Assessing the Effects of Combined Management Practices on N₂O Emission and N Loss to Drainflow from Continuous Corn Fields Presented by: Shailendra Singh University of Illinois Urbana-Champaign, Urbana Illinois; Shailendra Singh, Rabin Bhattarai, Giovani Preza-Fontes, Laura Christianson, Cameron M. Pittelkow

2101151 Characteristics of Physical Water Quality Variation Under Heat Storage in Closed Saline Water Aquaculture Ponds in the Tropics Presented by: Akinori Ozaki Kyushu University, Fukuoka Japan; Akinori Ozaki, Panitan Kaewjantawee, Nguyen Van Thinh, Masaru Matsumoto, Masayoshi Harada, Kunihiro Hamagami

2100917 Tracking Cyanobacteria Bloom Transport in Surface Waters using OLCI Satellite Imagery Presented by: Natalie Von Tress North Carolina State University, Raleigh North Carolina; Natalie Nelson, Natalie Von Tress

2100410 Impacts of Projected Climate Change and Sea-Level Rise on Southeast Florida's Groundwater Resources Presented by: Young Gu Her University of Florida, Homestead Florida; Jung-hun Song, Satbyeol Shin, Young Gu Her

Natural Resources & Environmental Systems POSTER SESSION

Poster Session

Organized by: Kyle Douglas-Mankin

Session Moderator: Isaya Kisekka; Kyle Douglas-Mankin

Sponsoring committee(s): NRES-01 POSTER SESSION

Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm; Wednesday, July 14 2:30pm - 3:30pm

a.1 - **2100997 Visual Quality of TifTuf Bermudagrass in Response to Varying Degrees of Deficit Irrigation** Presented by: Ryan Ackett North Carolina State University, Raleigh North Carolina; Ryan Ackett, Chadi Sayde, Sierra Young, Grady Miller

a.2 - **2100992 Hands-On Learning Strategies in an Ecological Engineering Course** Presented by: Niroj Aryal North Carolina A&T State University, Greensboro North Carolina; Niroj Aryal, Lijun Wang, Godfrey Uzochukwu

a.3 - **2100688 Swing Arm Corner Water Normalization Method For Increased Application Efficiency** Presented by: Cody Bailey Reinke Manufacturing Co., Inc., Deshler Nebraska; Josiah Carey, Cody Bailey

a.4 - **2100748 Simulating the Effects of Management and Environmental Factors on Ecosystem Services from Corn and Soybean Dominated Agricultural Production Systems** Presented by: Abha Bhattarai The Ohio State University, Columbus Ohio; Abha Bhattarai, Sami Khanal

a.5 - **2100272 The Nose Knows! Interactions between Soil Smell and Soil Health** Presented by: Darcy Bonds Iowa State University, Ames Iowa; Darcy Bonds, Jacek Koziel, Baitong Chen, Christian Haffner, Hailee Christensen, Marshall McDaniel, Chumki Banik, Amy Kaleita, Adina Howe

a.6 - **2100121 Effect of Channel Geometry on Water Table Profile During Steady-State Subirrigation** Presented by: R Caleb Bruhn University of Illinois, Urbana-Champaign, Urbana Illinois; R Caleb Bruhn

a.7 - **2100851 Estimating Daily Tile Water Temperature for Bioreactor Performance Predictions Using DRAINMOD** Presented by: Ann Brunton University of Illinois, Champaign Illinois; Ann Brunton, Manas Khan, Richard Cooke, Laura Christianson, Rabin Bhattarai

a.8 - **2100276 Soil Water Dynamics and Crop Evapotranspiration of Sprinkler Irrigated Potato in the Commercial Fields** Presented by: Koffi Djaman New Mexico State University, Las Cruces New Mexico; Koffi Djaman, Charlie Higgins

a.9 - **2100096 Chilling and Heat Accumulation of Fruit and Nut Trees and Flower Bud Vulnerability to Early Spring Low Temperatures in New Mexico: Meteorological Approach** Presented by: Koffi Djaman New Mexico State University, Las Cruces New Mexico; Koffi Djaman, Komlan Koudahe, Murali Darapuneni, Suat Irmak

a.10 - **2100381 Geospatial and Field-Based Methods for Predicting and Quantifying Stream Bank Erosion** Presented by: Layla El-Khoury North Carolina State University, Raleigh North Carolina; Layla El-Khoury, Barbara Doll, Jack Kurki-Fox, Melanie Carter

a.11 - **2100417 An Integration of Three-Dimensional Investigation and Remote Sensing Application to Detect Total Chlorophyll-a and Blue-Green Algae Load in Water Environment** Presented by: Sumit Kumar Ghosh South Dakota State University, Brookings South Dakota; Sumit Kumar Ghosh, John McMaine, Rachel Mcperd, Bruce Bleakley

a.12 - **2100358 Land Application of Municipal Treated Wastewater** Presented by: Onnr Grogan North Carolina A&T State University, Greensboro North Carolina; Onnr Grogan, Niroj Aryal

a.13 - **2100478 Generation of High-Temporal Resolution Precipitation for Environmental Assessment under Climate Change Scenarios over the Southeastern United States** Presented by: Takhellambam Bijoychandra Singh Auburn University, Auburn Alabama; Takhellambam Bijoychandra, Pneet Srivastava, Jasmeet Lamba, Ryan McGehee, Hemendra Kumar, Di Tian

b.1 - **2100934 Feasibility of Duckweed Cultivation for Nutrient Conservation in Beef Feedlot Runoff Holding Pond Effluent** Presented by: Andrea Harris University of Nebraska, Lincoln Nebraska; Jacob Richardson, Andrea Harris, Mara Zelt, Amy M. Schmidt

b.2 - **2101188 Investigating the Impacts of Climate Change on the Surface- and Groundwater Resources of the Lower Apalachicola Chattahoochee Flint River Basin, USA** Presented by: Ritesh Karki The Pennsylvania State University, University Park Pennsylvania; Ritesh Karki, Puneet Srivastava, Latif Kalin, Di Tian

b.3 - **2100305 Zoning and Determine the Best Indicator of Drought in Southwest Iran** Presented by: Farzaneh Khorsandi The University of California, Davis, Davis California; Zohreh Khorsandi, Farhad Mokhtari, Farzaneh Khorsandi

b.4 - **2100032 Cost-Effective Conservation Practice Implementation Strategies to Reduce Excess Nutrient Loadings in an Agricultural Watershed** Presented by: Yaoze Liu University at Albany SUNY, Albany New York; Yaoze Liu, Siyu Li

b.5 - **2100461 Lagoon Water Quality Monitoring Based on Digital Image Analysis and Machine Learning Estimators** Presented by: Zong Liu Texas A&M State University, College Station Texas; Xiao Wang, Yuanhong Li, Diogenes Antille, Zong Liu

b.6 - **2100874 Evaluating the Feasibility of Methanotroph - Autotroph Co-Culture for Polyhydroxybutyrate Production** Presented by: Ana Martin-Ryals University of Florida, Gainesville Florida; Ana Martin-Ryals, Juan Daniel Cornu-Sanchez, Cuong Dao, Michelle Ezequelle, Florencia Corbo-Ferreira

b.7 - **2100114 Adsorption of Pharmaceuticals from Aqueous Solutions using Biochar Derived from Cotton Gin Waste and Guayule Bagasse** Presented by: Marlene Carla Ndoun Pennsylvania State University, University Park Pennsylvania; Marlene Carla Ndoun, Herschel A. Elliott, Clinton Williams, Heather Preisendanz, Allan Knopf, Jack Watson

b.8 - **2100928 A Novel Approach for Estimating Flow During Submerged Tile Conditions** Presented by: Patricia Paulausky Waterborne Environmental, Champaign Illinois; Patricia Paulausky, Farah Abi-Akar, Russell Krueger, Gregory Goodwin

b.9 - **2101250 Natural Hydrogel Improves Green Pepper Yield and Reduces Nutrient Losses under Water Stress Conditions** Presented by: Joba Purkaystha; Joba Purkaystha, Shiv Prasher, Muhammad T. Afzal, Yixiang Wang, Christopher Nzediegwu, Jaskaran Dhiman

b.10 - **2101251 Wheat Straw Biochar Reduces Nutrient Leaching in Soils with Varying Fertility Levels** Presented by: Joba Purkaystha; Joba Purkaystha, Shiv Prasher, Muhammad T. Afzal, Christopher Nzediegwu, Joann K. Whalen, Jaskaran Dhiman

b.11 - **2101247 Comparison of Methane Emissions Based on Irrigation Practices in US Mid-South Rice Production** Presented by: Michele Reba USDA, Jonesboro Arkansas; Reba, M.L., Fong, B.N., Massey, J.H., Chiu, Y.L., Adviento-Borbe, M.A., and Runkle, B.R.

b.12 - **2100481 Impact of Soil Health Practices on Soil Physical and Chemical Properties within the Root Zone** Presented by: Ajoy Kumar Saha South Dakota State University, Brookings South Dakota; Ajoy Kumar Saha, John McMaine

b.13 - **2100003 Estimation of Crop Coefficient (Kc) for Direct Seeded and Transplanted Guayule and Kc Prediction via Remote Sensing** Presented by: Douglas Hunsaker ALARC-USDA, Maricopa Arizona; Diaa Eldin M. Elshikha, Douglas J. Hunsaker, Peter M. Waller, Kelly R. Thorp, David Dierig, Guangyao Wang, Mark V. Cruz, Matthew E. Katterman, Kevin F. Bronson, Gerard W. Wall, Alison Thompson

c.1 - **2100482 Impact of Soil Health Practices on Soil Moisture Level within the Root Zone** Presented by: Ajoy Kumar Saha South Dakota State University, Brookings South Dakota; Ajoy Kumar Saha, John McMaine

c.2 - **2100501 Evaluating the Effect of Deficit Irrigation on Landscape Groundcovers** Presented by: Anish Sapkota University of California - Riverside, Riverside California; Anish Sapkota, Amir Haghverdi, Amninder Singh, and Donald Merhaut

c.3 - **2101146 Perceptions of Manure Use in Cropping Systems in Southern Idaho** Presented by: Linda Schott University of Idaho, Twin Falls Idaho; Linda Schott

c.4 - **2100504 Recycled Water Application for Turfgrass Irrigation to Conserve Water, Maintain Turf Quality and Sustain Soil Health** Presented by: Amninder Singh University of California, Riverside, Riverside California; Amninder Singh, Amir Haghverdi, Darren Haver, Anish Sapkota

c.5 - **2100351 Determination of DSSAT-CSM-CROPGRO-Cotton Model Cultivar Coefficients from Cotton Variety Trial Data for Regional-Scale Crop Yield Prediction** Presented by: Jasdeep Singh Texas A&M AgriLife Research, Vernon Texas; Jasdeep Singh, Srinivasulu Ale, Emi Kimura, Sushil K. Himanshu, Qiong Su, and Curtis Adams

c.6 - **2100987 Life Cycle Greenhouse Gas Emissions Assessment of Dairy Manure Management via Ensilage** Presented by: Haley Stockham Ohio State University, Wooster Ohio; Haley Stockham, Asmita Khanal, Glen N. Courtright, Brian Roe, Ajay Shah

c.7 - **2100666 Barriers to Adoption of Improved Grain Storage Technologies for Smallholder Farmers in Developing Countries** Presented by: Jaden Tatum the Ohio State University, Columbus Ohio; Jaden Tatum, Ajay Shah, Nicole Sintov

- c.8 - **2100510 *Evaluating the Halfmoon Creek Watershed Implementation Plan using the Soil Water Assessment Tool*** Presented by: Rachel Taylor Penn State University, University Park Pennsylvania; Rachel Taylor, Heather E.Preisendanz, Tamie L. Vieth, Cibir Raj
- c.9 - **2100916 *Investigating Membrane Bioreactor Technology for Water and Nutrient Reuse in Hydroponic Crop Production*** Presented by: Kelsey Vought The University of Florida, Gainesville Florida; Kelsey Vought, Haimanote Bayabil, Ana Martin-Ryals
- c.10 - **2100920 *Impacts of Landcover Change on the Spatial Distribution of Nonpoint Source Pollution based on SWAT Model*** Presented by: Zeshu Zhang University of Maryland, College Park, College Park Maryland; Zeshu Zhang, Hubert Montas, Adel Shirmohammadi, Paul Leisnham, Masoud Negahban-Azar
- c.11 - **2101086 *Effects of Light Intensity Reduction on Growth and Yield of Jute Mallow (Corchorus Olitorius) under Different Irrigation Scheduling*** Presented by: Temitayo Ewemoje University of Ibadan, Ibadan Oyo Nigeria; Temitayo Abayomi EWEMOJE, Habeeb Adedotun ALABI, Isaac Oladeji LEBI, Afeez ADEWALE, Sefiu Abiodun TIAMIYU, Joshua Oluwadamilare OYELAYO.
- c.12 - **2101217 *Response of Sweet Corn Hybrid to Different levels of Irrigation and Nitrogen applied through Drip in India*** Presented by: Pallakonda Revathi Professor Jayashankar Telangana State AU, Jagtial Telangana India; Sharana Basava, K.B. Suneetha Devi, Y. Siva Lakshmi, Revathi P, P. Surendra Babu
- c.13 - **2100886 *Phosphorus Variability in the Irrigated Cropland during a Growing Season*** Presented by: Hemendra Kumar Auburn University, Auburn Alabama; Hemendra Kumar, Puneet Srivastava, Jasmeet Lamba, Brenda Ortiz, Bijoychandra Takhellambam, Laljeet Singh, Thomas Way
- d.1 - **2100232 *Performance of Aerobic Rice at Different Irrigation (Drip) and Fertigation Levels*** Presented by: Pallakonda Revathi Professor Jayashankar Telangana State AU, Jagtial Telangana India; D.Yama Reddy, P.Revathi, K.B.Suneetha Devi, K.Chandra Shaker
- d.2 - **2101216 *Characterisation and Mapping of Irrigation Water Quality in Groundnut Belt of Erstwhile Mahabubnagar District of Telangana using RS & GIS*** Presented by: Sannidi Sushma Professor Jayashankar Telangana State AU, Hyderabad Telangana India; S. Sushma, G. S. Madhu Bindu, T. L. Neelima and M. Uma Devi
- d.3 - **2100301 *Environmental impacts of E-Waste recycling in Africa*** Presented by: Heinz Bernhardt Technical University of Munich, Freising Bavaria Germany; Omar Hijazi, Okyere Aikins, Heinz Bernhardt
- d.4 - **2100015 *Yield Responses of Furrow-Irrigated Guayule using Deficit Irrigation*** Presented by: Daa Eldin Elshikha Mansoura University, Al Mansoura Dakahlia Egypt; Daa Eldin M. Elshikha, Peter M. Waller, Douglas J. Hunsaker, David Dierig, Guangyao Wang, Kelly R. Thorp, Alison Thompson, Matthew T. Herriott, Matthew E. Katterman, Kevin F. Bronson, Gerard W. Wall
- d.5 - **2100115 *Soil Health as Affected by Long-Term No-Till Wheat Cover Crop, Corn, and Soybean Rotations in the Southeast United States*** Presented by: Tingting Chang Hohai University, Nanjing Jiangsu China; Tingting Chang, Gary Feng, Varun Paul, Dennis B. Reginelli, and Johnie Jenkins
- d.6 - **2101002 *Effects of Cover Crops on Soil Health and Sustainability of Corn-Soybean Cropping System under Future Climate Change Scenarios*** Presented by: Tingting Chang Hohai University, Nanjing Jiangsu China; Tingting Chang, Gary Feng, Varun Paul, Dennis B. Reginelli, and Johnie Jenkins
- d.7 - **2100767 *Water and Olsen-P Distribution as Affected by Phosphate Fertilizer Types and Emitter Discharge Rates from a Point Source*** Presented by: Jiusheng Li IWHR, Beijing China; Zhen Wang, Yanhong Guo, Jiusheng Li

