10\textsuperscript{th} \textbf{INTERNATIONAL LIVESTOCK ENVIRONMENT SYMPOSIUM}  
\textbf{WITH}  
1\textsuperscript{st} \textbf{U.S. PRECISION LIVESTOCK FARMING SYMPOSIUM}  

DoubleTree by Hilton, Downtown Omaha, Nebraska  
September 25-27, 2018  

\textbf{PROGRAM}  

\textbf{MONDAY, SEPTEMBER 24}  
2:00PM - 6:00PM \hspace{0.5cm} Registration  
Location: Grand Ballroom East  

\textbf{TUESDAY, SEPTEMBER 25}  
7:00AM - 5:00PM \hspace{0.5cm} Registration  
Location: Grand Ballroom East  

\textbf{8:30AM - 10:00AM} \hspace{0.5cm} \textbf{Opening Session}  
Moderator: Tami Brown-Brandl, USDA-ARS-MARC, Clay Center, Nebraska  
Location: Grand Ballroom Center/West  
8:30AM \hspace{0.5cm} Keynote Speaker:  
Director Steve Wellman, Nebraska Department of Agriculture  
\textit{“Nebraska Agriculture: Opportunities for Agriculture Engineering and Livestock Production”}  
9:00AM \hspace{0.5cm} ILES Founders:  
Dr. James DeShazer, Professor Emeritus, University of Idaho, Retired P.E.  
Dr. Leroy Hahn, U.S. Meat Animal Research Center, Retired P.E.  
\textit{“ILES: Rational Environmental Management of Livestock-Foundation, Accomplishments and Future”}  

\textbf{10:00AM - 10:30AM} \hspace{0.5cm} \textbf{BREAK}
I. Animal Responses to Environment
   SPACE, FLOORING AND BEDDING EFFECTS
   Moderator: Curt Gooch, Cornell University, Ithaca, New York
   Location: Missouri

10:30AM ILES18-003 Sand Bedding for Dairy Cows: Benefits, Cubicles, and Manure Handling
Andrew Wedel, P.E., (Presenting Author), McLanahan, Hollidaysburg, Pennsylvania (Andrew Wedel)

10:45AM ILES18-103 Floor Cleanliness in Dairy Freestall Barns
Geir Naess, (Presenting Author), Nord University, Steinkjer, Norway (Knut Egil Boe, Lars Erik Ruud)

11:00AM ILES18-019 Production of Recycled Manure Solids used as Bedding for Dairy Cows in Canada: Analysis of Solid-Liquid Separation and Composting Methods
Stephane Godbout, (Presenting Author), Universite Laval, Quebec City, Quebec Canada (Sebastien Fournel, Stephane Godbout, Pierre Ruel, Annie Fortin, Karine Duquette-Lozeau, Valerie Letourneau, Mylene Genereux, Joanie Lemieux, Denis Potvin, Caroline Cote, Caroline Duchaine, Doris Pellerin)

11:15AM ILES18-097 Farrowing Pens for Loose Sows and Floor Cleanliness
Knut Egil Boe, (Presenting Author), Norwegian University of Life Sciences, As, Norway (Knut Egil Boe, Greg Cronin, Evelyn Hall)

11:30AM ILES18-013 Responses of Laying Hens to Full vs. Partial Litter Access in Aviary Housing
Jofran Oliveira, (Presenting Author), Iowa State University, Ames, Iowa (Jofran Oliveira, Hongwei Xin)

11:45AM ILES18-002 Modern Sheep Barns in Cold Climate - Preference by Shorn Sheep for Different Types of Slatted Flooring
Grete H.M. Jorgensen, (Presenting Author), NIBIO, Tjotta, Nordland, Norway (Juni Rosann Engelien Johanssen, Knut Egil Boe)

II. Precision Livestock Farming
   MODELING
   Moderator: Richard S. Gates, University of Illinois, Urbana, Illinois
   Location: Iowa

10:30AM ILES18-157 Results of Precision Livestock Farming Technology in Europe
Daniel Berckmans, (Presenting Author), KU Leuven, Leuven, Belgium (Daniel Berckmans, Tomas Norton)

10:45AM ILES18-133 Real-Time Grower-Finisher Pigs Growth Monitored and Forecasted using a Dynamic Linear Regression Model
Daniel Berckmans, (Presenting Author), KU Leuven, Leuven, Belgium (Alberto Pena Fernandez, Tomas Norton, Erik Vranken, Daniel Berckmans)

11:00AM ILES18-043 Using an Artificial Neural Network to Predicting Pig Weight from Depth Images
Isabella Condotta, (Presenting Author), ESALQ /USP (Isabella Condotta, Tami Brown-Brandl, Kesia Oliveira da Silva Miranda, Rafael Vieira de Sousa)
11:15AM  ILES18-042  Autoregressive Model to Identify Anomalous Decreases in Feeding Time of Grow-Finish Pigs  
Felix Adrion, (Presenting Author), University of Hohenheim, Stugartt, Germany  
(Felix Adrion, Tami Brown-Brandl, David Jones, Eva Gallmann)

11:30AM  ILES18-004  Evaluating a LiDAR Sensor and Artificial Neural Network Based-Model to Estimate Cattle Live Weight  
Rafael Vieira de Sousa, (Presenting Author), University of Sao Paulo, Pirassununga, SP Brazil  
(Rafael Vieira de Sousa, Rubens Andre Tabile, Ricardo Yassushi Inamasu, Luciane Silva Martelo)

