

# PROGRAM

## INTERNATIONAL SYMPOSIUM ON RUMINANT PHYSIOLOGY

AUGUST 26–29, 2024

Chicago Marriott Downtown

Magnificent Mile



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## **Welcome to the ISRP in Chicago!**

On behalf of the organizing committee, we want to welcome you to Chicago, Illinois, for the next installment of the International Symposium on Ruminant Physiology. This will be the first meeting of the organization in the United States in 60 years; the last US meeting was in Ames, Iowa, in 1964. The committee is excited about the lineup of keynote speakers and short presentations being offered over the four-day conference. We have invited many international experts in various fields of ruminant physiology to provide the most current research. Enhancing the program are 129 poster presentations.

In addition to the educational component, you will have ample time to enjoy the “Windy City” of Chicago. The conference hotel sits in the heart of downtown, within easy walking distance to top restaurants, theater, entertainment, shopping, lakefront, and more. We have also arranged several exciting, ticketed events that we hope you will enjoy. On Tuesday, set sail with us onboard the Spirit of Chicago and enjoy a delicious dinner and music while cruising around Lake Michigan and watching the sun set over Chicago’s famous skyline. The Gala Dinner on Wednesday will be the place to be to enjoy a relaxing evening onsite with colleagues. The after-conference excursion to Fair Oaks Dairy in northern Indiana is worth staying for. Fair Oaks is one of the largest dairy farms in the United States, with approximately 36,000 dairy cows, and is one of the most visited agrotourism sites in the country, revealing real-life dairying to today’s consumer. Come see how a commercial dairy farm embodies all aspects of the dairy production chain, as many commercial dairy products are directly sold here.

With attendees representing more than 30 countries, we hope you are looking forward to renewing friendships with old colleagues and making new ones during your time at this premier international conference. Welcome to Chicago and ISRP 2024!

Your co-hosts,

Kevin Harvatine, The Pennsylvania State University  
Bob Van Saun, The Pennsylvania State University  
Jeff Firkins, The Ohio State University

## General Conference Information

### Organizing Committee

- Kevin Harvatine, The Pennsylvania State University, Co-chair
- Robert Van Saun, The Pennsylvania State University, Co-chair
- Jeffery Firkins, The Ohio State University, Co-chair and Liaison to ISRP Scientific Committee, U.S. Representative
- Todd Callaway, University of Georgia
- Joel Caton, North Dakota State University
- Kristen Hales, Texas Tech University
- Laura Hernandez, University of Wisconsin
- Clinton Krehbiel, University of Nebraska
- Greg Penner, University of Saskatchewan

### Contact Information

- Chicago Marriott Downtown Magnificent Mile, 540 Michigan Ave, Chicago, IL 60611  
Tel: 312-836-0100
- Symposium Management (in case of emergency)
  - Molly Kelley, Symposium Coordinator, ADSA, [mollyk@adsa.org](mailto:mollyk@adsa.org), cell: 217-493-3441
  - Joanne Knapp, Symposium Director, ADSA, [joanne.r.knapp@gmail.com](mailto:joanne.r.knapp@gmail.com)

### Registration Desk Schedule

Monday, August 26, 2024

8:30 AM–5:30 PM Registration – 7th Floor Lobby

Tuesday, August 27, 2024

7:00 AM–6:00 PM Registration – 7th Floor Lobby

Wednesday, August 28, 2024

7:00 AM–2:30 PM Registration – 7th Floor Lobby

Thursday, August 29, 2024

7:00 AM–12:30 PM Registration – 7th Floor Lobby

### Camera, Video Camera, and Cell Phone Policy

The use of cameras, video cameras, tablets, and smartphones (for calls or audio or video recording) is prohibited during oral and poster presentations to minimize disruption and unauthorized dissemination of data. Anyone found in violation of this policy will be asked to leave the session.

### Poster Presentations

We have dedicated five 90-minute time blocks during the symposium for poster presentations. All posters will be available for public viewing throughout the program, with presenting authors

in attendance during their assigned poster session. Consult the program for daily Poster Session times. Coffee and tea will be available in the hall during the breaks. All posters must be mounted on the board on Monday between 11:55 AM and 3:00 PM and remain in place throughout the week. Posters must be removed on Thursday between 12:15 PM and 12:45 PM. Any posters remaining after this time will be removed by the symposium staff and discarded. Each poster board area is 48 inches high and 96 inches wide. The use of this space is determined by the presenter, with the following exceptions: The top of the poster space must include the abstract number with the corresponding letter of the day it is being presented, title, authors, and affiliations. The lettering for this section should be at least 1 inch high.

## **Ticketed Event Information**

### **Monday Evening Welcome Reception**

Ticket Price: Free with registration.

Monday, August 26, 2024

5:15 PM–6:15 PM at the Marriott Downtown Chicago

Be our guest Monday evening as we officially welcome you to ISRP2024 and to Chicago, the most famous city in America's heartland. Connect with old friends and make new acquaintances. The remainder of the evening will be free to explore all Chicago has to offer.

### **Tuesday Evening Symposium Party: Spirit of Chicago Dinner Cruise on Lake Michigan**

Separate ticket purchase required.

Tuesday, August 27, 2024

Boarding: begins at 6:15 PM at Navy Pier at 600 East Grand Ave (a 30-minute walk directly east of the Marriott).

Cruising: 7:00 PM–9:30 PM

A free shuttle will run continuously between the Marriott and Navy Pier from 6:00 PM to 10:00 PM. Shuttle departs from Ohio Street on the north side of Marriott.

### **Wednesday Evening Gala Dinner**

Separate ticket purchase required.

Wednesday, August 28, 2024

7:00 PM–9:00 PM at the Marriott Downtown Chicago

Join us for our gala event featuring a lovely evening with dinner, drinks, and friends old and new.

### **Thursday Afternoon Fair Oaks Farm Tour**

Separate ticket purchase required.

Thursday, August 29, 2024

Depart: 1:00 PM

Return: 6:30 PM

Fair Oaks Farms, 856 N 600 E, Fair Oaks, IN 47943

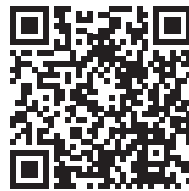
Meet in Marriott Main Lobby Ohio Street Entrance at 12:45. Bus will board from Ohio Street on the north side of Marriott.

Ticket includes lunch, bus transportation, and admission ticket. Fair Oaks is one of the largest working dairy farms in the United States and a top agritourism destination, drawing more than a half million visitors each year. Visitors can see the 780-cow freestall barn equipped with 12 milking robots, view their 72-cow rotary parlor, and learn about modern crop farming practices in the country.

Registration for events are based on remaining availability and may be refunded if the event has reached capacity. Please see the registration desk if you wish to purchase a ticket during the conference.

### **Things to Do in Chicago**

Chicago is a world-class city with endless things to see, do, and experience. Go to <https://www.choosechicago.com/things-to-do> or use your phone's camera to open the QR code below:



### **Attendee Survey**

To help us improve the symposium series, please take a few moments to complete the post event survey. Go to <https://forms.gle/HphLoLpi8Zhk788PA> or use your phone's camera to open the QR code below:



### **Emergencies**

If you should have an emergency during your stay in Chicago, police, fire, and ambulance service can be summoned by dialing **911**.



# Hotel Map

## 7TH FLOOR MEETING ROOMS



## ISRP2024 Conference Program at a Glance

Chicago Marriott Downtown Magnificent Mile—7th Floor Salons

<https://www.isrp2024.org/>

All podium sessions held in Salon II

### Monday, August 26, 2024

8:00 AM Organizing Committee/Moderators meeting – location TBA

8:30 AM – 5:30 PM Registration – 7th Floor Lobby

#### **OPENING SESSION – SALON II**

10:00 AM Welcome & Recognitions

#### **SESSION 1: INSIGHTS FROM PRECISION TECHNOLOGY AND DATA SCIENCE AND THEIR APPLICATION TO RUMINANT PHYSIOLOGY AND MANAGEMENT. KEVIN HARVATINE, LEAD**

10:10 AM Big data and artificial intelligence assisted prediction of physiological outcomes. Joao Dorea, University of Wisconsin

10:55 AM What has precision technology taught us about grazing behavior? Mark Trotter, Central Queensland University, Australia

11:40 AM Abstract Highlights (15 min)

11:55 AM Lunch – Salon I

11:55 AM – 3:00 PM Hanging of all posters – Salon III (all days, all sessions)

#### **SESSION 2: GASTROINTESTINAL MICROBIAL ECOLOGY, THE MICROBIOME, AND GUT PHYSIOLOGY SPANNING FROM MICROBIAL-HOST INTERACTIONS TO AN UPDATE ON METHANE PRODUCTION AND MINERAL INTERACTIONS. TODD CALLAWAY, LEAD**

1:10 PM Overall perspective on rumen microbial ecology to improve fiber digestibility. Jeffrey Firkins, The Ohio State University

1:55 PM The giants and the dwarfs within the rumen ecosystem - Rumen ciliates and viruses. Zhongtang Yu, The Ohio State University

2:40 PM Fungi, archaea, and their interactions. Tim McAllister, Agriculture and Agri-Food Canada

3:25 PM Abstract Highlights (20 min)

3:45 PM Poster Session Break 1 – Salon III

5:15 PM Adjourn

5:15 PM Opening Reception. Dinner on your own. – 7th Floor Lobby

**Tuesday, August 27, 2024**

**SESSION 3: WHOLE ANIMAL MICROBIOME AND INTEGRATION OF EFFECTS ACROSS SYSTEMS INCLUDING THE CENTRAL NERVOUS SYSTEM, LACTATION, REPRODUCTION, RESPIRATION, AND IMMUNITY. JEFFREY FIRKINS, LEAD**

- 8:00 AM The Holobiont concept in ruminant and human physiology – more of the same, or something new and meaningful to food quality, security and health? Todd Callaway, University of Georgia
- 8:45 AM Stochastic and deterministic factors that shape the rumen microbiome. Samodha Fernando, University of Nebraska-Lincoln
- 9:30 AM Understanding the rumen microbiome to develop methane mitigation strategies for ruminants. Sinead Waters, University of Galway
- 10:15 AM Abstract Highlights (15 min)
- 10:30 AM Poster Session Break 2 – Salon III
- 12:00 PM Lunch – Salon I

**SESSION 4: POST-ABSORPTIVE PHYSIOLOGICAL IMPACTS OF NUTRIENTS ON CELLULAR SIGNALING. CLINT KREHBIEL, LEAD**

- 1:15 PM Nutrient signaling to skeletal muscle and adipose tissue. Brad Johnson, Texas Tech University
- 2:00 PM Advances in trace mineral and vitamin nutrition. Stephanie Hansen, Iowa State University
- 2:45 PM One-carbon metabolism in beef cattle throughout the production cycle. Matt Crouse, USDA-ARS
- 3:30 PM Abstract Highlights (15 min)
- 3:45 PM Poster Session Break 3 – Salon III
- 5:15 PM Adjourn. Dinner on your own.
- 7:00 PM – 9:30 PM Optional Ticketed Symposium Party – Spirit of Chicago Dinner Cruise on Lake Michigan. Boarding begins at 6:15 PM. A continuous shuttle will be running from 6:00 PM to 10:00 PM. Shuttle pick up is on Ohio Street (north side of Marriott).