d.8 - **2100766 Simulation of Optimal Irrigation Amount for Main Crops in Different Hydrological Years of Fenxi Irrigation District, Shanxi Province, China** Presented by: Jiusheng Li IWHR, Beijing China; Luchan Tian, Jun Wang, Jiusheng Li, Yanfeng Li, Xianghong Guo

d.9 - **2100389 Measuring Soil Hydraulic Conductivity, Aggregates and Other Hydraulic Properties and Evaluating the Sustainability of Agricultural Land Use** Presented by: Yujie Zhang Hohai University, Nanjing Jiangsu China; Yujie Zhang, Gary Feng, Guihong Bi, Shuangren Yu, Dennis B. Reginelli, Johnie Jenkins

d.10 - **2100265 Sustainable Organic Farming System for Improving Soil Aggregates, Infiltration and Water Retention Capacity to Minimize Effects of Drought and Flood** Presented by: Yujie Zhang Hohai University, Nanjing Jiangsu China; Yujie Zhang, Gary Feng, Guihong Bi, Shuangren Yu, Dennis B. Reginelli, Johnie Jenkins

d.11 - **2100405 Study on Grassland Tillage** Presented by: Xuening Zhang China Agricultural University, Beijing China; Xuening Zhang, Yong You, Decheng Wang

d.12 - **2100961 Evaluation of Plant-Controlled Atmometer to Predict the ET During the Soil-Limiting Phase** Presented by: Mujibur Rahman University of Manitoba, Winnipeg Manitoba Canada; Mujibur Rahman, Ramanathan Sri Ranjan

NRES Distinguished Lecture Series

Live Session

Organized by: Kyle Douglas-Mankin

Session Moderator: Kyle Douglas-Mankin

Sponsoring committee(s):

Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

2101321 Global Water Security: Current Research, Perspectives and Priorities for Action Presented by: Daren Harmel USDA ARS

2101322 Global Water Security: Current Research, Perspectives and Priorities for Action Presented by: Srinilale Texas A&M AgriLife Research

2101323 Wetland Ecosystem Resiliency: Current and Future Considerations as Influent Water Chemistry Evolves Presented by: Tiffany Messer University of Kentucky

2101324 Soil Erosion Mechanics and Prediction Research Priorities Presented by: Dennis Flanagan USDA ARS

2101325 Agricultural Conservation Practice Effectiveness: What We Have Learned and Future Needs Presented by: Yongping Yuan US EPA

2101326 Agricultural Conservation Practice Effectiveness: What We Have Learned and Future Needs Presented by: Ruth Book USDA NRCS, Retired

2101327 The 6th Decennial National Irrigation Symposium, Irrigation over the Last Decade and a Vision of the Future Presented by: Freddie Lamm Kansas State University

2101328 The 6th Decennial National Irrigation Symposium, Irrigation over the Last Decade and a Vision of the Future Presented by: Michael Dukes University of Florida

Nutrient Removal, Recovery, and Recycling

Lightning Session

Organized by: Laurent Ahiablame

Session Moderator: Lordwin Jeyakumar

Sponsoring committee(s): NRES-28 Ecological Engineering

Scheduled day and time: Monday, July 12 11:30am - 12:30pm

2100205 Life Cycle Assessment (LCA) and Economic Feasibility Evaluation of Struvite Recovery in Swine Manure Management Presented by: Mahmoud Sharara North Carolina State University, Raleigh North Carolina; Somayeh Aghdam, Mahmoud Sharara

2100411 Using Acclimated Local Algal Consortia to Recycle Nutrients from Effluent of Anaerobically Digested Dairy Manure Presented by: Qichen Wang Auburn University, Auburn Alabama; Brendan Higgins, Rishi Prasad, Alan Wilson, Qichen Wang

2100918 Microalgae for Swine Wastewater Treatment and Nutrient Removal: Effects of Solid Separation Presented by: Xufei Yang South Dakota State University, Brookings South Dakota; Augustina Osabutey, Gary Anderson, Kyungnan Min, Xufei Yang

2100135 Stopping Foam Formation In Liquid Swine Manure During Low-Temperature Vacuum Evaporation Presented by: Arianna Braiman North Carolina State University, Raleigh North Carolina; John Classen, Alison Deviney, Azrianna Braiman

2100013 Nitrogen Mineralization and Dynamic of Digestate: Influence of Alkaline Pretreatment Presented by: Ademola Ajayi-Banji North Dakota State University, Fargo North Dakota; A. Ajayi-Banji, L. Cihacek, A. Rashad, S. Rahman

2100171 Upcycling of Nutrients from Anaerobic Digestate to Algae to Zooplankton Fish Feed Presented by: Brendan Higgins Auburn University, Auburn Alabama; Miriam Hyman, Qichen Wang, Alan Wilson, Brendan Higgins

2100677 Wastewater Reuse and Sustainability with a Single Pond-in-Pond System Presented by: Clifford Fedler Texas Tech University, Lubbock Texas; Clifford B. Fedler, Kushal Adhikari

2101238 Transforming the Nitrogen Bioeconomy in the Chesapeake Bay Watershed: Nutrient Recovery and Upcycling for Sustainable Agricultural Systems Presented by: Rachel Brennan Pennsylvania State University, University Park Pennsylvania; Rachel Brennan

Phosphorus Research and Management: Field, Soil, Wastewater, and Stormwater Systems

Lightning Session

Organized by: Anita Thompson

Session Moderator: Sanjay Shukla

Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-224 Sediment and Associated Pollutants

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2100044 Phosphorus Runoff from Sandy Soils Under Conservation Tillage with Surface Broadcasted Recovered Phosphates Presented by: Clement Sohoulade USDA-ARS, Florence South Carolina; Clement Sohoulade, Ariel Szogi, Ken Stone, Gilbert Sigua, Jerry Martin, Paul Shumaker, Phil Bauer

2100902 Influence of Macropores on Phosphorus Leaching in pPstures: An Experimental and Modeling Study Presented by: Kritika Malhotra Auburn University, Auburn Alabama; Jasmeet Lamba, Thomas Way, Jirka Simunek, Puneet Srivastava, Suman Budhathoki, Kritika Malhotra

2101028 Phosphorus Retention Structures in Legacy Phosphorus Agricultural Fields: An Economic and Energetic Evaluation Presented by: Samantha Francis The Ohio State University, Columbus Ohio; Jay Martin, Nathan Stoltzfus, Michael Brooker, Rachelle Crow, Chad Penn, Samantha Francis

2100286 Removing and Recovery Phosphorus from Wastewater with Engineered Biochar Presented by: Yulin Zheng University of Florida, Gainesville Florida; Yulin Zheng, Anne Elise Wester, Nedgine Joseph, Bing Wang, Yicheng Yang, Yue Zhang, Jinsheng Huang, Bin Gao

2100592 Effect of Water Sampling Strategies on the Uncertainty of Phosphorus Load Estimation Presented by: Babak Dialameh Michigan State University, East Lansing Michigan; Babak Dialameh, Ehsan Ghane

2100754 Evaluating the Impacts of Precipitation on Phosphorus Runoff from Agricultural Fields with Elevated Soil Phosphorus Presented by: Rachelle Crow The Ohio State University, Columbus Ohio; Rachelle Crow, Jay Martin, Nathan Stoltzfus, Michael Brooker, Kevin King, Samantha Francis

2101193 Circular Economy Approach for Managing Agricultural Stormwater Phosphorus Presented by: Sanjay Shukla University of Florida, Immokalee Florida; Asmita Shukla, Sanjay Shukla, Alan W Hodges

2100682 Minnesota Phosphorus Loss: How Soil Loss Is Only Part of the Story and Why Modeling Can Be Improved by Considering Subsurface Phosphorus Loss Presented by: Lindsay Pease UMN Northwest Research & Outreach Center, Crookston Minnesota; Heidi Reitmeier, Lindsay Pease, Melissa Wilson, Heidi Peterson, Paulo Pagliari

2101155 Nucleic Acids are a Major Pool of Hydrolyzable Organic Phosphorus in Arable Organic Soils Presented by: Aidan De Sena McGill University, Montreal Quebec Canada; Aidan De Sena, Chandra A. Madramootoo, Joann K. Whalen, Christian von Sperber

Real-Time Systems to Manage Natural Resources and Environmental Systems

Lightning Session

Organized by: Fouad Jaber

Session Moderator: Deb Sahoo; Fouad Jaber

Sponsoring committee(s): NRES-21 Hydrology Group, NRES-24 Irrigation Group, NRES-28 Ecological Engineering

Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

2101024 Machine Vision Tools for Delimiting Distribution of Coconut Rhinoceros Beetle on the Island of Oahu Presented by: Daniel Jenkins University of Hawaii, Honolulu Hawaii; Mohsen Paryavi, Keith Weiser, Michael Melzer, Reza Ghorbani, Daniel M. Jenkins

2100582 Real-Time Dam Monitoring and Inspection Pilot Program Presented by: Sherry Hunt USDA-ARS HERU, Stillwater Oklahoma; Michael Buser, Daniel Moriasi, Daren Harmel, Jennifer Carter, Sherry Hunt

2100905 Full Spectrum Environmental Monitoring Technologies Presented by: Steve Elgie KISTERS North America, Sacramento California; Steve Elgie, Jens Proche, Jorn Baayen

2101044 Sensor-Based Irrigation of Maize and Soybean in East-Central Nebraska under a Sub-Humid Climate Presented by: Jasreman Singh University of Nebraska-Lincoln, Lincoln Nebraska; Jasreman Singh, Derek M. Heeren, Yufeng Ge, Geng Bai, Christopher M. U. Neale, Mitchell S. Maguire, Sandeep Bhatti

2100195 Regression Models to Simulate O₃ Contributions From Prescribed Burning in Flint Hills Using Daily Burned-Area Data Presented by: Demilade Akinbile Kansas State University, Manhattan Kansas; Zifei Liu, Demilade Akinbile

2100278 Predicting Liquid Dairy Manure Temperature During Storage Using Machine Learning and Finite Element Analysis Tools Presented by: Rana Genedy Virginia Tech, Blacksburg Virginia; Rana A. Genedy, Jactone Ogejo, Matthias Chung,

2100540 Improving the Reliability of Monthly and Seasonal Weather Forecasts of the North American Multi-Model Ensemble (NMME) for Regional Crop Modeling Presented by: Qiong Su Texas A&M University, College Station Texas; Qiong Su, Srinivasulu Ale, Sushil Himanshu, Jasdeep Singh, Vijay P. Singh

2100887 Use of Short-term Weather Forecast Data in Irrigation Scheduling of Corn and Cotton to Improve Water and Nutrient Use in Humid Climates Presented by: Laljeet Sangha Virginia Tech, Blacksburg Virginia; Laljeet Sangha, Julie Shortridge, William Frame

2100631 Assessment of Water Efficiency and Uniformity with Irrigation Performance Indicators using EPA SWMM Presented by: Ji-Hyeon Shin Hankyong National University, Anseong Gyeonggi-do South Korea; Ji-Hyeon Shin, Won-Ho Nam

2100587 Quantifying the In-Stream Hydrologic and Water Quality Impact of a Real-Time Controlled Dry Extended Detention Basin: A Case Study Presented by: Aaron Akin University of Tennessee, Knoxville, Knoxville Tennessee; Aaron Akin, Jon Hathaway

2100175 Development of an Automated Early Warning Wastewater Pond Leak Detector Presented by: Bryan Woodbury USDA, Clay Center Nebraska; Roger Eigenberg, Bryan Woodbury

Sprinkler and Precision Irrigation Advances

Lightning Session

Organized by: Derek Heeren

Session Moderator: Charles Hillyer; Amir Haghverdi

Sponsoring committee(s): NRES-24 Irrigation Group, NRES-241 Sprinkler Irrigation

Scheduled day and time: Thursday, July 15 10:00am - 11:30am

2100002 Geospatial Technologies for Sprinkler-Irrigated Cotton Presented by: Kelly Thorp USDA-ARS, Maricopa Arizona; Kelly Thorp, Diaa Elshikha, Duke Pauli, Pedro Andrade-Sanchez

2100236 Sustainable Irrigation An Integrated Approach Presented by: Jacob LaRue M&J Consulting, Owasso Oklahoma; Jacob LaRue

2100089 Impact of irrigation and Nitrogen Management on Corn Yield, Water Productivity, Water Quality and Economic Returns Presented by: Vasudha Sharma University of Minnesota, Saint Paul Minnesota; Vasudha Sharma, Yuxin Miao, Fabian Fernandez