III. Air Quality – Measurement and Abatement of Aerial Pollutants

AMMONIA

Moderator:  David Parker, USDA ARS, Bushland, Texas  
Location:  Nebraska

10:30AM  ILES18-137  Unintended Impacts on Animal Welfare and Environment of Combined Farm Animal Housing with Manure Storage  
Eileen Fabian-Wheeler, (Presenting Author), Penn State University, University Park, Pennsylvania  
(Eileen Fabian-Wheeler)

10:45AM  ILES18-114  Effect of Ferric Sulfate Application on Clostridium spp in Poultry Litter  
Hong Li, (Presenting Author), University of Delaware, Newark, Delaware  
(Hong Li, Amy Biddle)

11:00AM  ILES18-078  Use of Aluminum Sulfate (Alum) to Reduce Ammonia Emissions from Cattle Bedded Manure Packs  
Mindy Spiehs, (Presenting Author), USDA ARS US Meat Animal Research Center, Clay Center, Nebraska  
(Mindy Spiehs)

11:15AM  ILES18-071  Improving Air Quality for Animals and Humans with Renewable Energy and Nutrient Conservation  
John George, P.E., (Presenting Author), Agricultural Engineering Associates, Inc, Uniontown, Kansas  
(John George, Richard Mattocks, Mark Moser, John Paul Smith, Rick Thomas)

11:30AM  ILES18-061  Impact of Slatted Floor on Ammonia Emissions in Fattening Swine Housing  
Joahnn Palacios, (Presenting Author), IRDA-Research and Development Institute for the Agri-Environment, Quebec, Quebec Canada  
(Joahnn Palacios, Stephane Godbout, Sebastien Turcotte, Marie-Aude Ricard)

11:45AM  ILES18-052  Ammonia and Size Fractioned Particulate Matter Emission Factors for a Cage-Free Layer Facility in Canada  
Patrick McGrath, (Presenting Author), University of Guelph, Guelph, Ontario Canada  
(Jaime Anderson, Patrick McGrath, Hanna Ivankovic, Bill Van Heyst)
IV. Precision Livestock Farming

MODELING AIRFLOW – CFD APPLICATIONS

Moderator: Christopher Choi, University of Wisconsin-Madison, Madison, Wisconsin
Location: Lewis

10:30AM ILES18-145 Modeling Hen House Ventilation Options for Cage-free Environment: Two-Dimensional Case
Eileen Fabian-Wheeler, (Presenting Author), Penn State University, University Park, Pennsylvania (Eileen Fabian-Wheeler, Long Chen, Dan Hofstetter, Paul Patterson, John Cimbala)

10:45AM ILES18-121 Optimal Sensor Placement for Temperature Monitoring inside Broiler Houses
Sang-yeon Lee, (Presenting Author), Seoul National University, Seoul, Korea (Uk-hueon Yeo, In-bok Lee, Rack-woo Kim, Sang-yeon Lee, Gwanyong Park)

11:00AM ILES18-020 Analysis of Aerodynamic Problems of Domestic Swine Houses and Development of Educational VR Simulator
Jun-Gyu Kim, (Presenting Author), Seoul National University, Seoul, Korea (Ha Tae-Hwan)

11:15AM ILES18-058 Optimal Placement and Size of the Baffles used to Direct Airflow in Mechanically-ventilated Dairy Housing – A Computational Study
Bo Zhou, (Presenting Author), University of Wisconsin, Madison, Wisconsin (Christopher Choi, Bo Zhou, Xiaoshuai Wang, Mario Mondaca)

11:30AM ILES18-125 Annual Electrical Energy Requirements of Five Cooling Strategies for Lactating Dairy Confined Housing in the Eastern United States
Ted Funk, (Presenting Author), University of Illinois, Savoy, Illinois (Curt Gooch, Richard Stowell, Jiangong Li)

11:45AM ILES18-063 Improving Air Quality and Effective Cowside Velocity (ECV) inside Modern Dairy Facilities
Michael Wolf DVM, (Presenting Author), Country Doctors, Menomonie, Wisconsin (Michael Wolf, John McBride)

12:00PM - 1:30PM Luncheon with Keynote Speaker
Moderator: Hongwei Xin, Iowa State University, Ames, Iowa
Location: Grand Ballroom Center/West
12:00PM Larry J. Sadler, Vice President of Animal Welfare, United Egg Producers.
“Animal Welfare Issues Facing the U.S. Egg Industry”
1:30PM - 3:00PM   Concurrent Sessions V, VI, VII

V.   Animal Responses to Environment
RESPONSE TO THERMAL ENVIRONMENT
Moderator: Richard Stowell, University of Nebraska, Lincoln, Nebraska
Location: Missouri

1:30PM  ILES18-067  Assessment of Housing Environment and its Impact on Dairy Behavior and Milk Production in Northeastern China
Yujian Lu, (Presenting Author) China Agricultural University, Beijing, China
(Yujian Lu, Chaoyuan Wang, Shaojie Wang, Haoxiang Zhao, Li Dong, Zhengxiang Shi, Baoming Li)

1:45PM  ILES18-153  Impact of Brazilian Pig Farm Construction and Environmental Management Practices on Nursery Pig Performance – A Case Study
Eliene Justino, (Presenting Author) Campinas, Sao Paulo Brazil (Eliene Justino, Fausto Maluf, Kenneth Casey)

2:00PM  ILES18-077  High Ambient Temperature Impacts Semen Quality in Boars and Potential Molecular Drug-Targets and Nutritional Strategies for Amelioration
Yansen Li, (Presenting Author) Nanjing Agricultural University, Nanjing China (Yansen Li, Zhaojian Li, Jiaqin Chen, Chunmei Li)

2:15PM  ILES18-140  Evaluation of Environmental Temperature on Pullet Weight Gain and Uniformity