**Wednesday, August 28, 2024**

**SESSION 5: INFLAMMATION, METABOLIC ENDOCRINOLOGY, METABOLOMICS, AND NOVEL REGULATORS OF PHYSIOLOGY AND METABOLISM. BOB VAN SAUN, LEAD**

- 8:00 AM Endocrine adaptations to lactation: IGF, FGF21 and beyond. Yves Boisclair, Cornell University
- 8:45 AM Role of the endocannabinoid system in metabolic and inflammatory responses in cows in negative energy balance. Maya Zachut, Volcani Institute, Israel

9:30 AM	The immunometabolism of transition dairy cows: lights and shadows. Erminio Trevisi, Catholic University of the Sacred Heart, Italy
	<b>SESSION 6: INTEGRATION OF ENVIRONMENT, PHYSIOLOGY, AND WELL-BEING IN FACE OF CLIMATE CHANGE AND RESOURCE LIMITATIONS. KRISTIN HALES, LEAD</b>
10:15 AM	Integrating our understanding of stress physiology. Erin Horst, Elanco Animal Health
11:00 AM	Abstract Highlights (30 min)
11:30 AM	Lunch – Salon I
12:45 PM	Poster Session Break 4 – Salon III
2:15 PM	Adjourn. Afternoon free for recreation
7:00 PM	Optional Ticketed Symposium Gala Banquet – Marriott Salon I

**Thursday, August 29, 2024**

	<b>SESSION 7: GENOMICS AND EPIGENETIC IMPACTS ON RUMINANT PHYSIOLOGY AND EFFICIENCY. JOEL CATON, LEAD</b>
8:00 AM	Maternal nutrient supply: Impacts on physiological and whole animal outcomes in offspring. Joel Caton, North Dakota State University
8:45 AM	Paternal nutrient supply: Impacts on physiological and whole animal outcomes in offspring. Carl Dahlen, North Dakota State University
9:30 AM	Early regulation of mammalian development: Establishing the full extent and mechanistic basis of environmental effects. Kevin Sinclair, University of Nottingham
10:15 AM	Abstract highlights (30 min)
10:45 AM	Poster Session Break 5 – Salon III
12:15 PM	Adjourn. Lunch on your own.
12:15 PM – 12:45 PM	Remove posters
12:45 PM – 6:30 PM	Optional Post-Symposium Ticketed Tour – Fair Oaks Farms. Tour returns to Marriott. Meet in hotel lobby at 12:45 PM for loading bus. Bus loads from Ohio Street (north side of Marriott) at 1:00 PM. Boxed lunch will be provided on the bus for tour participants.

# Program

## Monday, August 26

8:30 AM–5:30 PM

Registration Desk  
Lobby (7th Floor)

### **SESSION 1: INSIGHTS FROM PRECISION TECHNOLOGY AND DATA SCIENCE AND THEIR APPLICATION TO RUMINANT PHYSIOLOGY AND MANAGEMENT**

**Chair:** Kevin Harvatine  
Salon II (7th Floor)  
10:00 AM–11:55 AM

10:00 AM

#### **Welcome & Recognitions.**

10:10 AM

#### **1 Big data and artificial intelligence assisted prediction of physiological outcomes.**

J. R. R. Dorea\*, A. Negreiro, E. Casella, L. Hernandez, and G. J. M. Rosa,  
*Department of Animal and Dairy Sciences, University of Wisconsin–Madison, Madison, WI.*

10:55 AM

#### **2 What has precision technology taught us about grazing behavior?**

M. Trotter<sup>\*1</sup>, D. Bailey<sup>2,1</sup>, R. Reuter<sup>3,1</sup>, J. Kinder<sup>4,1</sup>, A. Garcia-Guerra<sup>4</sup>, S. Quigley<sup>1</sup>, K. McCosker<sup>5</sup>, C. Tobin<sup>6</sup>, C. Knight<sup>7</sup>, C. Wade<sup>8</sup>, D. Costa<sup>1</sup>, J. Manning<sup>1</sup>, A. Chang<sup>1</sup>, C. Wilson<sup>1</sup>, T. Williams<sup>1</sup>, <sup>1</sup>*CQ University Australia, Rockhampton, Queensland, Australia*, <sup>2</sup>*Deep Well Ranch, Prescott, AZ*, <sup>3</sup>*Oklahoma State University, Stillwater, OK*, <sup>4</sup>*The Ohio State University, Columbus, OH*, <sup>5</sup>*The University of Queensland, Brisbane, Queensland, Australia*, <sup>6</sup>*North Dakota State University, Carrington, ND*, <sup>7</sup>*University of Maine, Orono, ME*, <sup>8</sup>*University of Alberta, Edmonton, Alberta, Canada.*

11:40 AM

#### **Abstract Highlights.**

11:55 AM–3:00 PM

Hanging of all posters (all days, all sessions)  
Salon III (7th Floor)

11:55 AM–1:10 PM

Lunch  
Salon I (7th Floor)

### **SESSION 2: GASTROINTESTINAL MICROBIAL ECOLOGY, THE MICROBIOME, AND GUT PHYSIOLOGY SPANNING FROM MICROBIAL-HOST INTERACTIONS TO AN UPDATE ON METHANE PRODUCTION AND MINERAL INTERACTIONS**

**Chair:** Todd Callaway  
Salon II (7th Floor)  
1:10 PM–3:45 PM

1:10 PM

#### **3 Overall perspective on rumen microbial ecology to improve fiber digestibility.**

J. L. Firkins<sup>\*1</sup> and P. B. Pope<sup>2,3</sup>, <sup>1</sup>*The Ohio State University, Columbus, OH*, <sup>2</sup>*Queensland University of Technology, Woolloongabba, Queensland, Australia*, <sup>3</sup>*Norwegian University of Life Sciences, Ås, Norway.*

1:55 PM      **4 The giants and the dwarfs within the rumen ecosystem—Rumen ciliates and viruses.**  
Z. Yu\*, M. Yan, and S. Somasundaram, *The Ohio State University, Columbus, OH.*

2:40 PM      **5 Fungi, archaea, and their interactions.**  
T. McAllister\*, K. Thomas, and R. Gruninger, *Agriculture and Agri-Food Canada Lethbridge Research and Development Centre, Lethbridge, Alberta, Canada.*

3:25 PM      **Abstract Highlights.**

## POSTER SESSION 1

### GASTROINTESTINAL MICROBIOLOGY (P1–P17)

### PRECISION TECHNOLOGY AND DATA SCIENCE (P18–P25)

Salon III (7th Floor)

3:45 PM–5:15 PM

P1      **Plant extracts of *Tithonia diversifolia* and *Senna spectabilis* are viable alternatives to ionophore antibiotics in improving rumen microbial fermentation.**  
O. Barreto Cruz<sup>1,2</sup> and V. Fellner<sup>\*1</sup>, <sup>1</sup>*North Carolina State University, Raleigh, NC,* <sup>2</sup>*Universidad Cooperativa de Colombia, Sede Ibagué, Espinal, Colombia.*

P2      **Rumen microbes associated with the digestion of plant secondary metabolites of willow leaves fed to cattle.**  
C. B. M. Müller<sup>\*1,2</sup> and B. Kuhla<sup>2</sup>, <sup>1</sup>*University Clinic for Ruminants, University of Veterinary Medicine Vienna, Vienna, Austria,* <sup>2</sup>*Research Institute for Farm Animal Biology (FBN), Dummerstorf, Germany.*

P3      **Energy utilization and rumen microbial composition of phenotypically low and high methane intensity dairy cows.**  
H. N. Cahyo\*, P. Niu, V. T. E. Aho, B. Heringstad, P. B. Pope, and A. Schwarm, *Department of Animal and Aquacultural Sciences, Norwegian University of Life Sciences, Ås, Norway.*

P4      **Rumen microbiome reconstruction following rumen content exchange: Low methane emitters reconstitute while high emitters inherit.**  
P. Niu<sup>\*1</sup>, C. Kobel<sup>1</sup>, V. Aho<sup>1</sup>, C. Alvarez<sup>2</sup>, E. Prestløkken<sup>1</sup>, P. Lund<sup>3</sup>, B. Heringstad<sup>1</sup>, P. B. Pope<sup>1</sup>, and A. Schwarm<sup>1</sup>, <sup>1</sup>*Norwegian University of Life Sciences, Ås, Norway,* <sup>2</sup>*Yara International ASA, Oslo, Norway,* <sup>3</sup>*Aarhus University, AU Viborg, Tjele, Denmark.*

P5      **What is normal? Evaluation of core microbial communities along the gastrointestinal tract of feedlot cattle.**  
J. D. Young<sup>\*1,2</sup>, L. J. Pinnell<sup>2</sup>, C. Wolfe<sup>2</sup>, M. A. Scott<sup>2</sup>, T. E. Lawrence<sup>1</sup>, J. P. Cavasin<sup>3</sup>, J. T. Richeson<sup>1</sup>, and P. S. Morley<sup>2</sup>, <sup>1</sup>*West Texas A&M University, Canyon, TX,* <sup>2</sup>*VERO Program, Texas A&M University, Canyon, TX,* <sup>3</sup>*College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station, TX.*

P6      **Validation of rumen sampling via stomach tubing to inoculate mini dual-flow fermenters.**  
V. Berthelot<sup>\*1</sup>, M. Charef-Mansouri<sup>1</sup>, S. Giger-Reverdin<sup>1</sup>, and L. Broudiscou<sup>1,2</sup>, <sup>1</sup>*Université de Paris-Saclay, INRAE, AgroParisTech, UMR 791 MoSAR, Palaiseau, France,* <sup>2</sup>*INRAE, UMR 1419 NuMeA, Saint-Pée-sur-Nivelle, France.*