2100761 Research on Conversion Time and Reference Location of Canopy Temperature Based on Scaled Method Presented by: Minne Zhang China Institute of Water Resources and Hydropower Research, Beijing China; Minne Zhang, Weixia Zhao, Fanyu Meng, Jiusheng Li

2101084 An Irrigation Decision Support System for Conserving Resources and Optimizing Cotton Production (idCROP) Presented by: Srinivasulu Ale Texas A&M AgriLife Research, Vernon Texas; Srinivasulu Ale, Qiong Su, Jasdeep Singh, Sushil Himanshu, Yubing Fan, Blake Stoker, Eric Gonzalez, Bala Sapkota, Curtis Adams, Keith Biggers, Emi Kimura, James Wall

2100367 Effects of Sprayer Height in Center Pivot System on Growth of Summer Maize Under Semi-Humid Climate Conditions Presented by: Xinrui Fan China Institute of Water Resources and Hydropower Research, Beijing China; Xinrui Fan, Weixia Zhao, Jiusheng Li

2100507 Parallel Comparison of CornSoyWater Irrigation Scheduler with Conventional Irrigation Scheduling in Center Pivot Maize Fields in Northeastern Nebraska, USA Presented by: Anthony Amori University of Nebraska-Lincoln, Lincoln Nebraska; Haishun Yang, Anthony Amori

2100283 Comparison of Stationary and Mobile Canopy Sensing Systems for Irrigation Management of Corn and Soybean in Nebraska Presented by: Sandeep Bhatti University of Nebraska Lincoln, Lincoln Nebraska; Sandeep Bhatti, Derek Heeren, Susan O'Shaughnessy, Christopher Neale, Nate Dorsey, Yufeng Ge, Wayne Woldt, Mitchell Maguire

2100650 Cost per Drop: Cost Comparison Estimates for Various Irrigation Water Conservation Technologies

Presented by: Troy Peters Washington State University, Prosser Washington; Michael Barber, Behnaz Molaei, Troy Peters

2100529 Evaluation and Performance of Different Irrigation Scheduling Methods and Their Impact on Corn Production and Nitrate Leaching in Central Minnesota

Presented by: Gurparteet Singh University of Minnesota Twin Cities, Saint Paul Minnesota; Vasudha Sharma, David Mulla, Muhammad Tahir, Fabian Fernandez, Gurparteet Singh

Sustainable Manure Treatment and Management Systems

Lightning Session

Organized by: Linda Schott

Session Moderator: Linda Schott; Saquib Mukhtar

Sponsoring committee(s): NRES-27 Ag Byproducts & Animal Mortality Systems

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2100078 Characterizing the Spatiotemporal Distribution of Concentrated Swine Feeding Operations Using Remote Sensing

Presented by: Lise Montefiore North Carolina State University, Raleigh North Carolina; Natalie G. Nelson, Mahmoud Sharara, Lise Montefiore

2100113 Evaluation of On-Farm Centrifuge and Screen on Removing Solids and Nutrients and Reducing Ammonia Emissions from Flushing Liquid Dairy Manure

Presented by: Lide Chen University of Idaho, Twin Falls Idaho; Lide Chen, Kevin Kruger, Howard Neibling

2100704 Physical and Rheological Properties of Strata in an Anaerobic Swine Lagoon Column

Presented by: Jacqueline Welles North Carolina State University, Raleigh North Carolina; Jacqueline Welles, John Classen, Mahmoud Sharara, Christopher Hopkins, Mark Patrick

2100771 Evaluation of Water Quality Benefits of Manureshed Based Manure Management in the Susquehanna River Basin

Presented by: Arghajeet Saha The Pennsylvania State University, State College Pennsylvania; Arghajeet Saha, Gourab Saha, Raj Cibin, Sheri Spiegel, Peter J. A. Kleinman

2100224 Variability of Liquid Manure Constituents during Field Application

Presented by: Christopher Shoup The Ohio State University, Columbus Ohio; C. Shoup, G. Arnold, S. Culman, S.A. Shearer, J.P. Fulton

2100139 Particle Size Distribution and Accompanying Nutrients in Flushed Dairy Manure

Presented by: Bishnu Pandey University of Idaho, Moscow Idaho; Bishnu Pandey, Lide Chen, Kevin Kruger

2100713 Improving Lagoon Wastewater Quality Using a Solar-Powered and Self-Guided Floating Treatment Platform

Presented by: Amirhossein Mahdaviarab Texas A&M University, College Station Texas; Xiao Wang, Lucas Gregory, Zong Liu, Amirhossein Mahdaviarab

2100057 Investigation of the Impact of Sonication on Organic Matter Solubilization and Bio-methane Potential (BMP) of Swine Lagoon Sludge

Presented by: Piyush Patil North Carolina State University, Raleigh North Carolina; Piyush Patil, Mahmoud Sharara

2101233 Farm Scale Poultry Litter Anaerobic Digestion Combined Nutrient Capture System and Prototype Ammonia Scrubber for Energy Production and Nutrients Recovery

Presented by: Amro Hassanein University of Maryland, College Park Maryland; Amro Hassanein, Stephanie Lansing, Andrew Moss, Nicholas Cloyd, Freddy Witorsa

2100133 Modeling Multiple Perspectives for Sustainable Manure Management

Presented by: Alison Deviney North Carolina State University, Raleigh North Carolina; John Classen, Jackie Bruce, Mahmoud Sharara, Dean Hesterberg, Alison Deviney

SWAT Advances and Applications: Modeling Water, Nutrients, Management, and Change

Lightning Session

Organized by: Fouad Jaber

Session Moderator: Cibir Raj; Clement Sohoulade

Sponsoring committee(s): NRES-21 Hydrology Group

Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

2100045 Comparison of SWAT Simulated Evapotranspiration with Remotely Sensed Evapotranspiration in Big Sunflower River Watershed, Mississippi Presented by: Avay Risal Mississippi State University, Mississippi State Mississippi; Prem B. Parajuli, Avay Risal

2100473 Advancing Representation of Hydrologic Processes from Hillslope to Hyperscale Grids Presented by: Jorge A Guzman University of Illinois, Urbana Illinois; Jorge A. Guzman, Maria L. Chu, Sanghyun Lee, Jeongho Han

2100725 Improving Native Prairie Restoration Modeling for Flood Reduction using Pedotransfer Functions Presented by: Cynthuja Partheeban Texas A&M AgriLife Research Center, Dallas Texas; Fouad Jaber, Raghavan Srinivasan, Patricia Smith, Cynthuja Partheeban

2100270 Evaluating the Effectiveness of SWAT (Soil and Water Assessment Tool) In Simulating the Impact of Drainage Water Management (DWM) System on Water Quality Presented by: Sushant Mehan Ohio State University, Columbus Ohio; Sushant Mehan, Kevin King, Haley Kujawa, Vinayak Shedekar, Asmita Murumkar, Margaret Kalcic

2100564 Evaluating Multi-Model Multi-Parameter Ensemble Approaches to Improve the Prediction Accuracy of Hydrology and Water Quality Modeling Presented by: Satbyeol "Joy" Shin University of Florida, Homestead Florida; Satbyeol Shin, Younggu Her

2100726 Effects of Proposed SCS Curve Number Method Revision on Ecohydrological Indicators and BMP Decision-Making using the Soil and Water Assessment Tool Presented by: Jamie Weikel Pennsylvania State University, University Park Pennsylvania; Jamie Weikel, Cibir Raj, Ritesh Karki

2100593 A Comparison of Daily Streamflow Prediction by an Artificial Neural Network and the Soil and Water Assessment Tool (SWAT) in Two Small Watersheds in Central South Texas Presented by: Xiaohan Mei Texas A&M University, College Station Texas; Xiaohan Mei, Patricia Smith

2100581 Simulating Impact of NOAA-NWS Runoff Risk Advisory Forecast (RRAF) Tool on Water Quality Impacts in Western Lake Erie Basin, USA Presented by: Asmita Murumkar Ohio State University, Columbus Ohio; Asmita Murumkar, Jay Martin, Margaret Kalcic, Dustin Goering, Andrea Thorstensen, Vinayak Shedekar, Grey Evenson, Anna Apostel, Jeffrey Kast, Chelsie Boles, Todd Redder, Remegio Confesor

2101039 The Effect of Cover Crops on Field-Scale Nutrient Budgets in the Chesapeake Bay Watershed using SWAT Presented by: Whitney Lisenbee Pennsylvania State University, University Park Pennsylvania; Whitney Lisenbee, Jason Kaye, Cibir Raj

2100981 Using Soil & Water Assessment Tool (SWAT) to Model Neonicotinoid Loading into Urban and Agricultural Watersheds Presented by: Josephus Borsuah University of Nebraska-Lincoln, Lincoln Nebraska; Josephus Borsuah, Aaron Mittelstet, Tiffany Messer

Viral and Wild in 2020: COVID and Wildfire Research in ASABE-NRES

Simulated Live Session

Organized by: Anita Thompson

Session Moderator: Kyle Douglas-Mankin

Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-223 Erosion Control Research, NRES-252 Geomorphology, Streambank Stability & In-Stream Processes, ASE-12 Forest Engineering

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

2101329 Forest Service-WEPP Knows Where Black Water Flows: Post-wildfire Erosion Predictions and Mitigation Effectiveness Presented by: Peter Robichaud USDA Forest Service, Moscow Idaho; Peter Robichaud

2100517 Impacts of COVID-19 on the Presence of Emerging Contaminants in Treated Wastewater Presented by: Kathryn Hayden Pennsylvania State University, State College Pennsylvania; Heather E. Preisendanz, William I. Clees, Olivia Mroczko, Kyle Elkin, Jack Watson, Herschel Elliott, Kathryn Hayden

2100953 Modeling Network-Scale Sediment Transport and Storage Potential Due to Post-Wildfire Debris Flow in Utah Watersheds Presented by: Muneer Ahammad Virginia Tech, Blacksburg Virginia; Muneer Ahammad, Jonathan A. Czuba, Brendan P. Murphy, Scott David, Sara Wall, Justin Stout, Patrick Belmont

2100364 What Role Do Environmental Elements Play in the Persistence of Coronaviruses in Wastewater? Presented by: Diplina Paul North Carolina State University, Raleigh North Carolina; Diplina Paul, Steven G. Hall, Praveen Kolar

2101065 Fire effects on evapotranspiration in the Upper Rio Grande Basin using Landsat-based SSEBop Presented by: Kyle Douglas-Mankin USDA-ARS, Fort Collins Colorado; Kyle Douglas-Mankin, Rhythm Patel

2100662 NRCS Response to 2020 Agricultural Production Limitations as a Result COVID-19 Presented by: William (Bill) Reck USDA-NRCS, Washington DC; William Reck, Jeffrey Porter

2101074 Simulating Hydrologic Effects of Fire in a Small, Sub-alpine Watershed in New Mexico using AgES Presented by: Kyle Douglas-Mankin USDA-ARS, Fort Collins Colorado; Kyle Douglas-Mankin, Ryan Wells, Holm Kipka, Timothy Green

Vulnerability Assessment of Land Resources for Sustainable Development

Simulated Live Session

Organized by: Aavudai Anandhi

Session Moderator: Aavudai Anandhi

Sponsoring committee(s): NRES-26 Sustainable Land Resources

Scheduled day and time: Thursday, July 15 10am - 12:30pm

2101330 Long-term Trend of Water Erosion on Cropland in the Inland Pacific Northwest Presented by: Joan Q. Wu Washington State University, Pullman Washington; Joan Q. Wu, M. Samrat Dahal

2101331 Integrated Wetland and River Basin Management - A Case Study of Loktak Lake Presented by: J. Brema Karunya Institute of Technology and Sciences, Coimbatore India; J. Brema

2101332 Vulnerability Assessment of Land and Water Resources in the Degrading Ethiopian Highlands a Case Study of the Debre Mawi Watershed Presented by: Tammo S. Steenhuis Cornell University, Ithaca New York; Tammo S. Steenhuis, Seifu A. Tilahun, Amy S. Collick, Christian D. Guzman, Demesew A. Mhret, Dessalegn C. Dagnew, Tilashwork C. Alemie, Assefa D. Zegeye, Tigist Y. Tebebu

2101333 Land Use Management in Response to Climate Change at Choctawhatchee Watershed Presented by: Gang Chen FAMU-FSU College of Engineering, Florida; Gang Chen, Aavudai Anandhi

2101334 Towards a Conceptual Framework to Predict Physical Vulnerability of Major Crops to Winter Floods in the Northern High Plains Presented by: Francisco Munoz-Arriola University of Nebraska-Lincoln, Lincoln Nebraska; Francisco Munoz-Arriola, Parisa Sarzaeim, Wenqi Ou, Luciano Alves de Oliveira

2101335 *A sociohydrologic approach to understanding vulnerability and resilience to flooding for decision support in Biloxi, Mississippi, USA* Presented by: Frances O'Donnell Auburn University, Auburn Alabama; Frances C. O'Donnell, Jessica L. Calhoun, Christopher G. Burton

Water Challenges and Urban to Global Sustainable Solutions

Simulated Live Session

Organized by: Fouad Jaber

Session Moderator: Rabi Mohtar

Sponsoring committee(s): NRES-21 Hydrology Group

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2101336 *TBD* Presented by: Maisaa Youssef Univ of Maryland

2100433 *Resilience of Puerto Rico's Food, Energy, and Water Systems* Presented by: Daniela Markazi University of Illinois, Urbana-Champaign, Champaign Illinois; Daniela M. Markazi, Luis F. Rodriguez, Richard R. Rushforth, Sean M. Ryan

2100740 *Project-Based Learning and Community Development Research on Disaster Relief and Resilience in Puerto Rico* Presented by: Michael Stablein University of Illinois Urbana Champaign, Urbana Illinois; Luis Rodriguez, Luis Perez-Alegria, Michael Fernandez-Frey, Nelson Cardona Martinez, Mariela Ramirez, Luisa Seijo Maldonado, Lauren Lindow, Jill Heemstra, Dan Steward, Dawn Owens, Michael Stablein

2100009 *The Scale-up of Irrigation Systems in Ghana* Presented by: Robert Stwalley Purdue University, W Lafayette Indiana; Robert M. Stwalley III, Grace Baldwin