2:30PM  ILES18-151  Effect of Different Levels of Air Velocity at 35°C on Japanese Quail Behavior at Start of Lay
Tatiany Carvalho dos Santos, (Presenting Author) Universidadae Federal de Vicosa, Vicosa, Minas Gerais Brazil (Tatiany Santos, Richard S. Gates, Ilda Tinoco, Sergio Zolnier, Leticia Freitas, Marcia Candido)

VI.   Precision Livestock Farming
AUTONOMOUS OR ROBOTIC SYSTEM
Moderator: Daniella Jorge de Moura, University of Campinas, Campinas, Brazil
Location: Iowa

1:30PM  ILES18-034  Automatic Identification of Broiler Mortality Using Image Processing Technology
Veera Muvva, (Presenting Author) Mississippi State University, Mississippi State, Mississippi (Veera V.R.M.K.R. Muvva, Yang Zhao, Pratik Parajuli, Song Zhang, Tom Tabler, Joseph Purswell)

1:45PM  ILES18-142  Comparative Evaluation of Poultry Avoidance Distances to Human vs. Robotic Vehicle
Pratik Parajuli, (Presenting Author) Mississippi State University, Starkville, Mississippi (Yanbo Huang, Yang Zhao, Tom Tabler, Joseph Purswell)

2:00PM  ILES18-053  Survey and Future Prospects in Precision Dairy Farming
Hugo Milan, (Presenting Author) Cornell University, Ithaca, New York (Hugo Milan, Kristen Perano, Kifle Gebremedhin)
2:15PM  ILES18-112  *Automated Milking Systems for Dairy Operations*  
Joe Horner, (Presenting Author) University of Missouri, Columbia, Missouri  
(Joseph Zulovich, Ryan Milhollin, Joseph Harner, Joe Horner)

2:30PM  ILES18-111  *Robotic Rotary Parlor Systems for Dairy Operations*  
Joe Horner, (Presenting Author) University of Missouri, Columbia, Missouri  
(Joseph Zulovich, Ryan Milhollin, Joseph Harner, Joe Horner)

2:45PM  ILES18-029  *Function of Automatic Manure Scrapers*  
Lars Erik Ruud, (Presenting Author) Inland Norway University of Applied Sciences,  
Hedmark, Norway (Lars Erik Ruud)

VII.  Air Quality – Measurement and Abatement of Aerial Pollutants

**AMMONIA**

Moderator:  Mindy Spiehs, USDA ARS, Clay Center, Nebraska

Location:  Nebraska

1:30PM  ILES18-048  *Improving Air Quality in Swine Buildings by Using a Combination of Technologies – Pilot-scale Tests*  
Ariane Levesque, (Presenting Author) IRDA, Quebec, Quebec Canada (Ariane  
Levesque, Matthiew Girard, Valerie Letourneau, Caroline Duchaine, Stephane  
Godbout, Stephane Lemay)

1:45PM  ILES18-104  *USDA-NRCS Opportunities for Assisting Producers in Addressing Air Emissions*  
Gregory Zwicke, (Presenting Author) USDA-NRCS, Fort Collins, Colorado (Greg  
Zwicke, Greg Johnson)

2:00PM  ILES18-115  *Determination of Activation Humidity Thresholds for Acid Based Litter Amendment under Winter Conditions*  
Hong Li, (Presenting Author) University of Delaware, Newark, Delaware (Hong Li)

2:15PM  ILES18-106  *Behavioral Responses of Laying Hens to Atmospheric Ammonia in an Environmental Preference Chamber*  
Christina Tucker, (Presenting Author) University of Illinois, Urbana, Illinois  
(Christina Tucker, Angela Green-Miller, Richard S. Gates, San Myint, Janeen Salak-Johnson)

3:00PM - 3:30PM  BREAK
3:30PM - 5:00PM  Panel Discussion - Collaborative Visions: Advancing Solutions for Modern Livestock and Poultry Production

Organizers: Tim Shepherd, Iowa State University, Ames, Iowa
Jacob Mayer, Settje Agri-Services & Engineering, Inc., Raymond, Nebraska

Location: Lewis/Clark

Moderator: Dr. Tom Field

Director, Engler Agribusiness Entrepreneurship Program, University of Nebraska
Engler Chair in Entrepreneurship, University of Nebraska
Co-Owner, Field Land Cattle Company, LLC

Panelists:

Dr. Bob Collier
Professor Emeritus, University of Arizona
Dairy Science, Heat Stress, & Environmental Physiology

Dr. Daniel Berckmans
Professor and Head of M3-BIORES, KU Leuven
Precision Livestock Farming: Development and Commercialization

Sarah Pillen
Partner, Pillen Family Farms, Columbus, Nebraska
Modern Genetic, Breeding-Gestation, Farrowing, Nursery, & Grow-Finish Systems

Amy Staples
Director of R&D, Regulatory Compliance, Adams Land and Cattle, Broken Bow, NE
Feeding over 130,000 head, integrating applied research & development facilities

J.T. Dean
President, Versova, Sioux Center, Iowa
Integrated Management & Advanced Systems for Egg Production and Processing

Dr. Locke Karriker
Director, Swine Medicine Education Center, Iowa State University
Professor & Interim Chair, Veterinary Diagnostic and Production Animal Medicine Education & Research: Prevention, Diagnosis, & Treatment of Swine Diseases

Dr. Juan Tricarico
Vice-President of Sustainability Research, Innovation Center for U.S. Dairy
President-Elect, Council for Agricultural Science and Technology (CAST)
Scientific Soundness, Economic Viability, & Social Responsibility of Ag Production