- P7 **Effect of abrupt transition from high-concentrate diets to endophyte-free tall fescue and alfalfa mixed hay in beef cattle.**  
A. Osorio-Doblado\*, M. M. Dycus, U. Lamichhane, K. P. Feldmann, C. Stevenson, H. Perez, F. L. Fluharty, J. M. Lourenco, and T. Callaway, *Department of Animal and Dairy Science, University of Georgia, Athens, GA.*
- P8 **Identifying microbial biomarkers in the gastrointestinal tract of cattle associated with the presence of liver abscess and the onset of bovine respiratory disease.**  
L. J. Pinnell\*<sup>1</sup>, J. D. Young<sup>1,2</sup>, E. Doster<sup>1</sup>, C. A. Wolfe<sup>1</sup>, T. W. Thompson<sup>3</sup>, T. C. Bryant<sup>4</sup>, M. N. Nair<sup>3</sup>, J. T. Richeson<sup>2</sup>, and P. S. Morley<sup>1</sup>, <sup>1</sup>*Texas A&M University, Canyon, TX*, <sup>2</sup>*West Texas A&M University, Canyon, TX*, <sup>3</sup>*Colorado State University, Fort Collins, CO*, <sup>4</sup>*Five Rivers Cattle Feeding, Johnstown, CO.*
- P9 **Composited rumen enhancer in milk replacer improves feeding transition of neonatal calves.**  
O. O. Adelusi\*<sup>1</sup>, D. P. Casper<sup>1,2</sup>, and U. Y. Anele<sup>1</sup>, <sup>1</sup>*North Carolina Agricultural and Technical State University, Greensboro, NC*, <sup>2</sup>*Casper's Calf Ranch, Freeport, IL.*
- P10 **Difference of feeding concentrate- versus fermented forage-based starter diets in weaning dairy calves under intensive milk feeding program: Rumen fermentation and microbiome.**  
K. Masuda\*<sup>1</sup>, M. Nakano<sup>2</sup>, H. Kobayashi<sup>2</sup>, M. Tohno<sup>2</sup>, H. Ishizaki<sup>2</sup>, Y. Suzuki<sup>3</sup>, H. Lee<sup>1</sup>, S. Roh<sup>1</sup>, and S. Haga<sup>1,2</sup>, <sup>1</sup>*Graduate School of Agricultural Science, Tohoku University, Sendai, Miyagi, Japan*, <sup>2</sup>*Institute of Livestock and Grassland Science, NARO, Nasushiobara, Tochigi, Japan*, <sup>3</sup>*Graduate School/Research Faculty of Agriculture, Hokkaido University, Sapporo, Hokkaido, Japan.*
- P11 **Evaluation of antiparasitic efficacy of herbal and leguminous plants' extracts: In vitro experimentation on larvae of sheep fecal cultures.**  
C. Ke\*<sup>1,2</sup>, T. Wuliji<sup>1,2</sup>, and T. McFadden<sup>1</sup>, <sup>1</sup>*University of Missouri in Columbia, Columbia, MO*, <sup>2</sup>*Lincoln University, Jefferson City, MO.*
- P12 **Assessment of acidosis risk in beef steers: Relationship to intake, ruminal pH, and the microbiome during the late-finishing phase.**  
C. W. Dornbach and J. C. McCann\*, *University of Illinois Urbana-Champaign, Urbana, IL.*
- P13 **Evaluation of an exogenous fibrolytic enzyme combination in forage-based growing diets fed to growing beef cattle.**  
M. Nichols\*<sup>1</sup>, G. Gullickson<sup>1</sup>, Y. Entzie<sup>1</sup>, S. Underdahl<sup>1</sup>, L. Hansen<sup>1</sup>, J. Syring<sup>1</sup>, J. Wianecki<sup>1</sup>, D. Jensen<sup>1</sup>, K. Hauxwell<sup>1</sup>, T. Winders<sup>2</sup>, and Z. Carlson<sup>1</sup>, <sup>1</sup>*Department of Animal Sciences, North Dakota State University, Fargo, ND*, <sup>2</sup>*Danisco Animal Nutrition and Health, Wilmington, DE.*
- P14 **Longitudinal assessment of *Salmonella enterica* prevalence and concentration throughout the gastrointestinal tract of finishing beef steers with and without liver abscesses.**  
C. W. Dornbach\*<sup>1</sup>, P. R. Broadway<sup>2</sup>, D. J. Line<sup>1</sup>, A. N. Hanratty<sup>1</sup>, K. D. Childress<sup>1</sup>, A. C. Thompson Smith<sup>1</sup>, J. L. Manahan<sup>1</sup>, Z. S. McDaniel<sup>1</sup>, L. G. Canterbury<sup>1</sup>, N. C. Burdick Sanchez<sup>2</sup>, M. L. Galyean<sup>1</sup>, and K. E. Hales<sup>1</sup>, <sup>1</sup>*Texas Tech University, Lubbock, TX*, <sup>2</sup>*USDA-ARS Livestock Issues Research Unit, Lubbock, TX.*
- P15 **Chitosan nanoparticles loaded with dihydromyricetin as a novel delivery model for antibacterial and antioxidant.**  
C. Zhang, Z. Zhao, L. Jiang, and J. Tong\*, *Beijing University of Agriculture, Beijing, China.*

- P16 **Integrated multi-omics analysis reveals ruminal microbial structure and metabolite activity in dairy cows with mastitis.**  
K. Wang, S. Zhang, J. Tong\*, H. Zhang, and H. Shen, *Beijing University of Agriculture, Beijing, China.*
- P17 **Relationships between methane production in the rumen of dairy cows and alterations in the rumen bacterial community structure after feeding on post-extracted black tea lees.**  
E. Saito<sup>1</sup>, K. Mukawa<sup>2</sup>, Y. Sekiguchi<sup>3</sup>, S. Kushibiki<sup>4</sup>, and Y. Uyeno\*<sup>1</sup>, <sup>1</sup>*Shinshu University, Minamiminowa, Nagano, Japan*, <sup>2</sup>*Nosan Farm Co. Ltd, Otofuke, Hokkaido, Japan*, <sup>3</sup>*Morinaga Milk Industry Co. Ltd, Tokyo, Japan*, <sup>4</sup>*National Agriculture and Food Research Organization, Tsukuba, Ibaraki, Japan.*
- P18 **A comparison of two remote monitoring technologies to predict feed intake of feedlot cattle.**  
M. M. E. Luke\*<sup>1,2</sup>, J. E. M. Burgess<sup>1,2</sup>, and L. A. Gonzalez<sup>1,2</sup>, <sup>1</sup>*School of Life and Environmental Science, University of Sydney, Camden, New South Wales, Australia*, <sup>2</sup>*Sydney Institute of Agriculture, University of Sydney, Camden, New South Wales, Australia.*
- P19 **Improving animal health and welfare by using sensor data in herd management and dairy cattle breeding—A joint initiative of ICAR and IDF.**  
C. Egger-Danner<sup>1</sup>, I. Klaas<sup>2</sup>, L. Brito<sup>3</sup>, K. Schodl<sup>1</sup>, J. Bewley<sup>4</sup>, V. Cabrera<sup>5</sup>, N. Charfeddine<sup>6</sup>, N. Gengler<sup>7</sup>, M. Haskell<sup>8</sup>, M. Iwersen<sup>9</sup>, R. van der Linde<sup>10</sup>, K. Stock<sup>11</sup>, A. Stygar<sup>12</sup>, E. Vasseur<sup>13</sup>, M. Hostens\*<sup>14</sup>, <sup>1</sup>*Rinderzucht Austri, Vienna, Austria*, <sup>2</sup>*Delaval, Thumba, Sweden*, <sup>3</sup>*Purdue University, West Lafayette, IN*, <sup>4</sup>*Holstein Association USA, Brattleboro, VT*, <sup>5</sup>*University of Wisconsin–Madison, Madison, WI*, <sup>6</sup>*Confederación de Asociaciones de Frisona Española, Madrid, Spain*, <sup>7</sup>*Gembloux Agro-Bio Tech, Gembloux, Belgium*, <sup>8</sup>*Scotland's Rural College, Edinburgh, UK*, <sup>9</sup>*Veterinärmedizinische Universität Wien, Vienna, Austria*, <sup>10</sup>*International Committee for Animal Recording, Utrecht, the Netherlands*, <sup>11</sup>*Vereinigte Informationssysteme Tierhaltung, Verden, Germany*, <sup>12</sup>*Natural Resources Institute Finland, Helsinki, Finland*, <sup>13</sup>*McGill University, Montreal, Canada*, <sup>14</sup>*Cornell University, Ithaca, NY.*
- P20 **Investigation of the efficacy of accelerometers for identifying behavioral estrus in crossbred beef heifers on pasture.**  
R. A. Cushman\*, *USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.*
- P21 **Surrogate modeling to explore associations between stocking density and environmental footprints.**  
N. A. Kotey\* and R. R. White, *Virginia Polytechnic Institute and State University, Blacksburg, VA.*
- P22 **Predicting and forecasting fluctuations in dry matter intake in Holstein cows using machine learning.**  
L. Niehues<sup>1</sup>, L. A. Oliveira<sup>2</sup>, I. C. F. S. Condotta<sup>1</sup>, and F. C. Cardoso\*<sup>1</sup>, <sup>1</sup>*Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, IL*, <sup>2</sup>*Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign, Urbana, IL.*
- P23 **CalfSim tool: A customizable model and online tool to simulate calf performance under different nutritional strategies.**  
T. Da Silva and J. Costa\*, *University of Vermont, Burlington, VT.*



- P24 **Prediction of ruminal VFA concentrations from sensing of rumen environment.**  
R. K. Wright\* and R. R. White, *Virginia Polytechnic Institute and State University, Blacksburg, VA.*
- P25 **Individual variation in eructation frequency during robotic milking: Detection by applying the sniffer method.**  
K. Oikawa\*<sup>1,2</sup>, T. Suzuki<sup>1</sup>, Y. Kamiya<sup>1</sup>, S. Roh<sup>2</sup>, and S. Haga<sup>2</sup>, <sup>1</sup>*Institute of Livestock and Grassland Science, NARO, Nasushiobara, Tochigi, Japan*, <sup>2</sup>*Graduate School of Agricultural Science, Tohoku University, Sendai, Miyagi, Japan.*
- 5:15 PM–6:45 PM Opening Reception. Dinner on your own.  
Lobby (7th Floor)

**Tuesday, August 27**

- 7:00 AM–6:00 PM Registration Desk  
Lobby (7th Floor)
- SESSION 3: WHOLE ANIMAL MICROBIOME AND INTEGRATION OF EFFECTS ACROSS SYSTEMS INCLUDING THE CENTRAL NERVOUS SYSTEM, LACTATION, REPRODUCTION, RESPIRATION, AND IMMUNITY**  
**Chair:** Jeff Firkins  
Salon II (7th Floor)  
8:00 AM–10:30 AM
- 8:00 AM **6 The holobiont concept in ruminant and human physiology—More of the same, or something new and meaningful to food quality, security, and health?**  
T. Callaway\*<sup>1</sup> and M. Morrison<sup>2</sup>, <sup>1</sup>*Department of Animal and Dairy Science, University of Georgia, Athens, GA*, <sup>2</sup>*Frazer Institute, University of Queensland, Brisbane, Australia.*
- 8:45 AM **7 Stochastic and deterministic factors that shape the rumen microbiome.**  
S. C. Fernando\*, M. L. Spangler, S. Adams, and A. Lakamp, *University of Nebraska–Lincoln, Lincoln, NE.*
- 9:30 AM **8 Understanding the rumen microbiome to develop methane mitigation strategies for ruminants.**  
S. M. Waters\*<sup>1</sup>, P. E. Smith<sup>2</sup>, D. A. Kenny<sup>2</sup>, M. Popova<sup>3</sup>, M. Eugène<sup>3</sup>, and D. P. Morgavi<sup>3</sup>, <sup>1</sup>*School of Biological and Chemical Sciences, University of Galway, Galway, Ireland*, <sup>2</sup>*Teagasc Grange, Animal and Bioscience Research Department, Dunsany, Co. Meath, Ireland*, <sup>3</sup>*Université Clermont Auvergne, INRAE, VetAgro Sup, UMR Herbivores, Saint-Genes-Champagnelle, France.*
- 10:15 AM **Abstract Highlights.**
- POSTER SESSION 2: WHOLE ANIMAL MICROBIOLOGY**  
Salon III (7th Floor)  
10:30 AM–12:00 PM
- P26 **Whole blood transcriptome and microbial abundance changes in transition cows.**  
P. Fregulia\*<sup>1,2</sup>, G. Zanton<sup>2</sup>, and W. Li<sup>2</sup>, <sup>1</sup>*Oak Ridge Institute for Science and Education, Oak Ridge, TN*, <sup>2</sup>*USDA Agricultural Research Service, US Dairy Forage Research Center, Madison, WI.*
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- P27 **Rumen microbial inoculation effects on the liver transcriptome and meta-transcriptome in weaned calves.**  
P. Fregulia<sup>\*1,2</sup>, G. Zanton<sup>2</sup>, and W. Li<sup>2</sup>, <sup>1</sup>*Oak Ridge Institute for Science and Education, Oak Ridge, TN*, <sup>2</sup>*USDA Agricultural Research Service, US Dairy Forage Research Center, Madison, WI.*
- P28 **A meta-analysis of 16S rRNA gene amplicon sequencing datasets reveals core vaginal microbiota of ruminant livestock.**  
L. C. Jonas<sup>\*</sup>, C. J. Anderson, C. R. Youngs, and S. Schmitz-Esser, *Department of Animal Science, Iowa State University, Ames, IA.*
- 12:00 PM–1:15 PM Lunch  
Salon I (7th Floor)
- SESSION 4: POST-ABSORPTIVE PHYSIOLOGICAL IMPACTS OF NUTRIENTS ON CELLULAR SIGNALING**  
**Chair:** Clint Krehbiel  
Salon II (7th Floor)  
1:15 PM–3:45 PM
- 1:15 PM **9 Nutrient signaling to skeletal muscle and adipose tissue.**  
B. J. Johnson<sup>\*</sup>, *Texas Tech University, Lubbock, TX.*
- 2:00 PM **10 Advances in trace mineral and vitamin nutrition.**  
S. Hansen<sup>\*</sup>, *Iowa State University, Ames, IA.*
- 2:45 PM **11 One-carbon metabolism in beef cattle throughout the production cycle.**  
M. S. Crouse<sup>\*1</sup>, R. A. Cushman<sup>1</sup>, C. A. Redifer<sup>1</sup>, B. W. Neville<sup>1</sup>, A. K. Ward<sup>2</sup>, C. R. Dahlen<sup>3</sup>, and J. S. Caton<sup>3</sup>, <sup>1</sup>*U.S. Meat Animal Research Center, Clay Center, NE*, <sup>2</sup>*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*, <sup>3</sup>*North Dakota State University, Fargo, ND.*
- 3:30 PM **Abstract Highlights.**  
**POSTER SESSION 3: POST-ABSORPTIVE PHYSIOLOGY AND CELL SIGNALLING**  
Salon III (7th Floor)  
3:45 PM–5:15 PM
- P29 **Serotonin ameliorates ergot alkaloid-induced vasoconstriction of the isolated bovine lateral saphenous vein via 5-HT<sub>4</sub> activation.**  
R. J. Trotta<sup>\*1</sup>, D. L. Harmon<sup>1</sup>, H. B. Scroggins<sup>1</sup>, H. Ji<sup>2</sup>, and J. L. Klotz<sup>3</sup>, <sup>1</sup>*Department of Animal and Food Sciences, University of Kentucky, Lexington, KY*, <sup>2</sup>*Kentucky Tobacco Research and Development Center, University of Kentucky, Lexington, KY*, <sup>3</sup>*USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY.*
- P30 **Effects of imidazole dipeptides on myogenic differentiation and proliferation in bovine skeletal muscle-derived cells.**  
J. H. Lee<sup>\*</sup>, X. C. Jin, B. M. Kim, J. S. Park, and H. G. Lee, *Department of Animal Science and Technology, Sanghuh College of Life Science, Konkuk University, Seoul, Republic of Korea.*
- P31 **Multiple mechanisms contribute to the lesser deposition of intramuscular fat than subcutaneous fat in cattle.**  
Z. Tan<sup>\*</sup>, B. Pokhrel, and H. Jiang, *Virginia Polytechnic Institute and State University, Blacksburg, VA.*