2100511 *USDA-Natural Resources Conservation Service's Role in Supporting Urban Farming as Means to a Sustainable Food Supply* Presented by: Jon Fripp USDA-NRCS, Washington DC; Clarence Prestwich, Jon Fripp, Phuc Vu

2100221 *Soil Water Variability and Stability in Crop Fields during a Growing Season* Presented by: Hemendra Kumar Auburn University, Auburn Alabama; Hemendra Kumar, Puneet Srivastava, Jasmeet Lamba, Brenda Ortiz, Bijoychandra Takhellambam, Guilherme Morata

2100857 *Evaluating a Best Management Practice for On-Farm Water Reuse through Modeling and Monitoring* Presented by: Meredith Brock Mississippi State University, Starkville Mississippi; Meredith Brock, Mary Love Tagert, Lindsey Yasarer, Joel Paz

2100438 *The Food-Energy-Water (FEW) Nexus: An Alternative for Water Management in the Andean Region (Colombia Cientifica Pasaporte a la Ciencia - Foco Alimentos)* Presented by: Camilo Torres Purdue University, West Lafayette Indiana; Margaret Gitau, Jaime Lara-Borrero, Diego Paredes-Cuervo, Camilo Torres

2101008 *Risk Assessment of Heavy Metal Accumulation in Soil and Plant System Irrigated with Municipal Wastewater* Presented by: Kumar Veluswamy Thiagarajar College of Engineering, Madurai Tamil Nadu India; S. Chandran, S.R. Thiruchelve, S. Mohan, Gunasekaran Sundaram, K.G. Karthikeyan, Kumar Veluswamy

2101012 *Groundwater Quality Assessment for Drinking and Irrigational Purposes in a Wasteland Region, Tamil Nadu, India* Presented by: Kumar Veluswamy Thiagarajar College of Engineering, Madurai Tamil Nadu India; S. Chandran, S.R. Thiruchelve, Kumar Veluswamy

2100712 *Assessment of Water Supply Systems Reliability with Irrigation Distribution Networks in Agricultural Reservoirs under Climate Change* Presented by: Na-Kyoung Bang HanKyong National University, Anseong-si Gyeonggi-do South Korea; Na-Kyoung Bang, Won-Ho Nam

2101128 A Sustainable and Resilient Fresh Produce Production System for Reducing Inputs, Costs, and Production Risks While Improving Efficiency and Human Health Presented by: Vijay Santikari University of Florida, Immokalee Florida; Kira Hansen, Rajendra Sishodia, Gregory Hendricks, Sanjay Shukla, Vijay Santikari

2100483 Participatory Management of Water Resources under Climate Change: Assessing Coupled Human-Water Systems Presented by: Mohammad Reza Alizadeh McGill University, Montreal Quebec Canada; Mohammad Reza Alizadeh, Jan Adamowski, Azhar Inam

2101129 Modelling Desertification as Root Cause of Farmer-Herder Conflict in Nigeria Presented by: Adelodun Majekobaje Louisiana State University, Baton Rouge Louisiana; Adelodun Majekobaje, Taofeek Mukaila, Saidat Rasaq-Balogun, Ademola Hammed

Wetlands-HYBRID

Simulated Live Session

Organized by: Aaron Mittelstet

Session Moderator: Tiffany Messer

Sponsoring committee(s): NRES-253 Riparian Zones, Floodplains, & Wetlands

Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

2101338 Better Stormwater Management Practices: Plastics and Habitat Presented by: William Strosnider University of South Carolina

2101339 The Case (and Challenges) for Expanding the Use of Constructed Wetlands to Treat Rural Wastewater Presented by: Michael Burchell North Carolina State University

2101340 Floodplain Wetlands for Treating Agricultural Nutrient and Sediment Loads Presented by: Sara McMillan Purdue University

2100949 Assessing Multi-Wetland Restoration Strategies for Reducing Nitrate at the Watershed Scale Presented by: Jonathan Czuba Virginia Tech, Blacksburg Virginia; Jonathan Czuba, Peter Hawthorne, Amy Hansen

2100202 Influence of Age and Pre-Treatment on Nitrate Removal in a Free Water Surface Constructed Wetland Presented by: Brock Kamrath North Carolina State University, Raleigh North Carolina; Brock Kamrath, Mike Burchell

2101161 Implications of Emerging Contaminants on Treatment Wetlands Presented by: Tiffany Messer University of Kentucky, Lexington Kentucky; Shannon Bartelt Hunt, Matthew Russell, Julia Lindgren, Meredith Sutton, Tiffany Messer

PAFS - Plant, Animal, & Facility Systems

Air Emission from Livestock and Poultry Production

Lightning Session

Organized by: Mindy Spiehs

Session Moderator: Mindy Spiehs

Sponsoring committee(s): PAFS-50 Environmental Air Quality

Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

2100110 Odor Mitigation in Animal Agriculture Systems Presented by: Hoda Hammad North Carolina State University, Raleigh North Carolina; Hoda Hammad, Mahmoud Sharara, Ericka Ford

2100656 Evaluating Gas and Particulate Matter Emissions and Downwind Concentration Impacts using the EPI Air Filter Wall System Presented by: Erin Cortus University of Minnesota, St. Paul Minnesota; Erin L. Cortus, Ryan S. Samuel, Xufei Yang, Robert C. Thaler, Brian P. Hetchler

2100118 Efficacy of a Vermifiltration System at Greenhouse Gas and Ammonia Emission Reduction in Dairy Wastewater Presented by: Gilbert Miito Washington State University, Pullman Washington; Femi Alege, Sifolo Coulibaly, Pius Ndegwa, Gilbert Miito

2100147 Emissions from Beef Feedlot Surface Following Application of Aluminum Sulfate Presented by: Mindy Spiehs USDA ARS, Clay Center Nebraska; Mindy J. Spiehs, Bryan L. Woodbury

2100355 Particulate Matter Emissions from Dairy Facilities and Cattle Feedlots in Texas- A Summer Emission update Presented by: Mohammad Ruzlan Habib Texas A&M University, College Station Texas; Mohammad Ruzlan Habib, El Jirie N. Baticados, Sergio C. Capareda

2100977 Gaseous Emissions From Beef Feedlot Surface Material Following Application of Aluminum Sulfate or Calcium Hydroxide Presented by: Mindy Spiehs USDA ARS, Clay Center Nebraska; Mindy J. Spiehs, Bryan L. Woodbury

2100984 Evaluation of a Prototype Aerosol Control Technology to Reduce Dust and Bioaerosol Concentrations in Two Phases of Swine Production Presented by: Matthew Nonnenmann University of Iowa, Iowa City Iowa; MW Nonnenmann, E Ubeda, TR Anthony, S Sousan, R Altmaier, J Gibbs

2100651 Ammonia and PM_{2.5} Concentrations and Deposition in the Near Field of a Poultry Production Unit Presented by: Lingjuan Li North Carolina State University, Raleigh North Carolina; Ryan Holmes, Lingjuan Wang-Li, Kenneth Anderson, John Classen, Wei Shi, Lingjuan Li

Animal Response to Environment

Lightning Session

Organized by: Brett Ramirez

Session Moderator: Brett Ramirez

Sponsoring committee(s): PAFS-40 Facilities & Systems Group

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2100061 Modification of the Purdue Hog Cooling Pad Control Scheme Design for Heat Stress in Gilts Presented by: Robert Stwalley Purdue University, West Lafayette Indiana; Larissa Shirley, Allan Schinckel, Kara Stewart, Robert Stwalley

2100671 Dust Generator for Maintaining a Set Indoor Airborne Dust Concentration for Poultry Health Research Presented by: Daniel Hofstetter Pennsylvania State University, University Park Pennsylvania; Dan Hofstetter, Gino Lorenzoni, Eileen Fabian

2100687 *Spatial Mapping within Equine Indoor Arenas* Presented by: Staci McGill University of Kentucky, Lexington Kentucky; Staci McGill, Morgan Hayes, Josh Jackson, Kimberly Tumlin, Robert Coleman

2100619 *Low-Cost Solar Collectors to Pre-Heat Ventilation Air in Broiler Buildings* Presented by: Yi Liang University of Arkansas, Fayetteville Arkansas; Y. Liang, M. Janorschke, C. E. Hayes

2100098 *Systematic Evaluation of Laying Hen Exposure to Atmospheric Ammonia* Presented by: Chrisitna Tucker University of Illinois, Urbana Illinois; Angela Green-Miller, Chrisitna Tucker

2100637 *Heavy Broilers' Behavioral Responses to Air Velocity Treatments under Hot Summer Condition* Presented by: Suraiya Akter North Carolina State University, Raleigh North Carolina; Yingying Liu, Yan Qian, Bin Cheng, Derek West, John Classen, Lingjuan Wang-Li, Hernan Cordova, Viviana San Martin Diaz, Edgar Oviedo, Suraiya Akter

2101089 *Effects of Shade on Productivity and Behavior of Brazilian Feedlot Beef Cattle* Presented by: Hugo Milan Sao Paulo State University, Jaboticabal Sao Paulo Brazil; Marcos Chiquitelli Neto, Alex Sandro Campos Maia, Euclides Braga Malheiros, Hugo Fernando Maia Milan, Luiz Fernando Rocha Botelho, Valeria Oliveira Valente Araujo, Erika Cristina Dias de Oliveira Brelaz, Juliete Amanda Theodora de Almeida

Codes, Standards, & Agri Facility Design Guidance

Simulated Live Session

Organized by: Tom Gettings

Session Moderator: Tom Gettings

Sponsoring committee(s): PAFS-20 Structures Group, PAFS-07/1 Agri-Industrial Facility Design and Operation, PAFS-20/4 Bulk Solids Handling and Storage

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

2100268 *PVC Wall and Roof Panel Basic Properties Compared to Sheet Metal Wall and Roof Panels* Presented by: Arthur Ramthun USDA/NRCS, Washington District of Columbia; Arthur Ramthun

2100895 *Standard Development Update and Review of Technical Content for Wind Loads on Circular Metal Grain Bin, X652* Presented by: Tom Gettings AGCO ./ GSI, Assumption Illinois; Ray Bucklin, Tom Gettings

2100923 *Development of Design Equations for Corrugated Bin Ring Foundations* Presented by: Gregory Williams Facility Engineering Services, Springdale Arizona; Tom Gettings, Gregory Williams

2100149 *Building Envelope Design and Sanitary Design for Food Processing Facilities* Presented by: Gregory Williams Facility Engineering Services, Springdale Arizona; John Sutton, Gregory Williams

2100850 *Wooden Cribbed Grain Storage Elevator and Annex Structure Design, Guidelines for Inspection and Evaluation of Wear and Damages for Repair Considerations* Presented by: Rodney Nohr NOHR Wortmann Engineering, Yankton South Dakota; Rodney M. Nohr

2100899 *Standard / EP Development Update and Review of Technical Content for Data of Physical Properties of Bulk Materials (X636 project)*. Presented by: Tom Gettings AGCO ./ GSI, Assumption Illinois; Gregory Williams, Tom Gettings

2100432 *Conceptual Study of a Net-Zero-Energy Poultry House for Mediterranean Climate in the USA* Presented by: Md Shamim Ahamed University of California, Davis California; Fermin Banuelos-Gonzalez, Nathan Shang, Roxanne Wilcox, Md Shamim Ahamed

Indoor Plant Environments, Greenhouses, and Nursery Technology

Lightning Session

Organized by: Mark Lefsrud

Session Moderator: Mark Lefsrud

Sponsoring committee(s): PAFS-30 Plant Systems Group

Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

2100053 Successful Controlled Environment Projects Presented by: Robert Stwalley Purdue University, W Lafayette Indiana; Robert M. Stwalley III, Ronald J. Smith

2100026 Sustainability Indicators (Environmental Emphasis) for Selected Greenhouse Production Facilities in North America Presented by: Jaime Thissen University of Illinois Urbana Champaign, Champaign Illinois; Jaime Thissen, Dr. Paul Davidson

2100360 Spectral Response of Chlamydomonas reinhardtii Using Light-emitting Diodes Presented by: Bo-Sen Wu McGill University, Ste-Anne-de-Belleve Quebec Canada; Bo-Sen Wu, Bhalamurugan Gatamaneni Loganathan, Antonio Galan, Vijaya Raghavan, Valerie Orsat, Mark Lefsrud

2100387 The Design of a Solar Heat Recovery System inside a High Tunnel Greenhouse Presented by: Wee Fong Lee The Ohio State University, Wooster Ohio; Wee Fong Lee, Peter Ling, Karen Mancl

2100676 Measurement and Verification of Energy Savings for Environmental Control Equipment in Indoor Growing Operations Presented by: Jeannie Sikora CLEAResult, Millersville Pennsylvania; Jeannie Leggett Sikora, Pete Spinelli

2100813 Development of a Sensor for Measuring Snow Load Acting on Plastic Greenhouse Using Potentiometer Presented by: Sangik Lee Seoul National University, Seoul South Korea; Sang-ik Lee, Jong-hyuk Lee, Young-joon Jeong, Won Choi

2100336 Water and Fertilizer Precision Irrigation and Environmental Control System of Greenhouse Presented by: Han Shaoyun China Agricultural University, Beijing China; Kai Wu, Bing Lu, Shuo Zhang, Shaoyun Han, Xiuying Tang

2100453 An Experimental Study on GREENBOX Technology: Feasibility and Performance Presented by: Ankit Singh University of Connecticut, Storrs Connecticut; Ankit Singh, Richard McAvoy, Boris Bravo-Ureta, Xiusheng Yang

2100282 Low-Cost and Precise Phenotyping Using 3D Point Cloud Reconstruction to Determine Plant Architecture and Morphology Presented by: Bo-Sen Wu McGill University, Ste-Anne-de-Belleve Quebec Canada; Odin Zhaowei Guo, Bo-Sen Wu, Mark Lefsrud

2100855 A Study on the Characteristics of Fine Dust Adhesion to the Greenhouse Covering Materials Using Polarity Induction Presented by: Byunghun Seo Seoul National University, Seoul South Korea; Byunghun Seo, Jonghyuk Lee, Youngjoon Jeong, Yejin Seo, Eunmi Hong, Seungjae Lee, Jaehan Lee, Won Choi