5:00PM - 6:30PM  Networking Reception

Location: Winnebago/Flanagan

Opportunity to continue discussions from the panel discussion. Plan to network with and meet new colleagues. Refreshments and a cash bar will be available.
WEDNESDAY, SEPTEMBER 26
7:00AM - 4:00PM  Registration
Location: Grand Ballroom East

8:00AM - 9:30AM  Concurrent Sessions VIII, IX, X

VIII. Animal Responses to Environment
BUILDING AND THERMAL CONTROL SYSTEMS
Moderator: Brett Ramirez, Iowa State University, Ames, Iowa
Location: Missouri

8:00AM  ILES18-138  Comparison of Outside Air and Sol-air Design Temperatures for Estimating Insulation Needs
Gary Daniel Chesser, Jr., (Presenting Author) Mississippi State University, Mississippi State, Mississippi (Daniel Chesser, Joseph Purswell, Jeremiah Davis, Jason Ward, Tom Tabler, Yang Zhao)

8:15AM  ILES18-007  Control Algorithm Development and Simulation for Comparing Evaporative Pads and Sprinklers for Grow-Finish Pigs
Brett Ramirez, (Presenting Author) Iowa State University, Ames, Iowa (Brett Ramirez, Steven Hoff, Jay Harmon)

8:30AM  ILES18-033  Thermal Environment Evaluation of a Novel Positive Pressure Filtered Ventilation System in a Swine Breeding-Gestation Barn
Benjamin Smith, (Presenting Author) Iowa State University, Ames, Iowa (Benjamin Smith, Blake Fonken, John Stinn, Steven Hoff, Jay Harmon)

8:45AM  ILES18-130  Thermal Performance of Perforated Pen Panels for On-Farm Nutritional Test Trials
Kelly Goneke, (Presenting Author) Auburn University, Auburn, Alabama (Kelly Goneke, Jeremiah Davis, Joseph Purswell, Daniel Chesser, Carson Edge, Jesse Campbell)

9:00AM  ILES18-154  Thermocline Design for Thermal Preference Testing in Piglets
Angela R. Green-Miller, (Presenting Author) University of Illinois, Urbana, Illinois (Lindsey Robbins, Angela Green, Jay Johnson)

IX. Precision Livestock Farming
IMAGE ANALYSIS
Moderator: Daniel Berckmans, Katholieke Universiteit Leuven, Leuven, Belgium
Location: Iowa

8:00AM  ILES18-143  Evaluation of a Low Cost Thermographic Camera for Poultry Temperature

8:15AM  ILES18-128  Neonatal Piglet Core Body Temperature Model from Surface Temperature and Environment Measurements
Yijie Xiong, (Presenting Author) University of Illinois, Urbana, Illinois (Yijie Xiong, Richard S. Gates, Naomi Cooper, Michael Ellis)
Measurement of 3-D Surface Area of Piglets
Hugo Milan, (Presenting Author) Cornell University, Ithaca, New York (Hugo Milan, Gustavo Moura, Patric Castro, Alex Maia, Kifle Gebremedhin)

A 3D Computer Vision System for Automatic Detection of Sheep Standing and Lying Behaviour
Inger Hansen, (Presenting Author) NIBIO, Norwegian Institute of Bioeconomy Research, Sweden (Keni Ren, Grete Jorgensen, Inger Hansen, Johannes Karlsson)

An Image Acquisition System for Studying Behaviors of Sows and Piglets in Farrowing Barns
Suzanne Leonard, (Presenting Author) Iowa State University, Ames, Iowa (Suzanne Leonard, Hongwei Xin, Tami Brown-Brandl, Brett Ramirez)

X. Air Quality – Measurement and Abatement of Aerial Pollutants
GREENHOUSE GAS
Moderator: Kenneth Casey, Texas A&M AgriLife Research, Amarillo, Texas
Location: Nebraska

Determining Environmental Benefits and Economic Costs of Different Manure Handling Strategies in Quebec’s Dairy Production using Farm Simulation
Sebastien Fournel, (Presenting Author) Universite Laval, Quebec City, Quebec Canada (Sebastien Fournel, Edith Charbonneau, Simon Binggeli, Jean-Michel Dion, Doris Pellerin, Martin Chantigny, Stephane Godbout)

Virtual Farm Website for Dairy Climate Change and Sustainability Information
Eileen Fabian-Wheeler, (Presenting Author) Penn State University, University Park, Pennsylvania (Eileen Fabian-Wheeler, Daniel Hofstetter, Rebecca Larson, Horacio Aguirre-Villegas, Carolyn Rumery Betz)

Enteric and Simulated Pen Surface Emissions of Nitrous Oxide from Beef Cattle Feedyards
David Parker, (Presenting Author) USDA-ARS, Bushland, Texas (David Parker, Kenneth Casey, Heidi Waldrip, Jenny Jennings, Kristen Hales, Richard Todd)

Evaluation of Methane Production Manipulated by Level of Intake in Growing Cattle and Corn Oil in Finishing Cattle
Thomas Winders, University of Nebraska-Lincoln, Lincoln, Nebraska (Thomas Winders, Brad Boyd, Henry Hilscher, Richard Stowell, Samodha Fernando, Galen Erickson)

Enteric Methane Emissions of Beef Cows Grazing Tallgrass Prairie Pasture on the Southern Great Plains
Richard Todd, (Presenting Author) USDA-ARS, Bushland, Texas (Richard Todd, Corey Moffet, James Neel, Kenneth Turner, Jean Steiner, Andy Cole)

Evaluating the Effect of Feeding Biochar to Cattle on Methane Production and Diet Digestibility
Thomas Winders, (Presenting Author) University of Nebraska-Lincoln, Lincoln, Nebraska (Thomas Winders, Melissa Jolly-Breithaupt, Galen Erickson, Andrea Watson)
9:30AM - 11:00AM  **Poster Session & Coffee Break** – All posters will be available at this time. Poster Presenters will be at their poster to present as follows: Even poster numbers will be presented 9:30am-10:30am. Odd poster numbers will be presented 10:00am-11:00am.