- P32 **Glucose metabolism may differ in mid-lactation cows of high- or low-feed-efficient status.**  
S. J. Kendall<sup>\*1</sup>, K. M. Kennedy<sup>1</sup>, S. J. Johnson<sup>1</sup>, A. Bosch<sup>1</sup>, G. F. Praisler<sup>1</sup>, M. VandeHaar<sup>2</sup>, Z. Zhou<sup>2</sup>, and H. M. White<sup>1</sup>, <sup>1</sup>*University of Wisconsin–Madison, Madison, WI*, <sup>2</sup>*Michigan State University, East Lansing, MI*.
- P33 **Using supply-demand analysis to investigate the role of peripheral insulin sensitivity changes in the partitioning of glucose entry between mammary and nonmammary sinks in the lactating cow.**  
J. P. Cant<sup>\*</sup> and G. C. Reyes, *University of Guelph, Guelph, Ontario, Canada*.
- P34 **Effect of vitamin A-enriched diet at late gestation on intramuscular fat deposition in beef offspring.**  
S. Dean<sup>\*1</sup>, M. Gomes<sup>1</sup>, W. Silva<sup>1</sup>, M. Steele<sup>1</sup>, K. Wood<sup>1</sup>, M. Du<sup>2</sup>, T. Costa<sup>3</sup>, G. Mateus<sup>3</sup>, and M. Duarte<sup>1</sup>, <sup>1</sup>*University of Guelph, Guelph, Ontario, Canada*, <sup>2</sup>*Washington State University, Pullman, WA*, <sup>3</sup>*Federal University of Lavras, Lavras, Minas Gerais, Brazil*.
- P35 **Urinary excretion of purine derivatives and microbial protein synthesis of growing steers fed corn or corn-soybean silage at different crude protein levels.**  
T. A. Aloba<sup>\*1,2</sup>, E. E. Corea<sup>3</sup>, M. Mendoza<sup>3</sup>, U. Dickhoefer<sup>4</sup>, and J. Castro-Montoya<sup>3</sup>, <sup>1</sup>*Institute of Animal Nutrition and Rangeland Management in the Tropics and the Subtropics, University of Hohenheim, Stuttgart, Baden Württemberg, Germany*, <sup>2</sup>*Dr Eckel Animal Nutrition GmbH, Niederzissen, Rhineland Palatinate, Germany*, <sup>3</sup>*Faculty of Agricultural Sciences, University of El Salvador, San Salvador, El Salvador*, <sup>4</sup>*Institute of Animal Nutrition and Physiology, Christian-Albrechts-Universität zu Kiel, Kiel, Schleswig-Holstein, Germany*.
- P36 **Metabolic responses to amino acids infused with different energy sources.**  
M. Killerby<sup>\*1</sup>, G. M. de Souza<sup>2</sup>, K. Ruh<sup>1</sup>, A. Larsen<sup>1,3</sup>, E. Cohan<sup>1</sup>, A. Hoppmann<sup>1</sup>, M. Danes<sup>2</sup>, W. Li<sup>3</sup>, and S. I. Arriola Apelo<sup>1</sup>, <sup>1</sup>*Animal and Dairy Science, University of Wisconsin–Madison, Madison, WI*, <sup>2</sup>*Department of Animal Science, Federal University of Lavras, Lavras, Minas Gerais, Brazil*, <sup>3</sup>*US Dairy Forage Research Center, Madison, WI*.
- P37 **Interaction of energy and amino acids on mammary and adipose gene expression in lactating dairy cows.**  
K. E. Ruh<sup>\*1</sup>, L. A. Coelho Ribeiro<sup>1</sup>, A. D. Benn<sup>1</sup>, A. Negreiro<sup>1</sup>, V. L. Pszczolkowski<sup>1,2</sup>, A. M. Larsen<sup>1,2</sup>, W. Li<sup>2</sup>, D. N. Sherlock<sup>3</sup>, and S. I. Arriola Apelo<sup>1</sup>, <sup>1</sup>*Animal and Dairy Science, University of Wisconsin–Madison, Madison, WI*, <sup>2</sup>*USDA Dairy Forage Research Center, Madison, WI*, <sup>3</sup>*Adisseo, Alpharetta, GA*.
- P38 **The effect of dietary fat level on total plasma fatty acids and mammary arteriovenous fatty acid difference in Holstein cows.**  
A. N. Staffin<sup>\*</sup> and K. J. Harvatine, *Penn State University, University Park, PA*.
- P39 **Grazing high-sugar, low-dry matter forages maintains high rumen pH in cattle overwintering in New Zealand.**  
S. L. Davison<sup>\*1,2</sup> and S. J. Gibbs<sup>1</sup>, <sup>1</sup>*Lincoln University, Canterbury, New Zealand*, <sup>2</sup>*Davison Consulting, Chicago, IL*.
- P40 **Altered abundance of proteins in amino acid, fatty acid, and carbohydrate metabolism pathways contributes to variance in residual feed intake.**  
J. Daddam<sup>1</sup>, M. Sura<sup>1</sup>, C. Collings<sup>1</sup>, G. Ahmad<sup>\*1</sup>, S. Naughton<sup>1</sup>, M. VandeHaar<sup>1</sup>, H. White<sup>2</sup>, and Z. Zhou<sup>1</sup>, <sup>1</sup>*Department of Animal Science, Michigan State University*,

*East Lansing, MI, <sup>2</sup>Department of Animal and Dairy Sciences, University of Wisconsin–Madison, Madison, WI.*

- P41 **Differences in postabsorptive fatty acid oxidation and mitochondrial uncoupling may contribute to variation in feed efficiency in dairy cows.**  
M. Sura<sup>1</sup>, J. Daddam<sup>1</sup>, C. Collings<sup>1</sup>, G. Ahmad<sup>\*1</sup>, S. Naughton<sup>1</sup>, M. VandeHaar<sup>1</sup>, H. White<sup>2</sup>, and Z. Zhou<sup>1</sup>, <sup>1</sup>*Department of Animal Science, Michigan State University, East Lansing, MI, <sup>2</sup>Department of Animal and Dairy Sciences, University of Wisconsin–Madison, Madison, WI.*

5:15 PM Adjourn. Dinner on your own.

6:15 PM–9:30 PM Symposium Party – *Spirit of Chicago* Dinner Cruise on Lake Michigan  
A free shuttle will run continuously between the Marriott and Navy Pier from 6:00 PM -10:00 PM. Shuttle departs from Ohio Street Entrance on the north side of Marriott. Separate ticket purchase required.  
Navy Pier

### Wednesday, August 28

7:00 AM–2:30 PM Registration Desk  
Lobby (7th Floor)

#### **SESSION 5: INFLAMMATION, METABOLIC ENDOCRINOLOGY, METABOLOMICS, AND NOVEL REGULATORS OF PHYSIOLOGY AND METABOLISM**

**Chair:** Bob Van Saun  
Salon II (7th Floor)  
8:00 AM–10:00 AM

8:00 AM 12 **Endocrine adaptations to lactation: IGF, FGF21, and beyond.**  
Y. R. Boisclair\*, *Cornell University, Ithaca, NY.*

8:45 AM 13 **Role of the endocannabinoid system in metabolic and inflammatory responses in cows in negative energy balance.**  
M. Zachut\*, *Agriculture Research Organization, Volcani Institute, Rishon Lezion, Israel.*

9:30 AM 14 **The immunometabolism of transition dairy cows: Lights and shadows.**  
E. Trevisi<sup>\*1,2</sup>, L. Cattaneo<sup>1</sup>, F. Piccioli-Cappelli<sup>1</sup>, M. Mezzetti<sup>1</sup>, and A. Minuti<sup>1</sup>,  
<sup>1</sup>*Department of Animal Science, Food and Nutrition (DIANA), Faculty of Agricultural, Food and Environmental Sciences, Università Cattolica del Sacro Cuore, Piacenza, Italy, <sup>2</sup>Romeo and Enrica Invernizzi Research Center for Sustainable Dairy Production of the Università Cattolica del Sacro Cuore (CREI), Piacenza, Italy.*

#### **SESSION 6: INTEGRATION OF ENVIRONMENT, PHYSIOLOGY, AND WELL-BEING IN FACE OF CLIMATE CHANGE AND RESOURCE LIMITATIONS**

**Chair:** Kristin Hales  
Salon II (7th Floor)  
10:15 AM–11:30 AM

10:15 AM 15 **Integrating our understanding of stress physiology.**  
E. Horst<sup>\*1</sup>, J. Mayorga<sup>1</sup>, S. Kvidera<sup>1</sup>, S. Rodriguez-Jimenez<sup>1</sup>, J. Opgenorth<sup>1</sup>, M. Abeyta<sup>1</sup>, B. Goetz<sup>1</sup>, V. Sanz-Fernandez<sup>1</sup>, J. Selsby<sup>1</sup>, A. Keating<sup>1</sup>, J. Ross<sup>1</sup>, R.

Rhoads<sup>2</sup>, and L. Baumgard<sup>1</sup>, <sup>1</sup>*Iowa State University, Ames, IA*, <sup>2</sup>*Virginia Tech University, Blacksburg, VA*.

