

10TH INTERNATIONAL LIVESTOCK ENVIRONMENT SYMPOSIUM
WITH
1ST U.S. PRECISION LIVESTOCK FARMING SYMPOSIUM

DoubleTree by Hilton, Downtown Omaha, Nebraska

September 25-27, 2018

PROGRAM

MONDAY, SEPTEMBER 24

2:00PM - 6:00PM Registration
Location: Grand Ballroom East

TUESDAY, SEPTEMBER 25

7:00AM - 5:00PM Registration
Location: Grand Ballroom East

8:30AM - 10:00AM Opening Session

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

Location: Grand Ballroom Center/West

8:30AM Keynote Speaker:

Director Steve Wellman, Nebraska Department of Agriculture

"Nebraska Agriculture: Opportunities for Agriculture Engineering and Livestock Production"

9:00AM 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.

"ILES: Rational Environmental Management of Livestock-Foundation, Accomplishments and Future"

10:00AM - 10:30AM BREAK

10:30AM - 12:00PM Concurrent Sessions I, II, III, IV

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, Tjøtta, Nordland, Norway (Juni Rosann Engelién 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, Stuttgart, 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, Jiagong 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*
Richard S. Gates, (Presenting Author) University of Illinois, Urbana, Illinois (Marcia Gabrielle Lima Candido, Ilda de Fatima Ferreira Tinoco, Richard S. Gates, Rafaella Resende Andrade, Isabella Thereza de Almeida Martins, Leticia Cibele da Silva Ramos Freitas)
- 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) Universidade 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 Spiels, 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*
Richard S. Gates, (Presenting Author) University of Illinois, Urbana, Illinois (Marcia Cândido, Ilda de Tinôco, Lucas Herker, Talissa Ireno, Rafaella Andrade, Richard S. Gates)
- 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)

- 8:30AM ILES18-060 *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)
- 8:45AM ILES18-119 *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)
- 9:00AM ILES18-018 *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

- 8:00AM ILES18-026 *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)
- 8:15AM ILES18-134 *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)
- 8:30AM ILES18-093 *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)
- 8:45AM ILES18-146 *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)
- 9:00AM ILES18-102 *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)
- 9:15AM ILES18-148 *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

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, Rafaella Andrade, Leticia Freitas, Carlos Teles Junior)

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 Tullio, 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*
John George, P.E., (Presenting Author) Agricultural Engineering Associates, Inc, Uniontown, Kansas (John George, Richard Mattocks, Mark Moser, John Paul Smith, Rick Thomas)
- 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)

- AQ-5 ILES18-082 *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)
- AQ-6 ILES18-108 *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)
- AQ-7 ILES18-118 *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)
- AQ-8 ILES18-136 *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*
Daniel Berckmans, (Presenting Author) KU Leuven, Leuven, Belgium (Alberto Pena Fernandez, Theo Demmers, Qin Tong, Ali Youssef, Tomas Norton, Daniel Berckmanns)
- 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 Sate University, Ames, Iowa (Kai Liu, Kailao Wang, Tao Fei, Lilong Chai, Hongwei Xin)

XV. 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)

XVI. 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 Ikeguchi, 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 Egin 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.