**Moderators:**  Richard Stowell, University of Nebraska, Lincoln, Nebraska
Tami Brown-Brandl, USDA-ARS-MARC, Clay Center, Nebraska
Kenneth Casey, Texas A&M AgriLife Research, Amarillo, Texas

**Location:**  Winnebago/Flanagan

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**Animal Responses to Environment - POSTER SESSION**

**ARE-1**  ILES18-031  *Fan Placement in Horse Stalls*
Staci McGill, (Presenting Author) University of Kentucky, Lexington, Kentucky
(Staci McGill, Morgan Hayes, Robert Coleman)

**ARE-2**  ILES18-039  *Effect of Dairy Cows Cooling on Milk Production in Slovakian Lowlands*
Jan Broucek (Presenting Author) National Agricultural and Food Centre, Research Institute for Animal Production Nitra, Luzianky, Slovakia
(Jan Broucek, Stefan Ryba, Marta Dianova, Michael Uhrincat, Miloslav Soch, Anton Hanus, Lubos Zabransky)

**ARE-3**  ILES18-040  *Effect of Water Delivery Manner on Dairy Calf Performance*
Jan Broucek (Presenting Author) National Agricultural and Food Centre, Research Institute for Animal Production Nitra, Luzianky, Slovakia
(Jan Broucek, Miloslav Uhrincat, Anton Hanus, Miloslav Soch, Peter Tongel, Lubos Zabransky)

**ARE-4**  ILES18-056  *Identification of Differentially Expressed Genes Associated with Breast Meat Yield of Broilers in Response to Atmospheric Ammonia using RNA Sequencing*
Bao Yi, (Presenting Author) Beijing, China
(Bao Yi, Liang Chen, Ruqing Zhong, Hongfu Zhang)

**ARE-5**  ILES18-089  *Space Allowance and Flooring in Ewes*
Knut Egil Boe, (Presenting Author) Norwegian University of Life Sciences, As, Norway
(Knut Egin Boe, Stine Gronmo Kischel)

**ARE-6**  ILES18-152  *Effect of Different Levels of Air Velocity and Temperature on Japanese Quail Performance at Start of Lay*
Tatiany Carvalho dos Santos, (Presenting Author) Universidade Federal de Vicosa, Vicosa, Minas Gerais, Brazil
(Tatiany Santos, Richard S. Gates, Ilda Tinoco, Sergio Zolnier, Rafaela Andrade, Leticia Freitas, Carlos Teles Junior)

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**Precision Livestock Farming - POSTER SESSION**

**PLF-1**  ILES18-055  *Development of a Rainwater Harvesting Model for Broiler Farms to Estimate On-farm Storage Needs*
Carson Edge, (Presenting Author) Auburn University, Auburn, Alabama
(Carson Edge, Jeremiah Davis, William Batchelor, Eugene Simpson, Joseph Purswell)

**PLF-2**  ILES18-005  *Computational Fluid Dynamics Model for Air Velocity through a Poultry Transport Trailer in a Holding Shed*
Yi Liang, (Presenting Author) University of Arkansas, Fayetteville, Arkansas
(Christian Heymsfield, Yi Liang, Thomas Costello)

**PLF-3**  ILES18-032  *Simulation to Improve Temperature and Airflow Patterns in Tunnel Ventilation Systems*
Daniella Jorge de Moura, (Presenting Author) UNICAMP, Campinas, Sao Paulo Brazil
(Daniella Moura, Vilmar Sousa Junior)
PLF-4 ILES18-155 Utilizing Comprehensive Nutrient Management Plans (CNMP) to Improve Livestock Operations Performance
Jeff Porter, (Presenting Author) USDA-NRCS, Greensboro, North Carolina (Jeffrey Porter, Sandy Means)

PLF-5 ILES18-150 Heat Production of Jersey Dairy Cows Measured via Indirect Calorimetry
Richard R. Stowell, (Presenting Author) University of Nebraska, Lincoln, Nebraska (D.L. Morris, R.R. Stowell, T.M. Brown-Brandl, P.J. Kononoff)

PLF-6 ILES18-069 Application of an Automated Early-Warning Leak Detector for Earthen Wastewater Holding Structures using Non-Invasive Geophysical Instrumentation
Bryan Woodbury, (Presenting Author) USDA, Clay Center, Nebraska (Bryan Woodbury, Roger Eigenberg)

PLF-7 ILES18-158 Performance of Pregnant West African Dwarf Ewes Fed Diets Supplemented with Varying Levels of Fossil Shell Flour
Emeruwa Chibuisi Henry, (Presenting Author) Farys Farm, Ibadan, Oyo State, Nigeria (Emeruwa Chibuisi Henry, Ngozi Felicia Anurudu)

PLF-8 ILES18-090 Is the Environmental Automated Control the Answer for Foot Pad Dermatitis in Intensive Broiler Chickens Farming?
Marcella Guarino, (Presenting Author) Universita degli Studi di Milano, Milano, Italy (Emanuela Tbullo, Giacomo Aletti, Alessandra Micheletti, Giovanni Naldi, Alberto Pena Fernandez, Erik Vranken, Daniel Berckmanns, Marcella Guarino)