2100876 Effect of Shape and Orientation on the Thermal Performance of Greenhouses in the Western USA Presented by: Md Shamim Ahamed University of California, Davis California; Brenna Gracely, Hannah Josifek, and Kathryn Tarver, Md Shamim Ahamed

Measurement, Mitigation and Modeling of Air Pollution from Livestock and Poultry Facilities

Lightning Session

Organized by: Lilong Chai

Session Moderator: Lilong Chai

Sponsoring committee(s): PAFS-50 Environmental Air Quality

Scheduled day and time: Tuesday, July 13 11:30am - 12:30pm

2100086 Reduction of Gaseous Emissions from Swine Manure: Effect of Biochar Dose and Reapplication

Presented by: Baitong Chen Iowa State University, Ames Iowa; Baitong Chen, Jacek Koziel, Chumki Banik, Hantian Ma, Myeongseong Lee, Samuel O'Brien, Peiyang Li, Daniel Andersen, Andrzej Białowiec, Robert Brown

2100082 Field-scale Testing of Mobile Laboratory for Mitigation of Gaseous Emissions from the Swine Farm with UV-A Photocatalysis *Presented by:* Jacek Koziel Iowa State University, Ames Iowa; Myeongseong Lee, Jacek Koziel, Wyatt Murphy, William Jenks, Baitong Chen, Peiyang Li, Chumki Banik

2100087 Mitigation of Acute H₂S and NH₃ Emissions from Swine Manure During Agitation Using Pelletized Biochar *Presented by:* Baitong Chen Iowa State University, Ames Iowa; Baitong Chen, Jacek Koziel, Myeongseong Lee, Samuel O'Brien, Peiyang Li, Robert Brown

2100074 Pilot-scale UV-A Light Treatment for Mitigation of NH₃, H₂S, GHGs, VOCs, odor, and O₃ Inside the Poultry Barn *Presented by:* Myeongseong Lee Iowa State University, Ames Iowa; Myeongseong Lee, Jacek Koziel, Peiyang Li, Heekwon Ahn, Jisoo Wi, Baitong Chen, Zhanibek Meiirkhanuly, Chumki Banik, William Jenks

2100076 Pilot-scale Evaluation of UV-A & UV-C Photocatalytic Treatment for Mitigating Odorous Gas Emissions from Swine Manure *Presented by:* Myeongseong Lee Iowa State University, Ames Iowa; Myeongseong Lee, Jacek Koziel, Wyatt Murphy, William Jenks, Baitong Chen, Peiyang Li, Chumki Banik

2100065 Evaluation of Bioaerosol Samplers for Collecting Airborne E. Coli Carried by Dust Particles from Poultry Litter *Presented by:* Xuan Dung Nguyen University of Tennessee, Knoxville, Knoxville Tennessee; Yang Zhao, Jeffrey D. Evans, Jun Lin, Shawn A. Hawkins, Joseph L. Purswell, Xuan Dung Nguyen

PAFS Distinguished Lecture Series

Live Session

Organized by: Joshua Sander

Session Moderator: Joshua Sander

Sponsoring committee(s): PAFS-40 Facilities & Systems Group, PAFS-20 Structures Group, PAFS-30 Plant Systems Group, PAFS-40 Facilities & Systems Group, PAFS-50 Environmental Air Quality

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2021 Henry Giese Structures & Environment Award Winner

Fellows, Gunlogson, Extension, Education, PEI Professional Award Winners

Superior Paper Award Winner #1

Superior Paper Award Winner #2

Flex Awards

Plant, Animal, and Facility Systems POSTER SESSION

Poster Session

Organized by: Shafiqur Rahman

Session Moderator: Shafiqur Rahman; Ajayi-Banji Ademola

Sponsoring committee(s): PAFS-01 POSTER SESSION

Scheduled day and time: Tuesday, July 13 10:00am - 11:30am; 1:00pm - 2:30pm

- a.1 - **2100455 Comparison of Environmental Condition, Productivity and Resources use between GREENBOX and Greenhouse for Growing Lettuce** Presented by: Ankit Singh University of Connecticut, Storrs Connecticut; Ankit Singh, Richard McAvoy, Boris Bravo-Ureta, Xiusheng Yang
- a.2 - **2100060 Numerical Modeling and Optimization of the Purdue Hog Cooling Pad Design** Presented by: Robert Stwalley Purdue University, West Lafayette Indiana; Tyler Field, Robert Stwalley
- a.3 - **2100169 Characterizing Sounds of Different Sources in Commercial Broiler Houses** Presented by: Xiao Yang The University of Tennessee, Knoxville Tennessee; Xiao Yang, Yang Zhao, Hairong Qi, Tom Tabler
- a.4 - **2100075 Design, Testing, and Commissioning of Mobile Laboratory for Mitigation of Gaseous Emission from Livestock Barns with Photocatalysis** Presented by: Myeongseong Lee Iowa State University, Ames Iowa; Myeongseong Lee, Jacek Koziel, Wyatt Murphy, William Jenks, Baitong Chen, Peiyang Li, Chumki Banik, Blake Fonken, Ryan Storjohann
- a.5 - **2100081 The Prototype of a Low-Cost Mobile CO2 Vaporizer System for Onsite Humane Swine Depopulation, Disposal, and Biosecure Cleanup** Presented by: Jacek Koziel Iowa State University, Ames Iowa; Jacek Koziel, Myeongseong Lee, Yuzhi Li
- a.6 - **2100241 Thermal Properties of Concrete Slats During Preheating of Empty Swine Facilities** Presented by: Suzanne Leonard North Carolina State University, Raleigh North Carolina; Suzanne Leonard, Brett Ramirez, Sara Weyer
- a.7 - **2100124 Research on the Mechanical Properties of King Grass** Presented by: Xuening Zhang China Agricultural University, Beijing China; Hongda Wang, Yong You, Yangyang Liao, Xuening Zhang
- a.8 - **2101102 Automated Visual Angle Measurements in Gilt Selection** Presented by: Ryan Jeon Iowa State University, Ames Iowa; Ryan Jeon, Kenneth Stalder, Anna Johnson, Joshua Peschel
- a.9 - **2101073 Swine Nutritional Observation and Routing Technology** Presented by: Zhaoyang Chen Iowa State University, Ames Iowa; Zhaoyang Chen, Joshua M. Peschel
- b.1 - **2100667 Update on Ammonia Generator for Maintaining a Set Indoor Gas Concentration for Poultry Health Research** Presented by: Daniel Hofstetter Penn State University, University Park Pennsylvania; Daniel Hofstetter, Dorian Dominguez, Eileen Fabian, Gino Lorenzoni
- b.2 - **2100141 Air Quality in Commercial Broiler Breeder Houses** Presented by: Lilong Chai University of Georgia, Athens Georgia; Lilong Chai, Claudia Dunkley, Casey Ritz
- b.3 - **2100856 Monitoring Broiler Group Distribution Index with the Machine Vision-Based Technology** Presented by: Lilong Chai University of Georgia, Athens Georgia; Yangyang Guo, Lilong Chai
- b.4 - **2100154 Basics of Ultraviolet C (UV-C) Light: Considerations for use at Livestock Production Facilities** Presented by: Peiyang Li Iowa State University, Ames Iowa; Peiyang Li, Jacek Koziel, Jeffrey Zimmerman, William Jenks, Ting-Yu Cheng, Derald Holtkamp
- b.5 - **2100197 On-farm Bioenergy System with Nutrient Recovery & Reuse: An Opportunity for Circular Agricultural Systems?** Presented by: John Ignosh Virginia Tech, Blacksburg Virginia; John Ignosh, Mark Reiter, Jactone Ogejo, Clinton Neil
- b.6 - **2100835 Using Temperature Change Monitoring Rumen Boluses as a Tool to Manage Pre-Weaned Dairy Calves** Presented by: Jason Hartschuh The Ohio State University, Bucyrus Ohio; Jason Hartschuch, John Fulton, Scott Shearer, Gustavo Schuenemann, Ben Enger

b.7 - 2100512 A Preliminary Study of the Effect of Temperament on Beef Cattle Response to Unmanned Aerial Vehicle (UAV) Flights Presented by: Gabriel Abdulai University of Kentucky, Lexington Kentucky; Gabriel Abdulai, Michael Sama, Joshua Jackson

b.8 - 2100707 Simulation of Milk Logistics in Small-Structured Milk Production Areas in Southern Germany Presented by: Heinz Bernhardt Technical University of Munich, Freising Bavaria Germany; Michael Schmid, Heinz Bernhardt

b.9 - 2101022 Exploratory Area Integrated Measurements of Nitrous Oxide Emissions from a Beef Cattle Feedyard in Texas Presented by: Kenneth Casey Texas A&M AgriLife Research, Amarillo Texas; Kenneth Casey, David B. Parker, Heidi M. Walddrip

c.1 - 2101203 Equivalent Reproduction of Fine Dust Adsorption of Aging Greenhouse covering Materials Presented by: Jonghyuk Lee Seoul National University, Seoul South Korea; Jonghyuk Lee, Sangik Lee, Dongsu Kim, Ahmed Fawzy Eid, Seungjae Lee, Jaehan Lee, Eunmi Hong, Won Choi

c.2 - 2100968 Root Microbiome of Field and Hydroponic Grown Lettuce Presented by: Melanie Correll University of Florida, Gainesville Florida; Emerick Larkin, Melanie Correll, Eban Bean, Eric McLamore, German Sandoya, Gustavo Kreutz

c.3 - 2100982 County-wise Chill Hours Accumulation in South Carolina Presented by: Udayakumar Sekaran Clemson University, Blackville South Carolina; Jose Payero, Udayakumar Sekaran

c.4 - 2101249 Development of a Low Cost Ground-Based Robot for Data Collection in Commercial Broiler Houses Presented by: Pratik Parajuli Mississippi State University, Starkville Mississippi; Pratik Parajuli, John Linhoss, Yang Zhao, Daniel Chesser, Jody L. Purswell, Filip To

c.5 - 2100569 Modified Forage Particle Sieve Machine for Continuous Throughput of Poultry Feed for Feed Form and Pellet Quality Studies Presented by: Daniel Hofstetter Penn State University, University Park Pennsylvania; Daniel Hofstetter, John Boney

c.6 - 2100653 Development and Validation of an Animal Thermal Environment Interaction Laboratory Presented by: Brett Ramirez Iowa State University, Ames Iowa; Ben Smith, Sara E. Weyer, Brett C. Ramirez, Steven J. Hoff, Richard S. Gates

c.7 - 2100129 Study on Bunching Mechanical Properties of Leafy Vegetable Presented by: Jing Lin China Agricultural University, Beijing Haidian China; Jing Lin, Zhiqin Wang, Chong Li, Xiang Yuan

c.8 - 2100368 Experiment and Research on the Effect of Cold Plasma Pre-Sowing Treatment on Seed Quality Presented by: Jing Lin China Agricultural University, Beijing Haidian China; Jing Lin, Zhiqin Wang, Chong Li, Xiang Yuan

c.9 - 2101090 Metabolic Heat Production and Thermal Energy Storage of Nellore Cattle (Bos Indicus) and Nellore x Angus Crossbred (Bos Indicus x Bos Taurus) Presented by: Gustavo Moura Sao Paulo State University, Jaboticabal Sao Paulo Brazil; Gustavo Moura, Cintia de Melo Costa, Vinicius Fonseca, Patric Andre, Marcos Chiquitelli Neto, Alex Maia

c.10 - 2101097 Effects of Photovoltaic Panel Shading Structures on Surface Temperatures and Behavior of Holstein Cows Presented by: Gustavo Moura UNESP - Sao Paulo State University, Jaboticabal Sao Paulo Brazil; Caio C.C. dos Santos, Natalia V. G. da Silva, Gustavo A. B. Moura, Cintia C. M. Costa, Sergio F. da Silva, Caique A. M. de Aguiar, Hugo F. M. Milan, Marcos Chiquitelli Neto, Alex Sandro Campos Maia

Preparation for and Response to Disruptive Events in Animal Production

Lightning Session

Organized by: Jody Purswell

Session Moderator: Jody Purswell

Sponsoring committee(s): PAFS-40 Facilities & Systems Group, PAFS-50 Environmental Air Quality

Scheduled day and time: Thursday, July 15 10:00am - 11:30am

2100516 *Fluorescing Gel Characteristics for Use in Biosecurity Research* Presented by: Anna Warmka

University of Minnesota, St. Paul Minnesota; Anna Warmka, Erin Cortus

2100451 *Testing the Performance of Ambient Alkaline Hydrolysis of Poultry Mortalities and Identifying Volatile Organic Compounds in the Headspace* Presented by: Zhihui Sun University of Illinois, Champaign Illinois; Neslihan Akdeniz, Zhihui Sun

2100821 *Swine Carcass Characterization Exposed to a Small-Scale Desiccation Environment* Presented by: Sara Weyer Iowa State University, Ames Iowa; Sara E. Weyer, Brett C. Ramirez, Daniel S. Andersen, Benjamin C. Smith

2100152 *Method for Aerosolization and Collection of Porcine Reproductive and Respiratory Syndrome Virus (PRRSV): Engineering Considerations* Presented by: Peiyang Li Iowa State University, Ames Iowa; Peiyang Li, Jacek Koziel, Jeffrey Zimmerman, Steven Hoff, Jianqiang Zhang, Ting-Yu Cheng, Wannarat Yim-Im, Myeongseong Lee, Baitong Chen, Chumki Banik, William Jenks

2100153 *Treatment of Airborne PRRSV Transmission with UV Light: Proof-of-Concept* Presented by: Peiyang Li Iowa State University, Ames Iowa; Peiyang Li, Jacek Koziel, Jeffrey Zimmerman, Jianqiang Zhang, Ting-Yu Cheng, Wannarat Yim-Im, Myeongseong Lee, Baitong Chen, Steven Hoff, William Jenks

2100586 *Assessing the Potential For Lightning-Induced Damage in Commercial Broiler Houses in Mississippi and Alabama* Presented by: Matthew Rowland Mississippi State University, Walnut Mississippi; Matthew Rowland, Gary Daniel Chesser, John Linhoss, Joseph L. Purswell, Jeremiah D. Davis, Jesse Campbell