11:00 AM

**Abstract Highlights.**

11:30 AM–12:45 PM

Lunch  
Salon I (7th Floor)

**POSTER SESSION 4**

**IMMUNOLOGY, ENDOCRINOLOGY AND METABOLISM (P42–P90)**

**INTEGRATION OF ENVIRONMENT, PHYSIOLOGY, AND WELL-BEING (P91–P125)**

Salon III (7th Floor)  
12:45 PM–2:15 PM

P42

**Hematology and serum biochemistry indices of indigenous goat bucks offered *Securitas longipedunculata* leaf extracts.**

K. Shai, M. Mabelebele, S. Lebelo, J. Ng'ambi, and N. Sebola\*, *Department of Agriculture and Animal Health, College of Agriculture and Environmental Sciences, University of South Africa, Johannesburg, Gauteng, South Africa.*

P43

**The effect of *Securidaca longipedunculata* leaf extract on semen quality and blood serum levels of estrogen and testosterone of indigenous goat bucks.**

K. Shai, M. Mabelebele\*, S. Lebelo, J. Ng'ambi, and N. Sebola, *Department of Agriculture and Animal Health, College of Agriculture and Environmental Sciences, University of South Africa, Johannesburg, Gauteng, South Africa.*

P44

**Effects of amount of lactose in milk replacer on gastrointestinal permeability and hepatic inflammatory-related mRNA expression in dairy calves.**

R. Fukumori<sup>\*1,2</sup>, T. Nakayama<sup>1</sup>, M. Hirose<sup>1</sup>, I. Norimura<sup>1</sup>, K. Izumi<sup>1</sup>, K. Shimada<sup>3,5</sup>, H. Mineo<sup>4</sup>, M. Steele<sup>5</sup>, S. Gondaira<sup>1</sup>, H. Higuchi<sup>1</sup>, T. Watanabe<sup>1</sup>, H. Ueda<sup>1</sup>, T. Sano<sup>1</sup>, K. Chisato<sup>1</sup>, S. Oikawa<sup>1</sup>, <sup>1</sup>*Rakuno Gakuen University, Ebetsu, Hokkaido, Japan*, <sup>2</sup>*University of Wisconsin, Madison, WI*, <sup>3</sup>*ZenRakuRen, Shinjuku, Tokyo, Japan*, <sup>4</sup>*Hokkaido Bunkyo University, Eniwa, Hokkaido, Japan*, <sup>5</sup>*University of Guelph, Guelph, Ontario, Canada.*

P45

**Investigations on the influence of different forage proportions in rations of fattening bulls on protein, fat and energy accretion.**

D. von Soosten\*, U. Meyer, and S. Dänicke, *Friedrich-Loeffler-Institut, Brunswick, Lower-Saxony, Germany.*

P46

**Production and metabolic responses of periparturient cows grouped by liver activity index.**

J. K. Drackley<sup>\*1</sup>, H. M. Dann<sup>1</sup>, N. A. Janovick<sup>1</sup>, G. Bertoni<sup>2</sup>, and E. Trevisi<sup>2</sup>, <sup>1</sup>*University of Illinois Urbana-Champaign, Urbana, IL*, <sup>2</sup>*Università Cattolica del Sacro Cuore, Piacenza, Italy.*

P47

**The effects of rumen-protected glucose supplementation in transition of high-yielding Holstein dairy cows.**

S. Teder\*, P. Karis, K. Ling, and H. Jaakson, *Estonian University of Life Sciences, Tartu, Estonia.*

P48

**Characterizing ruminal resident immune cells in lactating dairy cattle before and after subacute ruminal acidosis induction.**

K. C. Krogstad<sup>\*1,4</sup>, L. K. Mamedova<sup>1</sup>, M. P. Bernard<sup>2,3</sup>, and B. J. Bradford<sup>1</sup>,

<sup>1</sup>Department of Animal Science, Michigan State University, East Lansing, MI, <sup>2</sup>Institute for Quantitative Health Science and Engineering (IQ), Michigan State University, East Lansing, MI, <sup>3</sup>Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI, <sup>4</sup>Department of Animal Science, The Ohio State University, Wooster, OH.

- P49 **Impact of selecting beef heifers with divergent digestible fiber intake when fed 4 different diets.**  
M. M. Dubois<sup>\*1</sup>, G. B. Penner<sup>1</sup>, H. A. Lardner<sup>1</sup>, D. W. Abbott<sup>2</sup>, R. J. Gruninger<sup>2</sup>, and G. O. Ribeiro<sup>1</sup>, <sup>1</sup>Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, <sup>2</sup>Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada.
- P50 **Effects of systemic or uterine lipopolysaccharide challenge at 5 or 40 days postpartum on systemic and uterine inflammation in dairy cows.**  
T. C. Bruinje, L. Campora, and S. J. LeBlanc<sup>\*</sup>, University of Guelph, Guelph, ON, Canada.
- P51 **Associations of animal, dietary, and physiological factors with vitamin B<sub>12</sub> concentration of cow milk.**  
M. Lamminen<sup>\*1</sup>, T. Kokkonen<sup>1</sup>, O. Pitkanen<sup>1</sup>, S. E. Raisanen<sup>1,2</sup>, P. Rissanen<sup>1</sup>, A. Halmemies-Beauchet-Filleau<sup>1</sup>, and A. Vanhatalo<sup>1</sup>, <sup>1</sup>Department of Agricultural Sciences, University of Helsinki, Helsinki, Finland, <sup>2</sup>Department of Environmental Systems Science, Institute of Agricultural Sciences, ETH Zürich, Zurich, Switzerland.
- P52 **Biochar as a feed additive in the diet of dairy sheep: Impact on methane production and productive performance.**  
H. Benhissi, M. Medjadbi, S. E. Charef, R. Atxaerandio, I. Goiri, and A. Garcia-Rodriguez<sup>\*</sup>, NEIKER-Basque Institute for Agricultural Research and Development, Basque Research and Technology Alliance (BRTA), Arkaute, Spain.
- P53 **Effect of biochar on diet digestibility and methane production in dairy sheep.**  
H. Benhissi, M. Medjadbi, S. E. Charef, R. Atxaerandio, A. Garcia-Rodriguez<sup>\*</sup>, and I. Goiri, NEIKER-Basque Institute for Agricultural Research and Development, Basque Research and Technology Alliance (BRTA), Arkaute, Spain.
- P54 **Hepatic mitochondrial oxygen consumption rate, but not oxidative gene expression, may differ in mid-lactation Holstein dairy cows of divergent feed efficiency.**  
S. J. Kendall<sup>\*1</sup>, U. Arshad<sup>1</sup>, K. M. Kennedy<sup>1</sup>, S. J. Johnson<sup>2</sup>, M. VandeHaar<sup>2</sup>, Z. Zhou<sup>1</sup>, and H. M. White<sup>1</sup>, <sup>1</sup>University of Wisconsin-Madison, Madison, WI, <sup>2</sup>Michigan State University, East Lansing, MI.
- P55 **Associations between insulin resistance and inflammation during the transition period in dairy cows.**  
P. Karis<sup>\*</sup>, H. Jaakson, S. Teder, and K. Ling, Chair of Animal Nutrition, Estonian University of Life Sciences, Tartu, Estonia.
- P56 **Effect of feeding sodium butyrate to beef cows during the transition period on glucagon-like peptide 1 and 2 concentrations in colostrum and transition milk.**  
Y. Inabu<sup>\*1,2</sup>, H. Horike<sup>1</sup>, H. Yamano<sup>1</sup>, Y. Taguchi<sup>1</sup>, S. Okada<sup>1</sup>, T. Etoh<sup>1</sup>, Y. Shiotsuka<sup>1</sup>, R. Fujino<sup>1</sup>, and H. Takahashi<sup>1</sup>, <sup>1</sup>Kuju Agricultural Research Center, Graduate School of Agriculture, Kyushu University, Taketa, Oita, Japan, <sup>2</sup>Graduate School of Integrated Sciences for Life, Hiroshima University, Higashihiroshima, Hiroshima, Japan.



- P57 **Impact of ruminally pulse-dosed calcium acetate, butyrate, their combination, or CaCO<sub>3</sub> on milk composition.**  
M. B. Hall\*, *US Dairy Forage Research Center, USDA-ARS, Madison, WI.*
- P58 **Changes in blood metabolites during the transition period of dairy cattle supplemented with live *Saccharomyces cerevisiae boulardii* yeast.**  
K. Goossens\*<sup>1</sup>, B. Ampe<sup>1</sup>, E. Chevaux<sup>2</sup>, and C. Villot<sup>2</sup>, <sup>1</sup>*ILVO, Melle, Belgium,*  
<sup>2</sup>*Lallemand SAS, Blagnac, France.*
- P59 **Effects of feeding heated lactic acid bacteria on immune response, lactational, and reproductive performances during the transition period in dairy cows.**  
T. Sugino\*<sup>1</sup>, Y. Inabu<sup>1</sup>, T. Okimura<sup>2</sup>, and T. Obitsu<sup>1</sup>, <sup>1</sup>*Graduate School of Integrated Sciences for Life, Hiroshima University, Higashihiroshima, Hiroshima, Japan,*  
<sup>2</sup>*Toyama Prefectural Agricultural, Forestry and Fisheries Research Center, Toyama, Toyama, Japan.*
- P60 **Effects of maternal vitamin A supplementation on blood parameters of Korean native cows and newborn calves.**  
X. C. Jin\*<sup>1</sup>, D. Q. Peng<sup>2</sup>, J. H. Lee<sup>1</sup>, B. M. Kim<sup>1</sup>, W. Y. Jeong<sup>1</sup>, J. S. Lee<sup>1</sup>, and H. G. Lee<sup>1</sup>, <sup>1</sup>*Department of Animal Science and Technology, Sanghuh College of Life Sciences, Konkuk University, Seoul, Republic of Korea,* <sup>2</sup>*College of Animal Science, Jilin University, Changchun, China.*
- P61 **Exploring dairy cow metabolism through breathomics: Implementation strategy and findings.**  
M. A. Barrientos Blanco\*<sup>1</sup>, M. Z. Islam<sup>1</sup>, R. Peng<sup>1</sup>, S. E. Räisänen<sup>1</sup>, F. Wahl<sup>2</sup>, R. Zenobi<sup>3</sup>, S. Giannoukos<sup>3</sup>, and M. Niu<sup>1</sup>, <sup>1</sup>*Animal Nutrition, Institute of Agricultural Sciences, Zürich, Zürich, Switzerland,* <sup>2</sup>*Food Microbial Systems Research Division, Bern, Bern, Switzerland,* <sup>3</sup>*Department of Chemistry and Applied Biosciences, Zürich, Zürich, Switzerland.*
- P62 **Health status and mineral metabolism of dairy cattle fed adjusted mineral supplementation.**  
R. Balegi<sup>1</sup>, S. Durosoy\*<sup>1</sup>, and A. Boudon<sup>2</sup>, <sup>1</sup>*Animine, Annecy, Haute-Savoie, France,*  
<sup>2</sup>*INRAE, Saint-Gilles, Ille-et-Vilaine, France.*
- P63 **Effects of nutrient restriction and a serine palmitoyltransferase inhibitor on milk production and metabolism in lactating ewes.**  
M. Farricker\*<sup>1</sup>, J. Judge<sup>1</sup>, A. Smith<sup>2</sup>, S. Hill<sup>2</sup>, J. Eringfeld<sup>3,4</sup>, A. Davis<sup>2</sup>, and J. McFadden<sup>1</sup>, <sup>1</sup>*Department of Animal Science, Cornell University, Ithaca, NY,*  
<sup>2</sup>*Biological Sciences Department, State University New York, Cortland, Cortland, NY,* <sup>3</sup>*Department Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands,* <sup>4</sup>*Animal Nutrition Group, Department of Animal Science, Wageningen University, Wageningen, the Netherlands.*
- P64 **Guanidinoacetic acid supplementation enhances placental vascularity in pregnant beef cows during late gestation.**  
L. C. O. Sousa<sup>1</sup>, E. M. A. Matos<sup>1</sup>, E. Detmann<sup>1</sup>, C. B. Sampaio<sup>1</sup>, Y. F. R. S. Silva<sup>1</sup>, P. V. R. Paulino<sup>2</sup>, T. L. Resende<sup>3</sup>, N. V. L. Serão<sup>4</sup>, M. P. Gionbelli<sup>4</sup>, and M. S. Duarte\*<sup>5</sup>, <sup>1</sup>*Department of Animal Science, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil,* <sup>2</sup>*Cargill Animal Nutrition, Campinas, São Paulo, Brazil,* <sup>3</sup>*Evonik, São Paulo, São Paulo, Brazil,* <sup>4</sup>*Department of Animal Science, Universidade Federal de Lavras, Lavras, Minas Gerais, Brazil,* <sup>5</sup>*Department of Animal Biosciences, University of Guelph, Guelph, Ontario, Canada.*