PLF-9 ILES18-120 Estimation of THI Index to Evaluate Thermal Stress of Animal-Occupied Zone in a Broiler House using BES Method
Kyeong-Seok Kwon, (Presenting Author) Jeonju, Jeollabukdo, Korea (Taehwan Ha, Hee-Chul Choi, Jong-Bok Kim, Jung-Hwan Jeon, Saemee Woo, Ka-Young Yang, In-Bok Lee)

Air Quality - Measurement and Abatement of Aerial Pollutants - POSTER SESSION

AQ-1 ILES18-016 The Emission Laws and Prediction Model of Air Pollutants in Fattening Pig Houses
Shihua Pu (Presenting Author) Chongqing Academy of Animal Sciences, Rongchang, Chongqing, China (Dingbiao Long, Shihua Pu, Zuohua Liu, Yaqiong Zeng)

AQ-2 ILES18-065 Numerical Modelling of Negative Air Ionization for Removing Viral Bioaerosols in an Enclosed Space
Desmond Essien, (Presenting Author) University of Manitoba, Winnipeg, Manitoba Canada (Desmond Essien, Qiang Zhang, David Levin, Kevin Coombs)

AQ-3 ILES18-071 Improving Air Quality for Animals and Humans with Renewable Energy and Nutrient Conservation

AQ-4 ILES18-072 Effect of Slatted Floor Configuration on Air Quality and Floor Cleanliness in a Sow Barn
Xiaojie Yan, (Presenting Author) University of Manitoba, Winnipeg, Manitoba Canada (Xiaojie Yan, Qiang Zhang, Laurie Connor)
Comparison of Airborne Particulate Matter and Ammonia Concentrations from Nursing and Fattening Rooms in Large Semi-Enclosed Swine House
Zhaojian Li, (Presenting Author) Nanjing, Jiangsu Province, China (Zhaojian Li, Sheng Wu, Dan Shen, Qiang Tang, Pengyuan Dai, Yansen Li, Chunmei Li)

Emissions of Hydrogen Sulfide from the Pen Area of a Beef Cattle Feedyard in the Texas High Plains
Kenneth Casey, (Presenting Author) Texas A&M AgriLife Research, Amarillo, Texas (Richard Todd, Kenneth Casey, Marty Rhoades, David Parker)

Relationship Between Aerosol Concentration and Airborne Microbe including Porcine Sapelovirus Concentration in Japanese Weaning Swine Houses
Takanori Naide, (Presenting Author) Tokyo University of Agriculture and Technology, Fuchu, Tokyo, Japan (Takanori Naide, Atsuo Ikeguchi, Md Aminul Islam, Ayako Miyazaki, Ken Katsuda, Kenji Kawashima, Ryoh Nakakubo)

Mitigating Hydrogen Sulfide Safety Risk and Odor for Dairy Farms using Gypsum Bedding
Eileen Fabian-Wheeler, (Presenting Author) Penn State University, University Park, Pennsylvania (Eileen Fabian-Wheeler, Long Chen, Michael Hile, Michael Pate)

11:00AM - 12:30PM  Concurrent Sessions XI, XII, XIII

XI. Animal Responses to Environment

VENTILATION AND COOLING SYSTEMS

Moderator: Kevin Janni, University of Minnesota, St Paul, Minnesota
Location: Missouri

11:00AM  ILES18-057  Thermal Environmental Performance of a Dairy Barn Cross-Ventilated in Warm Weather and Naturally Ventilated in Cool Weather
Kevin Janni, (Presenting Author) University of Minnesota, St. Paul, Minnesota (Kevin Janni, James Salfer, Erin Cortus, Johanna Knorr)

11:15AM  ILES18-109  Air Conditioning for Naturally Ventilated Dairy Barns
Joe Zulovich, (Presenting Author) University of Missouri, Columbia, Missouri (Joseph Zulovich, Ryan Milhollin, Joe Horner, Joseph Harner, Teng Teeh Lim)

11:30AM  ILES18-110  Air Conditioning for Mechanically Ventilated LPCV Dairy Barns
Joe Zulovich, (Presenting Author) University of Missouri, Columbia, Missouri (Joseph Zulovich, Ryan Milhollin, Joe Horner, Joseph Harner, Teng Teeh Lim)

11:45AM  ILES18-144  Feasibility Study of Environmental Control of Dairy Barns using Air Conditioning Or Evaporative Cooling
Ted Funk, (Presenting Author) University of Illinois, Urbana, Illinois (Jiangong Li, Xuejin Shen, Ted Funk, Xinlei Wang)

12:00PM  ILES18-098  Impact of Shade in Beef Feedyards on Performance, Body Temperature, and Heat Stress Measures
Brett Melton, (Presenting Author) University of Nebraska-Lincoln, Lincoln, Nebraska (Brett Melton, Bradley Boyd, Casey Macken, James MacDonald, Galen Erickson)

12:15PM  ILES18-135  Conductive Cooling of Group-Housed Grow-Finish Pigs: Year 1
Erin Cortus, (Presenting Author) University of Minnesota, St. Paul, Minnesota (Erin Cortus, Joseph Darrington, Robert Thaler)
XII. Precision Livestock Farming

**DISEASE OR STRESS DETECTION**

**Moderator:** Tami Brown-Brandl, USDA-ARS-MARC, Clay Center, Nebraska  
**Location:** Iowa

11:00AM ILES18-073  
*Application of an Early Warning to Detect Enteropathies in Intensive Broiler Farming*
Marcella Guarino, (Presenting Author) Universita degli Studi di Milano, Milano, Italy (Emanuela Tullo, Federica Borgonovo, Guido Grilli, Alessandra Micheletti, Giacomo Aletti, Susanna Lolli, Valentina Ferrante, Marcella Guarino)