Technology and Precision (SMART) Animal Management

Lightning Session

Organized by: Josh Jackson

Session Moderator: Josh Jackson

Sponsoring committee(s): PAFS-40 Facilities & Systems Group

Scheduled day and time: Monday, July 12 11:30am - 12:30pm

2100079 *3D Reconstruction of Chicken Based on Color and Thermal Images* Presented by: Xiaomin Zhang Zhejiang University, Hangzhou Zhejiang China; Xiaomin Zhang, Yanning Zhang, Jinfeng Geng, Xiuqin Rao

2101063 *Visual Sensing and Early Detection of Diseases in Pigs Using Computer Vision* Presented by: Divya Handa Iowa State University, Ames Iowa; Handa Divya, Peschel Joshua, Divya Handa

2101196 *Estimation of Sow Dimensions and Condition Score using Color and Depth Image Analysis* Presented by: Weizhen Liang University of Nebraska-Lincoln, Scottsbluff Nebraska; Tami Brown-Brandl, Isabella Condotta, Raj Sharma, Kathlyn Hauxwell, Weizhen Liang

2101052 *Deep Learning Model Performance for Steer Detection in a Confined Environment* Presented by: Md Abdullah All Sourav Iowa State University, Ames Iowa; Joshua Peschel, Md Abdullah All Sourav

2100803 *Broilers' Weight Estimation Through Depth Image Analysis* Presented by: Luana Maria Benicio Esalq/USP, Piracicaba Sao Paulo Brazil; Luana Maria Benicio, Kesia Oliveira da Silva Miranda, Tami Brown-Brandl, Isabella C.F. S. Condotta, Joseph L. Purswell, Sudhenu Raj Sharma

2100915 *An Internet-of-Things (IoT)-based System for Remote Monitoring of Water Levels and Temperatures in Rangeland Water Tanks* Presented by: Xufei Yang South Dakota State University, Brookings South Dakota; Zhisheng Cen, Jameson Brennan, Xufei Yang

2100543 *Development and Evaluation of a Deep-Learning-Based Egg Collecting Robot* Presented by: Guoming Li Mississippi State University, Starkville Mississippi; Gray D. Chesser, Yanbo Huang, Yang Zhao, Joseph L. Purswell, Guoming Li

2100861 *Accurate and Rapid Assessment of Pig Body Weights Using a Handheld, Mobile Stereo Imaging System* Presented by: Anh Nguyen North Carolina State University, Raleigh North Carolina; Anh Nguyen, Jonathan Holt, Mark Knauer, Victoria Abner, Sierra Young

PRS - Processing Systems

Artificial Intelligence and Data Science Application in Food and Biological Material Processing

Live Session

Organized by: Jian Shi

Session Moderator: Jian Shi; Akinbode Adededeji

Sponsoring committee(s): PRS-06 General Program, PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing

Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

2101341 Research Directions of AI and Data Science for Value-Added Products and Processes of Food and Agricultural Resources Presented by: Hongda Chen USDA-NIFA

2101342 Reduced-Order Equivalents of Complex Mechanistic Models for Product and Process Design Presented by: Ashim Datta Cornell University

2101343 Applications of Artificial Intelligence in Fruit Harvesting and Postharvest Quality Assessment Presented by: Renfu Lu USDA/ARS/MWA/SBRU

2101344 Leveraging AI for Robust Food Processing Value Chains Presented by: Michael Ngadi McGill University

2101345 AI Applications for Food Safety Presented by: Bosoon Park USDA, Agricultural Research Service, U.S. National Poultry Research Center

Biochemical Conversion and Bioprocess Modeling

Lightning Session

Organized by: Yi Wang

Session Moderator: Yi Wang

Sponsoring committee(s): PRS-280 Bioconversion and Bioprocesses, ES-220 Biomass Energy & Industrial Byproducts

Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

2101232 Designing Encapsulation System for Protecting Lipophilic Bioactive in Food Subjected to Thermal Sterilization Presented by: Sivapratha Sivabalan Washington State University, Pullman Washington; Sivapratha Sivabalan, Shyam Sablani

2100640 Characterization of Amylose Lipid Complexes and Their Impact on Dry Grind Ethanol Process Presented by: Gitanshu Bhatia University of Illinois Urbana Champaign, Urbana Illinois; Gitanshu Bhatia, Ankita Juneja, David Johnston, Kent Rausch, M. E. Tumbleson, Vijay Singh

2100222 Optimizing Hempseed Oil Degumming and Bleaching Presented by: Preston Wilson North Dakota State University, Fargo North Dakota; Preston D. Wilson, Niloy Chandra Sarker, Ewumbua Monono

2100290 Optimization of Nitrogen Sources for the Maximum Production of Cellulases and Xylanases by Aspergillus Niger Strains Presented by: Attia Iram Pennsylvania State University, State College Pennsylvania; Attia Iram, Deniz Cekmecelioglu, Ali Demirci

2100589 Enzymatic Lignin Depolymerization by a Novel BI-Enzyme System Containing Lignin Peroxidase and Aryl Alcohol Oxidase in Choline-Based Biocompatible Ionic Liquid Presented by: Mark Wilkins University of Nebraska-Lincoln, Lincoln Nebraska; Enshi Liu, Fernando Segato, Rolf Prade, Mark Wilkins

2100024 Enzyme-assisted Protein Extraction from Alfalfa Leaves Presented by: Youngmi Kim University of Wisconsin-River Falls, River Falls Wisconsin; Youngmi Kim, Virginia Lee

2100227 Techno-Economic Analysis on an Industrial-Scale Production System of Biodegradable Plastics from Cheese by-Products by *Haloferax Mediterranei* Presented by: Ke Wang University of California, Davis, Davis California; Ke Wang, Alex Hobby, Yike Chen, Allan Chio, Ruihong Zhang

2100357 Effect of Inoculum Preparation on Bioconversion of CO₂ into C₂ – C₆ Products Presented by: Rahul Thunuguntla Oklahoma State University, Stillwater Oklahoma; Rahul Thunuguntla, Hasan K. Atiyeh, Raymond L. Huhnke, Ralph S. Tanner

2100941 Numerical Simulation of Pyrethrin Aerosol Deposition in a Controlled Room Presented by: Fei Xyza Asuncion Kansas State University, Manhattan Kansas; Ronaldo Maghirang, Mark Casada, Dan Brabec, Jim Campbell, Frank Arthur, Kun Yan Zhu, Fei Xyza Asuncion

Drying, Handling and Storage of Grain Crops - Drying of Cereal Grains

Simulated Live Session

Organized by: Kingsly Ambrose

Session Moderator: Kingsly Ambrose; Janie McClurkin Moore

Sponsoring committee(s): PRS-702 Crop & Feed Processing & Storage

Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

2100218 Airflow Resistance of Drying Hops In Different Orientations Presented by: David Mabie University of Nebraska-Lincoln, Lincoln Nebraska; David Mabie, Michael Kocher, David Jones

2100768 Identification of Appropriate Size and Operating Parameter of Recirculating Paddy Dryer for Major and Husking Rice Mill of Bangladesh Presented by: Chayan Kumer Saha Bangladesh Agricultural University, Mymensingh Bangladesh Bangladesh; Chayan Kumer Saha, Sahabuddin Ahamed, Surajit Sarkar, Md. Monjurul Alam

2101038 Single Rice Kernel Moisture Content Variability as Impacted by Drying Method and Influences on Rice Milling and Quality Characteristics Presented by: Eliotte Diane Tchinhui Djangang Ngebichie University of Arkansas, Fayetteville Arkansas; Abass Oduola, Griffiths Atungulu, Eliotte Diane Tchinhui Djangang Ngebichie

2100359 Quantifying Effects of Thermal Exposure during Drying on Rice End-use Quality Presented by: Seth Graham-Acquaah TeleSense Inc., Sunnyvale California; Seth Graham-Acquaah, Siebenmorgen, T.J., Mauromoustakos A., Wang, Y.J

2100225 Energy and Exergy Analysis of Rough Rice Drying in a Fluidized and Fixed Bed Dryers with Ambient Air Dehumidification Presented by: Kaushik Luthra University of Arkansas, Little Rock Arkansas; Kaushik Luthra, Sammy Sadaka

2100749 Design of a Research-scale Forced Convection Vertical Dryer (VD) with Variable Air Inlet Conditions to Evaluate Agricultural Commodities Drying Techniques Presented by: Alice Dien University of California, Davis, Davis California; Laudia Anokye-Bempah, Jedediah Roach, Kurt Kornbluth, Irwin R Donis-Gonzalez, Alice Dien

2101096 Comparative Assessment of Three Low-Capacity Drying Systems using the Analytical Hierarchy Process (AHP) Presented by: Joseph Oppong Akowuah Kwame Nkrumah University of Science and Technology, Kumasi Oforikrom Ghana; Joseph O. Akowuah, George Owusu, George Obeng-Akrofi, Dirk E. Maier

2100753 Impact of Harvest Moisture Content and Milling Duration on Physicochemical Properties of Rice Dried at 915 MHz Microwave Frequency Presented by: Rebecca Bruce University of Arkansas, Fayetteville Arkansas; Griffiths Atungulu, Sammy Sadaka, Andy Mauromoustakos, Rebecca Bruce

2100800 Effects of Novel Infrared Heat Treatments and Tempering on Rice Pasting Properties Presented by: Abass Oduola University of Arkansas, Fayetteville Arkansas; Griffiths Atungulu, Abass A. Oduola

2100938 Performance Evaluation of a Flatbed Maize Dryer With a Biomass Heat Source Presented by: Joseph Oppong Akowuah Kwame Nkrumah University of Science and Technology, Kuamsi Oforikrom Ghana; Joseph Akowuah, Henry Ampadu-Boateng, George Obeng-Akrofi, Dirk Maier

Food Process Engineering

Simulated Live Session

Organized by: Satyanarayan Dev

Session Moderator: Griffiths Atungulu; Satyanarayan Dev

Sponsoring committee(s): PRS-703 Food Processing, PRS-01 POSTER SESSION

Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

2100750 Impact of Natural Edible Coatings and Ultrasound Treatment on Quality Attributes of Chicken Nuggets during Post Frying Holding under Heat Lamp Presented by: Dare Oloruntoba McGill University, Montreal Quebec Canada; Dare Oloruntoba, Josephine Ampofo, Michael Ngadi

2100736 Steam Parboiling of Durum Wheat to Produce Bulgur Presented by: Manoj Kumar Pulivarthi Kansas State University, Manhattan Kansas; Manoj Pulivarthi, Anu Suprabha Raj, Manivannan Selladurai, Mehreen Iftikhar, Kaliramesh Siliveru

2100990 Electromagnetic Energy-Driven Drying of Hemp Flower (*Cannabis Sativa L.*) and the Drying Effect on its Chemical Composition Presented by: Abass Oduola University of Arkansas, Fayetteville Arkansas; Rebecca Bruce, Eliotte Diane Ngebichie, Dana Mosman, Sammy Sadaka, Griffiths Atungulu, Abass Oduola

2100055 Optimization of the Depuration Process for Oysters: Current Knowledge and Future Work Presented by: Vashti Campbell North Carolina State University, Raleigh North Carolina; Steven Hall, Vashti Campbell

2100207 Upcycling Lactose Streams: Production of Sweetening Syrup With a Two-Step Process Presented by: Sergio Martinez-Monteagudo New Mexico State University, Las Cruces New Mexico; Sergio Martinez-Monteagudo

2100208 Hydrodynamic Cavitation: Process Opportunities for Ice-Cream Formulations Presented by: Sergio Martinez-Monteagudo New Mexico State University, Las Cruces New Mexico; Jae Young Sim, Maryam Enteshari, Sergio I. Martinez-Monteagudo

2100505 Feasibility of Drying Off-ground Harvested Almonds Using Commercial Trailer Dryers under Different Conditions Presented by: Zhaokun Ning University of California, Davis, Davis California; Ragab Khir, Chang Chen, Ivan Wongso, Guangwei Huang, Zhongli Pan, Zhaokun Ning

2100267 Efficient Drying Technologies for Simultaneous Disinfestation and Disinfection of Off-ground Harvested Almonds Presented by: Chang Chen University of California Davis, Davis California; Chang Chen, Ivan Wongso, Ragab Khir, Chao Liao, Wenbin Wang, Luxin Wang, Zhaokun Ning, Guangwei Huang, Franz Niederholzer, Zhongli Pan

2100630 Post-Fry Surface de-Oiling Enhance Oil-Reduction Functionality of Tempura Batter Coating Presented by: Md Hafizur Rahman Bhuiyan McGill University, Sainte Anne de Bellevue Quebec Canada; Md. Hafizur Rahman Bhuiyan, Michael O. Ngadi

2100544 An Overview of Design Optimization of Air-source Heat Pump Drying in Agro-Food Processing Industry Presented by: A. Jayaruwani Fernando Department of Agricultural Engineering and Soil Science, Rajarata University of Sri Lanka, Peradeniya Central Sri Lanka; A. Jayaruwani Fernando, Kurt A. Rosentrater

Food Safety Engineering

Lightning Session

Organized by: Satyanarayan Dev

Session Moderator: Satyanarayan Dev

Sponsoring committee(s): PRS-703 Food Processing, PRS-01 POSTER SESSION

Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

2100138 Pulsed Ultraviolet Light Processing for Microbial Reduction of Table and Fertile Shell Eggs Presented by: Joshua Cassar The Pennsylvania State University, University Park Pennsylvania; Joshua Cassar, Ali Demirci, Edward Mills, Paul Patterson, Lindsey Bright

2100867 Inactivation of E Coli and Quality Changes in Beef using Cold Plasma Presented by: Kasiviswanathan Muthukumarappan South Dakota State University, Brookings South Dakota; Nadee Kaluwahandi, Lin Wei, Kasiviswanathan Muthukumarappan

2100819 High Pressure Processing of Cashew Milk Presented by: Rachelle Coggins University of Nebraska-Lincoln, Lincoln Nebraska; Rachel Coggins, Snigdha Guha, Phil E. Johnson, Kaustav Majumder, Mary-Grace C. Danao