- P65 **Abomasal infusion of docosahexaenoic acid to mid-lactation dairy cows dose-dependently enhanced neutrophil phagocytosis in whole-blood in vitro stimulations.**  
H. L. Reisinger<sup>\*1</sup>, M. L. Miller<sup>1</sup>, K. C. Krogstad<sup>1</sup>, D. Vocelle<sup>2</sup>, G. A. Contreras<sup>3</sup>, A. L. Lock<sup>1</sup>, and B. J. Bradford<sup>1</sup>, <sup>1</sup>*Department of Animal Science, Michigan State University, East Lansing, MI*, <sup>2</sup>*Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI*, <sup>3</sup>*Department of Large Animal Clinical Sciences, Michigan State University, East Lansing, MI*.
- P66 **Connecting prepartal liver glutathione with postpartal performance parameters, blood biomarkers, and gene expression in transition dairy cows.**  
A. F. Souza Lima<sup>\*1</sup>, G. Goncalves Begalli<sup>1</sup>, M. H. de Oliveira<sup>1</sup>, R. Chaves Barcellos Grazziotin<sup>1</sup>, J. Halfen<sup>1</sup>, E. Trevisi<sup>2</sup>, and J. S. Osorio<sup>1</sup>, <sup>1</sup>*School of Animal Science, Dairy Science, Virginia Tech, Blacksburg, VA*, <sup>2</sup>*Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Sciences, Università Cattolica del Sacro Cuore, Piacenza, Italy*.
- P67 **Validation of an in vivo dual marker technique used to characterize regional gastrointestinal tract permeability in ruminants.**  
C. A. Bertens<sup>\*1</sup>, D. J. Seymour<sup>2</sup>, and G. B. Penner<sup>1</sup>, <sup>1</sup>*University of Saskatchewan, Saskatoon, Saskatchewan, Canada*, <sup>2</sup>*Trouw Nutrition R&D, Boxmeer, Noord Brabant, the Netherlands*.
- P68 **Dietary glutamate and casein affect duodenal taste receptor 1 and SGLT1 but not hepatic PEPCK expression of pruruminant calves.**  
E. Petzel<sup>\*</sup>, S. Shiba, and D. Brake, *University of Missouri, Columbia, MO*.
- P69 **Abomasal infusion of branched-chain amino acids or branched-chain keto acids decreased risk of oxidative stress in fresh cows.**  
G. Ahmad<sup>\*1</sup>, J. Daddam<sup>1</sup>, K. Gallagher<sup>1</sup>, I. Bernstein<sup>1</sup>, C. Collings<sup>1</sup>, M. VandeHaar<sup>1</sup>, E. Trevisi<sup>2</sup>, and Z. Zhou<sup>1</sup>, <sup>1</sup>*Department of Animal Science, Michigan State University, East Lansing, MI*, <sup>2</sup>*Department of Animal Science, Food and Nutrition (DIANA), Faculty of Agricultural, Food and Environmental Sciences, Università Cattolica del Sacro Cuore, Piacenza, Italy*.
- P70 **Changes in oxo and hydroxy fatty acids in milk fat during diet-induced milk fat depression.**  
Y. Adeniji<sup>\*1</sup>, C. Matamoros<sup>2</sup>, and K. Harvatine<sup>1</sup>, <sup>1</sup>*Pennsylvania State University, University Park, PA*, <sup>2</sup>*Cargill Animal Nutrition, Ithaca, NY*.
- P71 **Modulation of phagocytosis in cow blood using an aqueous garlic extract.**  
P. Pande<sup>\*</sup>, M. R. Uzzaman, and M. Worku, *North Carolina Agricultural and Technical State University, Greensboro, NC*.
- P72 **Effect of palmitic acid supplementation and a milk-fat-depressing diet on milk production, fatty profile, and metabolomics.**  
C. Matamoros<sup>\*1,2</sup>, N. Boyle<sup>2</sup>, F. Hao<sup>2</sup>, I. Koo<sup>2</sup>, A. Patterson<sup>2</sup>, and K. Harvatine<sup>1</sup>, <sup>1</sup>*Department of Animal Science, The Pennsylvania State University, University Park, PA*, <sup>2</sup>*Center for Molecular Toxicology and Carcinogenesis, Department of Veterinary and Biomedical Sciences, The Pennsylvania State University, University Park, PA*.
- P73 **Selection for production traits differentially affects beef calves' immune phenotype before weaning.**  
A. R. H. Main<sup>\*</sup>, C. Reddout-Beam, and J. L. Salak-Johnson, *Department of Animal and Food Sciences, Oklahoma State University, Stillwater, OK*.



- P74 **Blood transcriptome and its microbial changes in young calves with feed-induced ruminal acidosis.**  
A. Larsen<sup>1,2</sup> and W. Li<sup>\*1</sup>, <sup>1</sup>*United States Dairy Forage Research Center, Madison, WI*, <sup>2</sup>*Animal and Dairy Science, University of Wisconsin–Madison, Madison, WI*.
- P75 **Prolactin and oxytocin concentrations at different lactation phases as influenced by breeds of goat and levels of turmeric powder inclusion.**  
O. A. Oderinwale<sup>\*1,2</sup>, B. O. Oluwatosin<sup>2</sup>, S. D. Amosu<sup>2</sup>, D. P. Toviesi<sup>2</sup>, O. O. O. Adewumi<sup>2</sup>, J. O. Alabi<sup>1,2</sup>, O. O. Adelusi<sup>1</sup>, C. C. Anotaeenwere<sup>1</sup>, J. M. Enikuomehin<sup>1</sup>, and U. Y. Anele<sup>1</sup>, <sup>1</sup>*North Carolina Agricultural and Technical State University, Greensboro, NC*, <sup>2</sup>*Federal University of Agriculture Abeokuta, Abeokuta, Ogun State, Nigeria*.
- P76 **Does high-starch diet early in life affect metabolic response to high-starch diet later in life?**  
M. Jamrogiewicz<sup>\*1</sup>, M. Przybylo<sup>1</sup>, J. Kanski<sup>1</sup>, R. Militko<sup>2</sup>, E. Molik<sup>1</sup>, M. Clauss<sup>3</sup>, and P. Górka<sup>1</sup>, <sup>1</sup>*Department of Animal Nutrition and Biotechnology, and Fisheries, University of Agriculture in Kraków, Kraków, Poland*, <sup>2</sup>*The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland*, <sup>3</sup>*Clinic for Zoo Animals, Exotic Pets and Wildlife, Vetsuisse Faculty, University of Zürich, Zürich, Switzerland*.
- P77 **The profiles of rumen small peptides and their potential roles in nitrogen utilization efficiency in dairy cows.**  
W. Qi<sup>\*1</sup>, M. Xue<sup>1</sup>, Q. Yan<sup>2</sup>, and H.-Z. Sun<sup>1</sup>, <sup>1</sup>*Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, China*, <sup>2</sup>*Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, China*.
- P78 **Nutrient extraction ratio and specific transporter gene expression in the mammary gland of peripartum dairy cows.**  
S. Haga<sup>\*1,2</sup>, M. Nakano<sup>2</sup>, M. Miyaji<sup>3</sup>, H. Matsuyama<sup>4</sup>, H. Ishizaki<sup>2</sup>, and S. Roh<sup>1</sup>, <sup>1</sup>*Graduate School of Agriculture Science, Tohoku University, Sendai, Miyagi, Japan*, <sup>2</sup>*Institute of Livestock and Grassland Science, NARO, Nasushiobara, Tochigi, Japan*, <sup>3</sup>*Hokkaido Agricultural Research Center, NARO, Sapporo, Hokkaido, Japan*, <sup>4</sup>*Faculty of Agriculture, Yamagata University, Tsuruoka, Yamagata, Japan*.
- P79 **Litter male ratio in multifetal pregnancies affects cortisol, testosterone, and placental gene expression in ewes.**  
T. Alon<sup>1,2</sup>, M. Ross<sup>1</sup>, A. Rozov<sup>1</sup>, L. Lifshitz<sup>1</sup>, G. Kra<sup>1</sup>, and U. Moallem<sup>\*1</sup>, <sup>1</sup>*Department of Ruminants Science, Agriculture Research Organization, Volcani Institute, Rishon LeZion, Israel*, <sup>2</sup>*Department of Animal Science, the Hebrew University of Jerusalem, Rehovot, Israel*.
- P80 **Bovine neutrophils and mononuclear cells differentially express hydroxycarboxylic acid receptor 2 at early and mid lactation.**  
P. O. McDonald<sup>\*1</sup>, L. K. Mamedova<sup>1</sup>, K. C. Krogstad<sup>2</sup>, and B. J. Bradford<sup>1</sup>, <sup>1</sup>*Michigan State University, East Lansing, MI*, <sup>2</sup>*The Ohio State University, Wooster, OH*.
- P81 **New data on the interaction between bone and energy metabolism in transition cows.**  
S. U. Kononov<sup>1</sup>, J. Meyer<sup>2</sup>, J. Frahm<sup>2</sup>, U. Meyer<sup>2</sup>, K. Huber<sup>3</sup>, S. Daenicke<sup>2</sup>, J. Rehage<sup>4</sup>, and M. R. Wilkens<sup>\*1</sup>, <sup>1</sup>*Institute of Animal Nutrition, Nutrition Diseases and Dietetics, Faculty of Veterinary Medicine, Leipzig University, Leipzig, Germany*, <sup>2</sup>*Institute of Animal Nutrition, Federal Research Institute for Animal Health, Brunswick, Germany*, <sup>3</sup>*Institute of Animal Science, University of Hohenheim, Stuttgart, Germany*, <sup>4</sup>*Clinic for Cattle, University of Veterinary Medicine Hannover Foundation, Hanover, Germany*.