11:15AM ILES18-127  
*Computational Program to Evaluate Thermal Comfort in Animal Production Facilities*
Richard S. Gates, (Presenting Author) University of Illinois, Urbana, Illinois (Carlos Gutemberg de Souza Teles Junior, Richard S. Gates, Ilda de Fatima Ferreira Tinoco, Cecilia de Fatima Souza, Monique de Oliveira Vilela)

11:30AM ILES18-023  
*A Real-Time Sow Behavior Analysis System to Predict an Optimal Timing for Insemination*
Jacquelin Labrecque, (Presenting Author) Ro-Main, St-Lambert-de-Lauzon, Quebec Canada (Jacquelin Labrecque, Joel Rivest)

11:45AM ILES18-059  
*Development of a Real-time Wireless Biosensor to Monitor Heat Stress of Dairy Cows*
Christopher Choi, (Presenting Author) University of Wisconsin, Madison, Wisconsin (Christopher Choi, Hanwook Chung, Jingjie Li, Younghyun Kim)

12:00PM ILES18-006  
*Construction and Performance of a Self-Contained, Temperature-Controlled Heat Source (Electronic Chicken) to Quantify Thermal Load during Live Haul of Broiler Chickens*
Yi Liang (Presenting Author) University of Arkansas, Fayetteville, Arkansas (Kaushik Luthra, Yi Liang, Thomas Costello, James Andress)

XIII. Air Quality – Measurement and Abatement of Aerial Pollutants

**PARTICULATE MATTER & MICROBES**

**Moderator:** Stephane Godbout, IRDA, Quebec, Quebec Canada  
**Location:** Nebraska

11:00AM ILES18-141  
*Spatial and Diurnal Variations of Particulate Matter Concentration of a Pilot-Scale Aviary Layer House in Winter*
Yu Wang, (Presenting Author) Iowa State University, Ames, Iowa (Yu Wang, Dapeng Li, Suzanne Leonard, Zhengxiang Shi, Hongwei Xin, Lilong Chai, Baoming Li)

11:15AM ILES18-132  
*Real-Time Monitoring of Indoor Particulate Matter Concentration in a Commercial Broiler House*

11:30AM ILES18-070  
*Effectiveness of Negative Air Ionization in Removing Airborne Porcine Reproductive and Respiratory Syndrome Virus (PRRSV)*
Amy La, (Presenting Author) University of Manitoba, Winnipeg, Manitoba Canada (Amy La, Qiang Zhang, David Levin, Kevin Coombs)
11:45AM  ILES18-094  *Spatial Variation of PM Concentration and Particle Size Distribution of a Perchery System with Large Cage Aviary Unit for Laying Hens*
Zongyang Li, (Presenting Author) China Agricultural University, Beijing, China (Zongyang Li, Chaoyuan Wang, Baoming Li, Zhengxiang Shi, Weichao Zheng, Guanghui Teng)

12:00PM  ILES18-012  *Particulate Matter Suppression and Heat Stress Relief in a Cage-free Hen House*
Hongwei Xin, (Presenting Author) Iowa State University, Ames, Iowa (Lilong Chai, Hongwei Xin, Yu Wang, Jofran Oliveira, Kailao Wang, Yang Zhao)

12:15PM  ILES18-131  *Prevention of PM and Airborne Bacteria Transmission between Double-Tunnel Ventilation Layer Hen Houses*
Weichao Zheng, (Presenting Author) China Agricultural University, Beijing, China (Zongyang Li, Weichao Zheng, Baoming Li, Chaoyuan Wang, Zhengxiang Shi, Guanghui Teng)

12:30PM - 2:00PM  Lunch Break – On Your Own

2:00PM - 3:30PM  Concurrent Sessions XIV, XV, XVI

XIV.  Animal Responses to Environment

**LIGHTING SYSTEMS AND EFFECTS**

*Moderator: Joseph Purswell, USDA-ARS, Mississippi State, Mississippi
Location: Missouri*

2:00PM  ILES18-046  *Temporal Variability of Illuminance in Commercial Broiler Houses*
Joseph Purswell, (Presenting Author) USDA-ARS, Mississippi State, Mississippi (Joseph Purswell, John Linhoss, Hammed Olanrewaju)

2:15PM  ILES18-149  *Light Intensity, Egg Weight and Egg Size in a Vertical Aviary of Naturally Ventilated Laying Hens*
Richard S. Gates, (Presenting Author) University of Illinois, Urbana, Illinois (Leticia Cibele da Silva Ramos Freitas, Ilda de Fatima Ferreira Tinoco, Tatiany Carvalho dos Santos, Marcia Gabrielle Lima Candido, Cecilia de Fatima Souza, Richard S. Gates)

2:30PM  ILES18-086  *Egg Laying Pattern of Hens in a Multiple Tiers Aviary System*
Xuanyang Li, (Presenting Author) China Agricultural University, Beijing China (Xuanyang Li, Liu Yang, Xiaocui Wang, Zhengxiang Shi, Baoming Li, Qin Tong)

2:45PM  ILES18-079  *Performance Evaluation of High-Efficiency Fan Shades in Reduction of Light Leakage and Spatial Variation of Illuminance in Commercial Broiler Houses*
John Linhoss (Presenting Author) Mississippi State University, Starkville, Mississippi (John Linhoss, Joseph Purswell, Daniel Chesser, Wes Lowe)