2100820 Microbial Assessment of Fresh Meats and Blends Sold as Raw Pet Foods by Online Retailers Presented by: Leslie Cancio University of Nebraska-Lincoln, Lincoln Nebraska; Leslie Pearl Cancio, Franklin Sumargo, Byron Chaves-Elizondo, Gary Sullivan, Emily Robinson, Mary-Grace C. Danao

2100944 Effects of Pressure and Initial Product Temperature on Meat Color, pH, and Inactivation of Salmonella spp. in Ground Chicken Breasts, Backs, and Frames Presented by: Patricia Reyes University of Nebraska-Lincoln, Lincoln Nebraska; Patricia A. Reyes, Mary-Grace C. Danao, Byron D. Chaves-Elizondo, Gary A. Sullivan, Bing Wang

2101218 Preventive Measures for Fresh Produce Safety: From Microscale Physics-Based Models to Practical Risk Maps Presented by: Ashim Datta Cornell University, Ithaca New York; Mohsen Ranjbaran, Donald Schaffner, Ashim Datta

2100627 Acer Saccharum Leaves: Effect of Extraction Parameters and Pretreatment Condition on the Recovery of Phenolic Compounds and Their Antioxidant Activities Presented by: Nushrat Yeasmen McGill University, Sainte Anne De Bellevue Quebec Canada; Nushrat Yeasmen, Valerie Orsat

2100995 Designing an Atmospheric Cold Plasma System for the Pasteurization of Raw Milk Presented by: Gretchen Gustafson University of Minnesota, Minneapolis Minnesota; Gretchen Gustafson, Kumar Mallikarjunan, George Annor

2100095 Plasma-enhanced Chemical Vapor Deposition System for Future Graphene Deposition Presented by: Lin Wei South Dakota State University, Brookings South Dakota; Lin Wei, Robin Islam Rubel

2100150 A Novel Method for Improving Radio Frequency Heating Uniformity of Wheat Kernels using Aluminum Foil Sheets Presented by: Biying Lin Northwest A & F University, Yangling Shaanxi China; Biying Lin, Xiangyu Guan, Shaojin Wang

2100214 Obtaining and Encapsulation of a Hydrolysate with antifungal potential from the fermentation of sub-products of tortilla corn with lactic acid bacteria Presented by: Everardo Mares Tecnológico Nacional de México, Guanajuato Guanajuato México; Everardo Mares-Mares, Paola Itzel Bautista-Espinoza, María Azucena Rocha-Mendoza, Cesar Ozuna-Lopez, Estefania Odemaris Juarez-Hernandez, Ma. Guadalupe de Lourdes Acosta-Castillo

Integrating Postharvest Crop Preservation into Autonomous Agricultural Production

Live Session

Organized by: Kingsly Ambrose

Session Moderator: Kingsly Ambrose

Sponsoring committee(s): PRS-702 Crop & Feed Processing & Storage, PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing

Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

2101346 Autonomous Grain Handling – The Future is Now! Presented by: Dirk Maier Iowa State University

2101347 Importance of Online Data Collection in Postharvest Crop Management Presented by: John Lawrence AGI SureTrack

2101348 One Day Every Kernel Tracked. How and Why? – Perspectives from a College Dropout Ex-Fitbit Engineer Presented by: Joey Varikooty Amber Agriculture

2101349 Enhanced Traceability of Grains During Postharvest Storage Presented by: Chandra Singh Lethbridge College

2101350 New Approaches to Stored Grain Monitoring Presented by: Klein Ileleji Purdue University

Management and Treatment/Utilization Technologies for Organic Wastes and Byproducts

Lightning Session

Organized by: Clairmont Clementson

Session Moderator: Tofiq Reza; Clairmont Clementson

Sponsoring committee(s): PRS-707 Food & Organic Waste Management & Utilization

Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

2101163 Characterization of Forest Biomass for Extraction of Crystalline Nano Cellulose Presented by: Satyanarayan Dev Florida A & M University, Tallahassee Florida; Satyanarayan Dev, Jahlita Janeau, Anthony Enriquez, Ying Ouyang, Johnny Grace III

2100172 Treatment of Poultry Processing Wastewater for Irrigation in Controlled-environment Agriculture Presented by: Brendan Higgins Auburn University, Auburn Alabama; Justin Box, Elizabeth Melby, Dillon Sprague, Qichen Wang, Brendan Higgins

2100634 Evaluation of Nitrifying, Anammox and Heterotrophic bacteria in a One-Stage Reactor During Direct Treatment of Poultry Litter Presented by: Yiting Xiao University of Arkansas, Fayetteville Arkansas; Yiting Xiao, Jun Zhu, Matias Vanotti

2100106 Continuous Fixed-bed Column Adsorption Performance for the Removal of Methylene Blue Using Rice Husk Biochar Presented by: Nitesh Kasera North Carolina State University, Raleigh North Carolina; Kunlun Liu, Praveen Kolar, Steven Hall, Jithin Mathew

2100064 Gas Storage in Superactivated Hydrochars Synthesized from Food Waste Presented by: Al Ibtida Sultana Florida Institute of Technology, Melbourne Florida; Al Ibtida Sultana, Nepu Saha, Toufiq Reza

2100212 Efficacy of Microbial Fuel Cell for Bioelectricity Generation and Pollutant Reduction at Different CODs of Sugar Beet Processing Wastewater Presented by: Mosammat Mustari Khanaum North Dakota State University, Fargo North Dakota; Mosammat Mustari Khanaum, Md Borhan, Shafiqur Rahman

2100595 Encapsulation of Carotenoids from Carrot Rejects with Sucrose by Co-Crystallization: Physicochemical Properties, Characterization and Thermal Stability of Pigment Presented by: Prabhjot Kaur University of Guelph, Guelph Ontario Canada; Prabhjot Kaur, Abdallah Elsayed, Jayasankar Subramanian, Ashutosh Singh

2100860 *The Use of Protein Concentrate Obtained from Brewer's Spent Grain as a Replacement Feed Ingredient for Fishmeal for Shrimp: A Feasibility Study* Presented by: Yanhong He Virginia Tech, Blacksburg Virginia; Yanhong He, David D. Kuhn, Jactone Arogo Ogejo, Sean F. O'Keefe, Cristina Fernandez Fraguas, Haibo Huang

2101026 *Physico-Thermal Properties of Co-Pelletization of Agricultural and Municipal Wastes* Presented by: Haley Stockham Ohio State University, Wooster Ohio; Asmita Khanal, Ajay Shah, Haley Stockham

Measurement Techniques for Qualitative and Quantitative Biological Material Properties

Lightning Session

Organized by: Eric Veikle

Session Moderator: Eric Veikle

Sponsoring committee(s): PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing

Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

2101034 *Rapid and Direct Identification of Pathogens From Food Matrices Using Magnetic Nanoparticles and Machine Learning Algorithms Applied to NIR Spectroscopy Data* Presented by: Saad Asadullah Sharief Michigan State University, East Lansing Michigan; Emma Dester, Xiaoyan Ma, Evangelyn Alocilja, Saad Asadullah Sharief

2100056 *Discrimination and Classification of Aspergillus spp. in Red Chili Pepper by Near Infra-red Diffuse Reflectance Spectroscopy* Presented by: Sasireka Rajendran Tamil Nadu Agricultural University, Coimbatore Tamil Nadu India; Sasireka Rajendran, Kumar Mallikarjunan, Ganapathy Shunmugam, Vaikuntavasan Paranidharan

2100774 *Efficacy of Hermetic Cocoon for Large-scale Paddy Seed Storage in Bangladesh* Presented by: Md. Monjurul Alam Bangladesh Agricultural University, Mymensingh Bangladesh; Shibendra Narayan Gope, Md. Rostom Ali, Md. Abdul Awal, Md. Monjurul Alam, Alex E Winter-Nelson

2101059 *Moisture Effects on Angle of Repose of Wood Biomass Pellets* Presented by: Ryan Dean Clemson University, Simpsonville South Carolina; Ryan H. Dean, Aaron Turner, Bulent Koc, Josh Jackson

2100665 *Evaluation of Grain Quality Impacts of a New Hermetic Storage System for Developing Countries* Presented by: Jaden Tatum The Ohio State University, Columbus Ohio; Ajay Shah, Jaden Tatum

2101241 *Application of Infrared Heating to Valorize Cold Hardy Grape Pomace* Presented by: Zeinab Mohammadi Shad Iowa State University, Ames Iowa; Zeinab Mohammadi Shad, Chandrasekar Venkitasamy, Emily Kuelbs, Lucas Buren, Aude Watrelot

2100066 *NIR Hyperspectral Imaging with Machine Learning to Detect and Classify Codling Moth Infestation in Apples* Presented by: Nader Ekramirad University of Kentucky, Lexington Kentucky; Nader Ekramirad, Alfadhl Y. Khaled, Lauren E. Doyle, Chadwick A. Parrish, Raul T. Villanueva, Kevin D. Donohue, Akinbode A. Adedeji

2100897 *Machine Vision Approach to Assessing Postharvest Quality of Cucumbers during Storage* Presented by: Ayesha Sarker University of Illinois, Urbana Champaign Illinois; Ayesha Sarker, Tony E. Graft

2100430 *Optimization and Effect of Processing Parameters of Pulsed Electric Field Treatment on Insolubility Index of Reconstituted Milk Protein Concentrate 85 (Mpc85)* Presented by: Sonali Raghunath University of Minnesota - Twin Cities, Saint Paul Minnesota; Sonali Raghunath, Kumar Mallikarjunan, Tonya Schoenfuss

Modeling Crop and Feed Drying, Handling and Storage

Lightning Session

Organized by: Kingsly Ambrose

Session Moderator: John Lawrence; Kingsly Ambrose

Sponsoring committee(s): PRS-702 Crop & Feed Processing & Storage

Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

2101181 Modeling Heat and Mass Transfer Within an Eighth-Scale Grain Drying System Presented by: Micah Lewis USDA ARS, Athens Georgia; Micah A. Lewis, Samir Trabelsi

2101230 Germination of Soybean after Treating with High Voltage Atmospheric Cold Plasma System.

Presented by: Shikhadri Mahanta Texas A&M University, Bryan Texas; Janie Moore, Shikhadri Mahanta

2100226 Effects of Ozone Gas Concentration and Application Duration on Corn Decontamination in a Lab-scale Fixed Bed Presented by: Sammy Sadaka University of Arkansas, Little Rock Arkansas; Sammy Sadaka, Vinay Kalyankar, Kaushik Luthra

2100836 Field Testing of PICS Bag Maize Storage in Haiti Presented by: Rithana Mompremier Land O'Lakes/ Iowa State University, St Paul Minnesota; Rithana Mompremier, Carl Bern, Erin Bowers, Thomas Brumm, Dirk Maier

2100991 Determination of Phosphine Sorption Isotherm in Hard Red Winter Wheat Presented by: Rania Marie Buenavista Kansas State University, Manhattan Kansas; Mark Casada, Kaliramesh Siliveru, Rania Marie Buenavista

2101018 Monitoring and Managing Stored Grain Quality with Novel Wireless Sensing and Fan Control Technology Presented by: Mike Sserunjogi Iowa State University, Ames Iowa; George Obeng-Akrofi, Dirk Maier, Joey Varikooty, Mike Sserunjogi

2100122 Simulation of Temperature Distribution in Bagged Corn Stored in Naturally Ventilated Warehouses Presented by: Michael Omodara Nigerian Stored Prod. Res. Inst., Ilorin Kwara Nigeria; Michael Mobtross, Samuel McNeill, Michael Omodara

2100633 Effect of Fan Positions in the Plenum of Grain Bin on the Uniformity of Airflow Distribution through the Grain Mass during Natural Air Drying Using CFD Modeling Presented by: John Lawrence AGI SureTrack, Lenexa Kansas; George Obeng-Akrofi, Dirk Maier, John Lawrence

2100253 Predicting Oxygen Depletion during Grain Storage using Hermetic Bag Technology Presented by: Ma Cristine Concepcion D Ignacio Iowa State University, Ames Iowa; Ma. Cristine Concepcion D. Ignacio, Dirk E. Maier

2100669 Isolation and Segregation of Non-GM Feed: A Cost Estimation Model Presented by: Mateus Pizarro Iowa State University, Ames Iowa; Mateus Pizarro, Gretchen A. Mosher, Erin Bowers

Physical and Chemical Properties of Ag and Biological Products - Processing and Handling

Simulated Live Session

Organized by: Ashim Datta

Session Moderator: Ashim Datta; Akinbode Adediji

Sponsoring committee(s): PRS-701 Physical Properties of Ag & Biological Products, PRS-702 Crop & Feed Processing & Storage

Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

2100144 Determination and In-silico Characterization of the Three-dimensional Structure of Glutelin type-B 5-like Proteins from Proso Millet Presented by: Felix Akharume University of Kentucky, Lexington Kentucky; Felix Akharume, Konstantin Korotkov, Akinbode Adediji

2100994 Size Distribution and Shape Characteristics of Grain Dust and Their Effect on Flowability and Floodability Presented by: Roselle Barretto Kansas State University, Manhattan Kansas; Roselle Barretto, Mark Casada, Kaliramesh Siliveru

2100104 Coefficient of Restitution of Kiwifruit Collision without External Force Interference in Different Ripeness Presented by: Zhenchao Wu Northwest A&F University, Yangling Shaanxi Province China; Zhenchao Wu, Ruizhe Yang, Longsheng Fu

2100675 Effects of Alkaline Pretreatment of Distillers Dried Grains with Solubles and Wheat Straw on the Physico-Mechanical Properties of Low-Density Particleboards Presented by: Sagar Regmi North Dakota State University, Fargo North Dakota; Sagar Regmi, Dilpreet Bajwa, Nurun Nahar

2100521 Relationship between Maize Kernel Strength and Aspergillus Flavus Fungi Infection Presented by: Haibo Yao Mississippi State University, Stennis Space Center Mississippi; Haibo Yao, Zuzana Hruska, Russell Kincaid, Feifei Tao, Kanniah Rajasekaran

2100538 Physical and physico-chemical properties of sprouted proso millet extrudates Presented by: Kasiviswanathan Muthukumarappan San Jose State University, San Jose California; Gabriela Swamy, Kasiviswanathan Muthukumarappan