- P82 **Induced hindgut acidosis in sheep affected ruminal fermentation and gut permeability.**  
H. F. Linder, B. R. Loman, R. C. Fries, S. D. Gutierrez-Nibeyro, E. F. Garrett, and J. C. McCann\*, *University of Illinois, Urbana-Champaign, Urbana, IL.*
- P83 **Effects of biochar, monensin, and nitrate on in vitro digestibility in beef cattle diets.**  
J. Souza\*<sup>1,2</sup>, E. Batista<sup>1</sup>, J. McCann<sup>2</sup>, I. G. Favero<sup>1</sup>, A. X. Mucida<sup>1</sup>, L. K. Huang<sup>1</sup>, and R. A. Lino<sup>1</sup>, <sup>1</sup>*Universidade Federal de Lavras, Lavras, Minas Gerais, Brazil*, <sup>2</sup>*University of Illinois, Urbana-Champaign, IL.*
- P84 **Effects of dietary protein level and urea source on ruminal ammonia nitrogen and urea nitrogen in plasma of Nellore heifers.**  
J. Souza\*<sup>1,2</sup>, E. Batista<sup>1</sup>, J. McCann<sup>2</sup>, I. G. Favero<sup>1</sup>, A. X. Mucida<sup>1</sup>, L. K. Huang<sup>1</sup>, and R. A. Lino<sup>1</sup>, <sup>1</sup>*Universidade Federal de Lavras, Lavras, Minas Gerais, Brazil*, <sup>2</sup>*University of Illinois, Urbana-Champaign, IL.*
- P85 **Evaluating the effects of acidosis and bacterial concentrations on the development of liver abscesses in beef steers.**  
K. D. Childress\*<sup>1</sup>, K. E. Hales<sup>1</sup>, T. G. Nagaraja<sup>2</sup>, T. E. Lawrence<sup>3</sup>, R. G. Amachawadi<sup>2</sup>, N. C. Burdick Sanchez<sup>4</sup>, Z. S. McDaniel<sup>1</sup>, D. J. Line<sup>1</sup>, A. C. Thompson-Smith<sup>1</sup>, M. Abbasi<sup>2</sup>, X. Shi<sup>2</sup>, M. L. Galyean<sup>5</sup>, M. A. Ballou<sup>5</sup>, V. S. Machado<sup>5</sup>, P. R. Broadway<sup>4</sup>, <sup>1</sup>*Department of Animal and Food Sciences, Texas Tech University, Lubbock, TX*, <sup>2</sup>*College of Veterinary Medicine, Kansas State University, Manhattan, KS*, <sup>3</sup>*Department of Agricultural Sciences, West Texas A&M University, Canyon, TX*, <sup>4</sup>*United States Department of Agriculture, Agricultural Research Service, Livestock Issues Research Unit, Lubbock, TX*, <sup>5</sup>*Department of Veterinary Sciences, Texas Tech University, Lubbock, TX.*
- P86 **Lipidomic profiling of *Acremonium terrestris* culture identifies glycerophospholipids as modulators of milk production in Holstein dairy cows.**  
F. Li, C. Zhang, L. Jiang, and J. Tong\*, *Beijing University of Agriculture, Beijing, China.*
- P87 **Clinical cure failure of metritis is not associated with differences in the uterine metabolome of dairy cows.**  
F. N. S. Pereira\*<sup>1</sup>, D. Z. Bisinotto<sup>2</sup>, K. N. Galvão<sup>2</sup>, R. S. Bisinotto<sup>2</sup>, and C. C. Figueiredo<sup>1</sup>, <sup>1</sup>*Washington State University, Pullman, WA*, <sup>2</sup>*University of Florida, Gainesville, FL.*
- P88 **The effect of lavender *officinalis* extract on some immunological, hematological characteristics and performance of lambs under the influence of heat stress.**  
S. A. Sayedain Nia\*<sup>1</sup> and M. Modaresi<sup>2</sup>, <sup>1</sup>*Department of Animal Science, Science and Research Branch, Islamic Azad University, Tehran, Tehran, Iran*, <sup>2</sup>*Department of Animal Science, Faculty of Agriculture, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Isfahan, Iran.*
- P89 **Impact of adding water to a barley-based finishing feedlot diet on cattle feeding behavior and ruminal fermentation.**  
C. M. Seidle\*<sup>1</sup>, G. O. Ribeiro<sup>1</sup>, O. Lopez-Campos<sup>2</sup>, and G. B. Penner<sup>1</sup>, <sup>1</sup>*Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada*, <sup>2</sup>*Lacombe Research and Development Center, Agriculture and Agri-Food Canada, Lacombe, Alberta, Canada.*

- P90 **Interplay between energetic metabolites and inflammation and postpartum cow performance.**  
A. Fraz\*, J. E. P. Santos, and C. D. Nelson, *Department of Animal Sciences, University of Florida, Gainesville, FL.*
- P91 **Impact of colostrum lactose concentration in relation to metabolomic profiles on kid growth performance of Black Bengal goats in Thailand.**  
T. T. P. Vo<sup>1</sup>, C. Buranakarl<sup>\*1</sup>, S. Chamsuwan<sup>1</sup>, S. Thammacharoen<sup>1</sup>, M. Nuntapaitoon<sup>2</sup>, P. Ratchakom<sup>3</sup>, and S. Settachaimongkon<sup>4</sup>, <sup>1</sup>*Department of Physiology, Faculty of Veterinary Science, Chulalongkorn University, Henri Dunant Rd., Pathumwan, Bangkok, 10330, Thailand,* <sup>2</sup>*Department of Obstetrics, Gynaecology and Reproduction, Faculty of Veterinary Science, Chulalongkorn University, Henri Dunant Rd., Pathumwan, Bangkok, 10330, Thailand,* <sup>3</sup>*Chiang Rai Provincial Livestock Office, Department of Livestock Development, Chiang Rai, Thailand,* <sup>4</sup>*Department of Food Technology, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand.*
- P92 **Prediction milk yield responses in dairy cows exposed to heat stress using machine learning techniques and artificial neural networks.**  
J. H. Jo<sup>\*1</sup>, Y. S. Lee<sup>2</sup>, I. P. Hong<sup>2</sup>, J. Ghassemi Nejad<sup>1</sup>, H. R. Kim<sup>3</sup>, and H. G. Lee<sup>1</sup>, <sup>1</sup>*Department of Animal Science and Technology, Sanghuh College of Life Sciences, Konkuk University, Seoul 05029, Republic of Korea,* <sup>2</sup>*Center for Genetic Information, Hankyong National University, Gyeonggi-do, Anseong 17579, Republic of Korea,* <sup>3</sup>*Animal Nutrition and Physiology Team, National Institute of Animal Science, RDA, Wanju 55365, Republic of Korea.*
- P93 **Effects of processing grains on ruminal and intestinal digestibility of starch, rumen health, and performance of dairy cows.**  
M. Schilde\*, L. Kroon, A. R. Guadagnin, and W. van Straalen, *Schothorst Feed Research, Lelystad, the Netherlands.*
- P94 **Evaluation of milk replacer program on physiological changes in calves to 7 months of age.**  
H. S. Lee<sup>\*1</sup>, Y. Suetomi<sup>2</sup>, S. Haga<sup>1</sup>, and S.G. Roh<sup>1</sup>, <sup>1</sup>*Graduate School of Agricultural Science, Tohoku University, Sendai, Japan,* <sup>2</sup>*Cattle and Swine Technical Section Research Laboratory, Itochu Feed Mills Co. Ltd, Nasushiobara, Japan.*
- P95 **Economic impact of the enteric methane emissions in small scale dairy systems in the highlands of Mexico.**  
J. Velarde-Guillen\*, C. G. Martínez-García, and C. M. Arriaga-Jordán, *Universidad Autónoma del Estado de México, Instituto de Ciencias Agropecuarias y Rurales, Toluca, Mexico, Mexico.*
- P96 **Developing models for enteric methane emissions using animal performance, feeding behavior, and gas emissions from Angus crossbred heifers in late gestation.**  
K. Acton<sup>\*1</sup>, M. S. Duarte<sup>1</sup>, K. C. Swanson<sup>2</sup>, J. L. Ellis<sup>1</sup>, and K. M. Wood<sup>1</sup>, <sup>1</sup>*University of Guelph, Guelph, Ontario, Canada,* <sup>2</sup>*North Dakota State University, Fargo, ND.*
- P97 **Early life inoculation: Steering calf rumen microbiome toward low methane emission.**  
S. van Gastelen<sup>\*1</sup>, H. van Laar<sup>1</sup>, E. Burgers<sup>1</sup>, M. Gilbert<sup>2</sup>, S. Kanti Kar<sup>1</sup>, E. Zaccaria<sup>1</sup>, and L. Sebek<sup>1</sup>, <sup>1</sup>*Wageningen Livestock Research, Wageningen University & Research, 6700 AH Wageningen, the Netherlands,* <sup>2</sup>*Animal Nutrition Group, Wageningen University & Research, 6700 AH Wageningen, the Netherlands.*

- P98 **Evaluation of bovine colostrum replacer supplementation to reduce intestinal permeability during weaning transition in dairy calves.**  
K. Y. Edwards\*<sup>1</sup>, S. M. Bell<sup>2</sup>, S. J. LeBlanc<sup>1</sup>, T. J. DeVries<sup>3</sup>, M. A. Steele<sup>3</sup>, J. H. C. Costa<sup>4</sup>, and D. L. Renaud<sup>1</sup>, <sup>1</sup>*Department of Population Medicine, University of Guelph, Guelph, Ontario, Canada*, <sup>2</sup>*Ringia Farms Ltd, Lakeside, Ontario, Canada*, <sup>3</sup>*Department of Animal Biosciences, University of Guelph, Guelph, Ontario, Canada*, <sup>4</sup>*Department of Animal and Veterinary Sciences, University of Vermont, Burlington, VT.*
- P99 **Projection of climate change impacts for lactating performance of Holstein cows in summer season in Japan.**  
K. Higuchi\*<sup>1</sup>, K. Hara<sup>2</sup>, M. Yamashita<sup>3</sup>, M. Tsubokura<sup>4</sup>, R. Sawado<sup>1</sup>, I. Nonaka<sup>1</sup>, M. Fujimori<sup>1</sup>, S. Takizawa<sup>1</sup>, T. Shinkai<sup>1</sup>, Y. Saitoh<sup>1</sup>, R. Tatebayashi<sup>1</sup>, and A. Nishiura<sup>1</sup>, <sup>1</sup>*Institute of Livestock and Grassland Science, National Agriculture and Food Research Organization (NARO), Tsukuba, Ibaraki, Japan*, <sup>2</sup>*Kumamoto Prefectural Research Center, Koushi, Kumamoto, Japan*, <sup>3</sup>*Niigata Agricultural Research Institute, Livestock Research Center, Sanjo, Niigata, Japan*, <sup>4</sup>*Institute for Agro-Environmental Sciences, NARO, Tsukuba, Ibaraki, Japan.*
- P100 **Long-term impact of a high-starch diet early in life on selected blood parameters.**  
M. Jamrogiewicz\*<sup>1</sup>, M. Przybylo<sup>1</sup>, J. Kanski<sup>1</sup>, J. Kowal<sup>2</sup>, A. Wyrobisz-Papiewska<sup>2</sup>, J. Flaga<sup>1</sup>, D. Wojtysiak<sup>3</sup>, R. Militko<sup>4</sup>, M. Clauss<sup>5</sup>, and P. Górka<sup>1</sup>, <sup>1</sup>*Department of Animal Nutrition and Biotechnology, and Fisheries, Faculty of Animal Sciences, University of Agriculture in Kraków, Kraków, Poland*, <sup>2</sup>*Department of Zoology and Animal Welfare, Faculty of Animal Sciences, University of Agriculture in Krakow, Kraków, Poland*, <sup>3</sup>*Department of Animal Genetics, Breeding and Ethology, Faculty of Animal Sciences, University of Agriculture in Krakow, Kraków, Poland*, <sup>4</sup>*The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland*, <sup>5</sup>*Clinic for Zoo Animals, Exotic Pets and Wildlife, Vetsuisse Faculty, University of Zurich, Zürich, Switzerland.*
- P101 **High-starch diet early in life affects body weight, feed intake, and forestomach morphometry later in life.**  
M. Jamrogiewicz<sup>1</sup>, M. Przybylo\*<sup>1</sup>, J. Kanski<sup>1</sup>, J. Kowal<sup>2</sup>, A. Wyrobisz-Papiewska<sup>2</sup>, J. Flaga<sup>1</sup>, D. Wojtysiak<sup>3</sup>, R. Militko<sup>4</sup>, M. Clauss<sup>5</sup>, and P. Górka<sup>1</sup>, <sup>1</sup>*Department of Animal Nutrition and Biotechnology, and Fisheries, Faculty of Animal Sciences, University of Agriculture in Kraków, Kraków, Poland*, <sup>2</sup>*Department of Zoology and Animal Welfare, Faculty of Animal Sciences, University of Agriculture in Krakow, Kraków, Poland*, <sup>3</sup>*Department of Animal Genetics, Breeding and Ethology, Faculty of Animal Sciences, University of Agriculture in Krakow, Kraków, Poland*, <sup>4</sup>*The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland*, <sup>5</sup>*Clinic for Zoo Animals, Exotic Pets and Wildlife, Vetsuisse Faculty, University of Zurich, Zürich, Switzerland.*
- P102 **Physiological effects of vitamin E supplementation on growth performance, physiological indicators, and blood hematology in Holstein calves under long-term heat stress.**  
B. M. Kim\*<sup>1</sup>, Y. R. Kim<sup>1</sup>, T. Z. Liu<sup>1</sup>, D. I. Kim<sup>2</sup>, X. C. Jin<sup>1</sup>, J. H. Lee<sup>1</sup>, J. H. Jo<sup>1</sup>, W. S. Kim<sup>1</sup>, J. S. Lee<sup>1</sup>, Y. H. Jo<sup>3</sup>, and H. G. Lee<sup>1</sup>, <sup>1</sup>*Department of Animal Science and Technology, Sanghuh College of Life Science, Konkuk University, Seoul, Republic of Korea*, <sup>2</sup>*Research Institute for Veterinary Science, Seoul National University, Seoul, Republic of Korea*, <sup>3</sup>*IANIS Co., Ltd., Cheonan-si, Chungcheongnam-do, Republic of Korea.*