3:00PM  ILES18-062  *Effects of Exposing Eggs to Various Green Light Intensities during Incubation on Hatch Performance, Post-Hatch Grow Performance, Fear and Stress Responses in Layer Chicks*
Kailao Wang, (Presenting Author) Iowa State University, Ames, Iowa (Yue Yu, Zhanming Li, Jinming Pan)

3:15PM  ILES18-011  *Behavioral and Production Responses of W-36 Chicks to Supplementary UVA Light*
Kai Liu, (Presenting Author) Iowa State University, Ames, Iowa (Kai Liu, Kailao Wang, Tao Fei, Lilong Chai, Hongwei Xin)
**Precision Livestock Farming**

**RFID APPLICATIONS**

Moderator: Felix Adrion, University of Hohenheim, Stuttgart, Germany

Location: Iowa

2:00PM  ILES18-041  Development and Validation of a Low-Frequency RFID system for monitoring grow-finish pig feeding and drinking behavior  
Tami Brown-Brandl, (Presenting Author) USDA-ARS-MARC, Aurora, Nebraska  
(Tami Brown-Brandl, Felix Adrion, Roger Eigenberg, Eva Gallmann)

2:15PM  ILES18-116  Practical Test and Evaluation of Optimized UHF Ear Tags for Behavior Monitoring of Fattening Pigs  
Adrian Foerschner, (Presenting Author) University of Hohenheim, Stuttgart, Baden-Wuerttemberg Germany (Felix Adrion, Eva Gallmann)

2:30PM  ILES18-024  A RFID-Based Monitoring System for Characterization of Perching Behaviors of Individual Poultry  
Kailao Wang, (Presenting Author) Iowa State University, Ames, Iowa (Kailao Wang, Kai Liu, Hongwei Xin, Lilong Chai, Yu Wang, Tao Fei, Jofran Oliveira, Jinming Pan, Yibin Ying)

2:45PM  ILES18-051  Radio-frequency Identification (RFID) System for Monitoring Specific Behaviors of Group Housed Broilers  
Guoming Li, (Presenting Author) Mississippi State University, Starkville, Mississippi (Guoming Li, Yang Zhao, Rhet Hailey, Nan Zhang, Yuanji Liang, Joseph Purswell)

3:00PM  ILES18-068  Activity Analysis to Detect Lameness in Pigs with a UHF-RFID System  
Anita Kapun, (Presenting Author) University of Hohenheim, Stuttgart Germany (Anita Kapun, Felix Adrion, Eva Gallmann)

3:15PM  ILES18-107  Validation of Radio Frequency Identification with a Current Transducer to Quantify the use of an Automatic Grooming Brush in Pre-Weaned Dairy Calves  
Melissa Cantor, (Presenting Author) University of Kentucky, Lexington, Kentucky (Morgan Falk, Melissa Cantor, Morgan Hayes, Josh Jackson, Joao HC Costa)

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**Air Quality – Measurement and Abatement of Aerial Pollutants**

**PARTICULATE MATTER & MICROBES**

Moderator: Hong Li, University of Delaware, Newark, Delaware

Location: Nebraska

2:00PM  ILES18-091  Concentrations and Distributions of Airborne Bacteria in a Growing Swine Building in China  
Xiuping Tao, (Presenting Author) Institute of Environment & Sustainable Development in Agriculture, CAAS, Beijing, China (Xiuping Tao, Bin Shang, Hongmin Dong, Yongxing Chen)

2:15PM  ILES18-081  Distribution of Particulate Matter in Poultry Layer Houses and In Vitro PM2.5-Induced Damage on Human Alveolar Epithelial Cells  
Chunmei Li, (Presenting Author) Nanjing Agricultural University, Nanjing, Jiangsu China (Dan Shen, Pengyuan Dai, Yansen Li, Chunmei Li,)
2:30PM  ILES18-117  Aerosols and Bacteria Concentration in Different Types of Japanese Dairy Milking Houses
Takanori Naide, (Presenting Author) Tokyo University of Agriculture and Technology, Tokyo, Japan (Md. Aminul Islam, Atsuo Ikekuchi, Takanori Naide)

2:45PM  ILES18-087  Air Quality at Low Outdoor Temperatures in Norwegian Horse Stables
Knut Egil Boe, (Presenting Author) Norwegian University of Life Sciences, As, Norway (Knut Egil Boe, Guro Dragsund, Grete Jorgensen, Eileen Fabian-Wheeler)

3:30PM - 4:00PM  BREAK

4:00PM - 5:15PM  Closing Session
Moderator: Morgan Hayes, University of Kentucky, Lexington, Kentucky
Location: Lewis/Clark
4:00PM  Robert J. Collier, Emeritus Profess of the University of Arizona.
“Managing Animal Environments During an Era of Global Warming: Future Directions “

THURSDAY, SEPTEMBER 27
7:00AM - 5:30PM  Farm Industry Tour
This technical tour will allow attendees to experience Nebraska’s livestock production including the environmental controls in a new poultry facility, the management and design criteria for a cattle feedlot, and the opportunities with robotic milking systems. We’ll enjoy lunch at the Howell’s Ballroom at approximately 12pm while being addressed by the Past-President of the NE Pork Producers, Russ Vering.

- Lincoln Premium Poultry Chicken Farm, Hooper, Nebraska
- J&S Feedlot Beef Cattle Feedlot, Dodge, Nebraska
- Central Plains Milling Feed Mill, Howells, Nebraska
- Larson Farms Robotic Dairy, Creston, Nebraska

Please meet in the lobby of the DoubleTree to load the buses between 6:30am and 7:00am. The buses will depart promptly at 7:00am. This tour has a limited capacity. Please inquire at the ASABE registration desk about purchasing a ticket for this tour for $11.00.