2100963 Comparative Study on Microbial Load, Nutritional and Phytochemical Compositions of Fresh and Spoiled Tomatoes (Lycopersicon Esculentum) Presented by: Joseph Oppong Akowuah Kwame Nkrumah University of Science and Technology, Kuamsi Oforikrom Ghana; Loretta Oduro, Joshua Allotey, Faustina Dufie Wireko-Manu, Joseph Oppong Akowuah

2100070 Effects of Low-Intensity Heat Stimulation on Vibro-Acoustic Emission Detection of Codling Moth Larvae Activities in Apples Presented by: Al Fadhl Y. Al Khaled University of Kentucky, Lexington Kentucky; Alfadhl Y. Khaled, Chadwick A. Parrish, Nader Ekramirad, Kevin D. Donohue, Raul T. Villanueva, Akinbode A. Adedeji

Processing System POSTER SESSION

Poster Session

Organized by: Akinbode Adedeji

Session Moderator: Akinbode Adedeji; Juliana Vasco Correa

Sponsoring committee(s): PRS-01 POSTER SESSION, PRS-03 Processing Systems Standards Oversight, PRS-06 General Program, PRS-280 Bioconversion and Bioprocesses, PRS-293 US TAG for ISO TC 293 Feed Machinery, PRS-701 Physical Properties of Ag & Biological Products, PRS-702 Crop & Food

Scheduled day and time: Thursday, July 15 10:00am - 11:30am; 11:30am - 12:30pm

a.1 - **2101045 Grain Dust Emissions from Corn Receiving Operations at different Grain Flow Rates and Drop Heights** Presented by: Marvin Petingco Kansas State University, Manhattan Kansas; Marvin C. Petingco, Mark E. Casada, R. P. Kingsly Ambrose, Ronaldo G. Maghirang, Yumeng Zhao

a.2 - **2101179 Phytic Acid: From Detriment to Discovery** Presented by: Elizabeth Seidl Kansas State University, De Soto Kansas; Elizabeth Seidl, Sydney Cantrell, Lisa Wilken

a.3 - **2101049 Effects of Pressure and Initial Product Temperature on Meat Color, pH, and Inactivation of E. coli O157:H7 in Ground Pork and Pork Liver** Presented by: Frank Sumargo University of Nebraska - Lincoln, Lincoln Nebraska; Frank Sumargo, April Johnson, Isaac R. Rukundo, Gary A. Sullivan, and Mary-Grace C. Danao

a.4 - **2101182 Attenuation-only Microwave Method for Rapid and Nondestructive Moisture Determination in Grain and Seed** Presented by: Samir Trabelsi USDA-ARS, Athens Georgia; Samir Trabelsi, Micah Lewis

- a.5 - **2101239 Application of Nano-Adsorbent in Crude Biodiesel Soap Removal** Presented by: Li Zhou University of Saskatchewan, Saskatoon Saskatchewan Canada; Li Zhou, Venkatesh Meda, Martin J.T. Reaney
- a.6 - **2100067 Heterotrophic Production of Microalgae Chlorella Sorokiniana Using Hydrolysed Lactose as Substrate** Presented by: Allan Chio University of California Davis, Davis California; Allan Chio, Tyler Barzee, Ruihong Zhang
- a.7 - **2100091 Applications of Different Control Release Nitrogen Fertilizers in Corn Greenhouse Trials** Presented by: Lin Wei South Dakota State University, Brookings South Dakota; Lin Wei, Yajun Wu, Zhisheng Cen, Emmanuel ArkohMensah, Surbhi Gupta
- a.8 - **2100137 Short and Medium Grain Rough Rice Drying Kinetics under Isothermal Conditions** Presented by: Sammy Sadaka University of Arkansas, Little Rock Arkansas; Sammy Sadaka
- a.9 - **2100140 Comparison of Benchtop and Conveyer Pulsed Ultraviolet Light Systems for Microbial Reduction on Chicken Thighs** Presented by: Joshua Cassar The Pennsylvania State University, University Park Pennsylvania; Joshua Cassar, Ali Demirci, Edward Mills
- a.10 - **2100145 An Investigation of Temperature and Static Electric Field Effects on the Glutelin type-B 5-like protein from Proso Millet using Molecular Dynamic Modeling** Presented by: Akinbode Adedeji University of Kentucky, Lexington Kentucky; Felix Akharume, Ashutosh Singh, Konstantin Korotkov, Akinbode Adedeji
- a.11 - **2100209 Microencapsulation of Bioactive Compounds Obtained from Pitahaya and Soya for Possible use as a Dietary Supplement in Menopause** Presented by: Everardo Mares Tecnológico Nacional de México, Guanajuato Guanajuato Mexico; Everardo Mares-Mares, Paola Elizabeth Iwinski-Hernandez, Ignacio Alberto Vallejo-Gonzalez, Luis Armando Garcia de la Rosa, Ma. Cristina Del Rincon-Castro, Maria Azucena Rocha-Mendoza,
- a.12 - **2100210 Formulation of a Cereal and Dried Fruit Bar with Possible Antihypertensive Potential** Presented by: Everardo Mares Tecnológico Nacional de México, Guanajuato Guanajuato Mexico; Everardo Mares-Mares, Gavionna Luna-Garcia, Melissa Valdes-Guerra, Ma. Fabiola Leon-Galvan, Luis Armando Garcia De la Rosa, Ma. Azucena Rocha-Mendoza
- a.13 - **2100219 Analysis of the Rate of Hop Drying at Different Temperatures** Presented by: David Mabie University of Nebraska-Lincoln, Lincoln Nebraska; David Mabie, Michael Kocher, David Jones
- a.14 - **2100292 Mineral and Nitrogen Source Amendment for the Cellulase and Xylanase Production by Different Fungal Strains using DDGS as the Feedstock** Presented by: Attia Iram Penn State University, State College Pennsylvania; Attia Iram, Deniz Cekmecelioglu, Ali Demirci
- a.15 - **2100293 Comparison of Different Spectral Collection Methods for Nondestructive On-Line Detection of Soluble Solids in Apple** Presented by: Yankun Peng China Agricultural University, Beijing China; Decai Lv, Yankun Peng, Long Li
- a.16 - **2100296 Determination of Oil Content in Peanuts based on Near Infrared Spectroscopy** Presented by: Yankun Peng China Agricultural University, Beijing China; Baoqiong Dai, Yankun Peng, Yali Wang
- a.17 - **2100297 Effect of Different Temperature and Humidity Stress Combined with Steaming on the Quality of Poria Cocos Peel** Presented by: Wenjie Wang China Agriculture University, Beijing China; Wenjie Wang, Zhian Zheng, Shufeng Chen, Shanyu Wang, Andi Chen
- a.18 - **2100380 Evaluating the Allowable Storage Time of Two Soybean Varieties at Four Moisture Levels at Typical Storage Temperatures** Presented by: Ibukunoluwa Ajayi-Banji North Dakota State University, Fargo North Dakota; Ibukunoluwa Ajayi-Banji, Kenneth Hellevang, Ewumbua Monono

- a.19 - **2100431 Extraction and Enrichment of Lignan from Flaxseed (*Linum usitatissimum* L.)** Presented by: Yingxue Hu University of Saskatchewan, Saskatoon Saskatchewan Canada; Yingxue Hu, Jianheng Shen, Venkatesh Meda, Martin JT Reaney
- a.20 - **2100476 X-Ray-Based Irradiation of Larvae and Pupae of the Navel Orangeworm** Presented by: Peishih Liang USDA ARS Western Reg. Research Center, Albany California; Ron Haff, Inna Ovchinnikova, Peishih Liang, Noreen Mahoney, Wai Gee, Jose Gomez, Natsuko Toyofuku, Eric Jackson, Robert Hnasko, Douglas Light
- b.1 - **2100535 Evaluation of Hermetic Bag Technology to Preserve Shea Nuts in Rural Ghana** Presented by: George Obeng-Akrofi Iowa State University, Ames Iowa; George Obeng-Akrofi, Dirk E. Maier, Wendy S. White, Ato Bart-Plange, Joseph O. Akowuah, Ricardo Bartosik, Leandro Cardoso
- b.2 - **2100536 Selection of an Appropriate Biomass Burner for Drying Maize in a Column Dryer Using the Analytic Hierarchy Process (AHP)** Presented by: George Obeng-Akrofi Iowa State University, Ames Iowa; George Obeng-Akrofi, Joseph O. Akowuah, Dirk E. Maier, Ahmad Addo
- b.3 - **2100692 Effects of Fluidized Bed Dryer Operating Parameters on the Pasting Properties of Rough Rice** Presented by: Kaushik Luthra University of Arkansas, Fayetteville Arkansas; Kaushik Luthra, Sammy Sadaka, Griffiths Atungulu
- b.4 - **2100714 Experimental Investigation of Terminal Settling Velocity of Biomass Particles in Newtonian Fluid** Presented by: Kasif Javed University of Alberta, Edmonton Alberta Canada; Kashif Javed, Vinoj Kurian, Amit Kumar
- b.5 - **2100723 Influence of Infrared Pre-drying and Moisture Content on Cracking Characteristics of Walnuts** Presented by: Chang Chen University of California Davis, Davis California; Chang Chen, Ziliang Liu, Ragab Khir, Hongwei Xiao, Zhongli Pan
- b.6 - **2100724 Drying Characteristics and Quality of Intact-shell, Cracked-shell and Kernel Walnuts under Hot Air Drying** Presented by: Chang Chen University of California Davis, Davis California; Chang Chen, Ziliang Liu, Ivan Wongso, Ragab Khir, Hongwei Xiao, Zhongli Pan
- b.7 - **2100728 Demonstration of an Imaging Technique for Real-time Monitoring and Early Detection of Insect Activity in Storage Rice** Presented by: Ragab Khir University of California Davis, Davis California; Ragab Khir, Zhongli Pan
- b.8 - **2100747 Comparative Kinetic Study for the Conversion of Lactose and Whey Permeate Powder into 5-Hydroxymethylfurfural** Presented by: Surabhi Pandey McGill University, Montreal Quebec Canada; Surabhi Pandey, Marie-Josée Dumont, Valerie Orsat
- b.9 - **2100758 Impregnation-Mediated Natural Fortification of Sliced Apples with Hypertonic Fruit Juices: Mass Transfer Kinetics and Product Quality** Presented by: Xiaojuan Wang University of Illinois Urbana Champaign, Urbana Illinois; Xiaojuan Wang, Ozan Kahraman, Hao Feng
- b.10 - **2100802 Understanding the Influence of Pressure Assisted Thermal Sterilization on Metal-Oxide Coated Polymer Films for In-Package Sterilized Food Product Packaging** Presented by: Ashutos Parhi Washington State University, Pullman Washington; Ashutos Parhi, Juhi Patel, Shyam S. Sablani
- b.11 - **2100805 Performance Evaluation of a Commercially Available Desiccant-Based Seed Drying System (FlexiDry®) using Corn Kernels (*Zea Mays*)** Presented by: Alice Dien University of California, Davis, Davis California; Alice Dien, Abdul Momin, Laudia Anokye-Bempah, Kurt Kornbluth, Irwin R Donis-Gonzalez

- b.12 - **2100904 Multiple Stage Extraction Approach for Improving Anthocyanin Recovery from Colored Wheat and its Milling Products** Presented by: Chinmay Kurambhatti University of Illinois, Urbana-Champaign, Urbana Illinois; Chinmay Kurambhatti, Deepak Kumar, Nitin Kumar, Sunil Kumar, Mukesh Garg, Vijay Singh
- b.13 - **2100933 Nutrient Variation in Nutrient Composition of Common Feed Ingredients** Presented by: Lester Pordesimo USDA-ARS-CGAHR, Manhattan Kansas; L. O. Pordesimo, D. A. Hill, L. Sorensen, T. Radke
- b.14 - **2100956 In Vitro Evaluation of Antibacterial and Antioxidative Activity of Two Northern Alabama Hemp (*Cannabis Sativa L*) Varieties** Presented by: Lamin Kassama Alabama A&M University, Normal Alabama; Aaron Dudley, Armitra Jackson Davis, Lamin Kassama
- b.15 - **2100958 Comparative Studies on Grain Quality and Pesticide Residues in Maize Stored in Hermetic and Polypropylene Storage Bags** Presented by: Joseph Oppong Akowuah KNUST, Kumasi, Kuamsi Oforikrom Ghana; Samuel Nyarko, Yaw Akyereko, Faustina Wireko-Manu, Joseph Akowuah
- b.16 - **2100960 Ultrasonication and Compositional Effect on Morphology and Encapsulation Efficiency of Curcumin Loaded Nanoparticles** Presented by: Lamin Kassama Alabama A&M University, Normal Alabama; Edwin Ochieng, Muhammad Anwar Ul Alam, Armitra Jackson-Davis, Lamin Kassama
- b.17 - **2100969 Effect of Conventional Heat and Microwave Pasteurization on Rheological Behavior of Lycopene Nanoemulsion** Presented by: Lamin Kassama Alabama A&M University, Normal Alabama; Mohammad Anwar Ul Alam, Lamin Kassama
- b.18 - **2100972 Drying of Distillers Dried Grains with Solubles (DDGS) with a Nonthermal Ultrasonic Contact Drying Method: Drying Kinetics and Product Quality** Presented by: Amir Malvandi UIUC, Urbana Illinois; Amir Malvandi, Danielle Nicole Coleman, Juan J. Loor, Hao Feng
- b.19 - **2100988 Degradation of Cyanogenic Glycosides from Whole Flaxseed by *Lactobacillus*** Presented by: Chao Huang University of Saskatchewan, Saskatoon Saskatchewan Canada; Chao Huang, Timothy Tse, Sarah Purdy, Jianheng Shen, Venkatesh Meda, and Martin Reaney
- b.20 - **2101025 Damage Resistance of Corn and Wheat Kernels during Simulated Handling Conditions** Presented by: Zhengpu Chen Purdue University, West Lafayette Indiana; Zhengpu Chen, Carl Wassgren, Eric Veikle, Kingsly Ambrose
- b.21 - **2101046 Comparing Mango Postharvest Technologies: An Observational Study of the Rockefeller Foundation Yieldwise Initiative in Kenya** Presented by: Hory Chikez Iowa State University, Ames Iowa; Hory Chikez, Dirk Maier, Steve Sonka