- P103 **Effects of prepartum feeding strategy on health, reproductive success, and performance of Holstein cows.**  
F. C. Cardoso<sup>\*1</sup>, S. J. LeBlanc<sup>2</sup>, M. R. Murphy<sup>1</sup>, and J. K. Drackley<sup>1</sup>, <sup>1</sup>*University of Illinois at Urbana-Champaign, Urbana, IL*, <sup>2</sup>*University of Guelph, Ontario Veterinary College, Guelph, ON, Canada*.
- P104 **Assessing the impact of disease symptoms on rumen temperature and environment in Holstein cows using bolus sensors.**  
J. S. Lee<sup>\*1</sup>, S. R. Lee<sup>1</sup>, H. W. Jin<sup>2</sup>, H. K. Ko<sup>3</sup>, and H. G. Lee<sup>1</sup>, <sup>1</sup>*Department of Animal Science and Technology, Sanghuh College of Life Sciences, Konkuk University, Seoul, Republic of Korea*, <sup>2</sup>*Dongbang S&D Co. Ltd, Seoul, Republic of Korea*, <sup>3</sup>*National Agricultural Cooperative Federation Agribusiness Group, Gyeonggi-do, Republic of Korea*.
- P105 **Lactational performance and plasma amino acids in dairy cows fed a red clover-based silage with or without faba bean and rumen-protected methionine.**  
O. Pitkänen<sup>\*1</sup>, S. E. Räisänen<sup>1,2</sup>, P. H. Sigurðardóttir<sup>1</sup>, A. Halmemies-Beauchet-Filleau<sup>1</sup>, T. Kokkonen<sup>1</sup>, and A. Vanhatalo<sup>1</sup>, <sup>1</sup>*Department of Agricultural Sciences, University of Helsinki, Helsinki, Finland*, <sup>2</sup>*Department of Environmental Systems Science, Institute of Agricultural Sciences, ETH Zürich, Zurich, Switzerland*.
- P106 **The first extensive biomonitoring mycotoxin exposure survey.**  
A. Vidal, C. Bandyk<sup>\*</sup>, and C. Gougoulas, *Innovad, Antwerpen, Belgium*.
- P107 **Extruded linseed as methane mitigating feed ingredient in a grass and a maize silage-based basal diet.**  
J. Van Mullem<sup>\*1,2</sup>, N. Peiren<sup>1</sup>, B. Ampe<sup>1</sup>, V. Fievez<sup>2</sup>, and L. Vandaele<sup>1</sup>, <sup>1</sup>*Flanders Research Institute for Agriculture, Fisheries and Food, Melle, Belgium*, <sup>2</sup>*Ghent University, Ghent, Belgium*.
- P108 **Do beef heifers previously classified as high- or low-enteric methane emitters respond the same to a canola oil methane mitigation strategy?**  
K. J. Kroeze<sup>\*</sup>, J. Ellis, J. Cant, and K. M. Wood, *University of Guelph, Guelph, Ontario, Canada*.
- P109 **Investigating dairy calf hunger after an electrolyte meal using a taste aversion test.**  
G. Figueroa<sup>1</sup>, M. Longer<sup>2</sup>, J. H. C. Costa<sup>\*3</sup>, D. L. Renaud<sup>2</sup>, and K. C. Creutzinger<sup>1</sup>, <sup>1</sup>*University of Wisconsin-River Falls, River Falls, WI*, <sup>2</sup>*University of Guelph, Guelph, ON, Canada*, <sup>3</sup>*University of Vermont, Burlington, VT*.
- P110 **Effects of milk replacer fat levels on feeding behavior and performance of male dairy calves.**  
J. V. R. Lovatti<sup>1</sup>, J. M. V. Pereira<sup>1</sup>, J. H. C. Costa<sup>\*1</sup>, T. E. da Silva<sup>1</sup>, A. J. Keunen<sup>3</sup>, and D. Renaud<sup>2</sup>, <sup>1</sup>*University of Vermont, Burlington, VT*, <sup>2</sup>*University of Guelph, Guelph, ON, Canada*, <sup>3</sup>*Maple View Agri, Palmerston, ON, Canada*.
- P111 **Effects of casein presence in colostrum replacer on IgG absorption in neonatal calves.**  
J. M. V. Pereira<sup>1</sup>, J. V. R. Lovatti<sup>1</sup>, E. V. Lopez-Bondarchuk<sup>1</sup>, G. Mazon<sup>1</sup>, A. J. Geiger<sup>2</sup>, and J. H. C. Costa<sup>\*1</sup>, <sup>1</sup>*Department of Animal and Veterinary Sciences, University of Vermont, Burlington, VT*, <sup>2</sup>*Zinpro Corporation, Eden Prairie, MN*.



- P112 **Effect of measurement timepoints on methane concentration of growing steers fed corn or corn-soybean silage at different crude protein levels.**  
T. A. Aloba<sup>\*1,2</sup>, E. E. Corea<sup>3</sup>, M. Mendoza<sup>3</sup>, M. Chagunda<sup>1</sup>, U. Dickhoefer<sup>4</sup>, and J. Castro-Montoya<sup>3</sup>, <sup>1</sup>*Institute of Animal Nutrition and Rangeland Management in the Tropics and the Subtropics, University of Hohenheim, Stuttgart, Baden Württemberg, Germany*, <sup>2</sup>*Dr Eckel Animal Nutrition GmbH, Niederzissen, Rhineland Palatinate, Germany*, <sup>3</sup>*Faculty of Agricultural Sciences, University of El Salvador, San Salvador, El Salvador*, <sup>4</sup>*Institute of Animal Nutrition and Physiology, Christian-Albrechts-Universität zu Kiel, Kiel, Schleswig-Holstein, Germany*.
- P113 **Relationships between residual feed intake, nutrient digestibility, and meat quality traits in Nellore cattle.**  
D. A. Vesga<sup>1</sup>, R. N. S. Torres<sup>2</sup>, O. R. Machado Neto<sup>1,2</sup>, J. A. Torrecilhas<sup>2</sup>, L. A. L. Chardulo<sup>1,2</sup>, and W. A. Baldassini<sup>\*1,2</sup>, <sup>1</sup>*UNESP - School of Agricultural and Veterinarian Science, São Paulo State University, Jaboticabal, SP, Brazil*, <sup>2</sup>*UNESP - School of Veterinary Medicine and Animal Science, São Paulo State University, Botucatu, SP, Brazil*.
- P114 **Effects of copper, zinc, and manganese IntelliBond versus sulfate on 48-hour in vitro fermentation and methane production.**  
C. B. Peterson<sup>\*1</sup>, G. M. Boerboom<sup>2</sup>, J. S. Heldt<sup>1</sup>, K. E. Griswold<sup>1</sup>, and J. Johnston<sup>3</sup>, <sup>1</sup>*Selko USA, Indianapolis, IN*, <sup>2</sup>*Selko Feed Additives, Nutreco Nederland BV, Amersfoort, Utrecht, the Netherlands*, <sup>3</sup>*Fermentrics Technologies Inc, Arnprior, ON, Canada*.
- P115 **The impact of a gut health supplement on growth performance, indicators of gastrointestinal health, and carcass characteristics in finishing feedlot steers.**  
W. J. Lesperance<sup>\*</sup>, M. Duarte, J. Cant, O. Alzahal, and K. Wood, *University of Guelph, Guelph, Ontario, Canada*.
- P116 **Relation between feed efficiency, milk production and enteric methane emissions in small scale dairy systems in Mexico.**  
J. Velarde-Guillen<sup>\*</sup>, C. G. Martínez-García, and C. M. Arriaga-Jordán, *Universidad Autónoma del Estado de México, Instituto de Ciencias Agropecuarias y Rurales, Toluca, Mexico*.
- P117 **Biomass production, crude protein, and fiber variations of forage at pre- and post-rotational sheep grazing pastures.**  
T. Wuliji<sup>\*1</sup>, C. Ke<sup>2</sup>, and A. Adeyeye<sup>1</sup>, <sup>1</sup>*Lincoln University of Missouri, Jefferson City, MO*, <sup>2</sup>*University of Missouri, Columbia, MO*.
- P118 **Estimation of internal body temperature of dairy cows using thermographic images.**  
J. Schulz<sup>1</sup>, K. Heinichen<sup>2</sup>, and M. R. Wilkens<sup>\*1</sup>, <sup>1</sup>*Institute of Animal Nutrition, Nutrition Diseases and Dietetics, Faculty of Veterinary Medicine, Leipzig University, Leipzig, Germany*, <sup>2</sup>*Oberholz Farm for Teaching and Research, Leipzig University, Leipzig, Germany*.
- P119 **Effect of dietary inclusion of brown seaweed, tannin, and garlic polysulfides on enteric methane emissions and rumen physiology in dairy cows.**  
D. Kirovski<sup>\*1</sup>, D. Bošnjakovic<sup>1</sup>, I. Vujanac<sup>2</sup>, R. Prodanovic<sup>2</sup>, S. Nedic<sup>2</sup>, S. Arsic<sup>2</sup>, S. Dražić<sup>1</sup>, M. Stojkovic<sup>1</sup>, and L. Jovanovic<sup>1</sup>, <sup>1</sup>*University of Belgrade, Faculty of Veterinary Medicine, Department of Physiology and Biochemistry, Belgrade, Serbia*, <sup>2</sup>*University of Belgrade, Faculty of Veterinary Medicine, Department of Ruminant and Swine Diseases, Belgrade, Serbia*.

- P120 **Feeding frequency affects the circadian cycle of physical activity and ear temperature.**  
T. Fernandes<sup>\*1</sup>, M. H. de Oliveira<sup>1,2</sup>, Z. Wachsman<sup>1</sup>, S. M. Morlatt<sup>1</sup>, and M. D. Hanigan<sup>1</sup>, <sup>1</sup>*Virginia Tech, Blacksburg, VA*, <sup>2</sup>*School of Veterinary Medicine and Animal Science, State University of São Paulo, Botucatu, Brazil*.
- P121 **Can we improve net food production by feeding high-byproduct diets to lactating cows?**  
M. N. Mills, E. Sarmikasoglou<sup>\*</sup>, S. R. Naughton, and M. J. VandeHaar, *Michigan State University, East Lansing, MI*.
- P122 **High-starch diet early in life affects reticulorumen fermentation parameters later in life.**  
M. Jamrogiewicz<sup>\*1</sup>, M. Przybylo<sup>1</sup>, J. Kanski<sup>1</sup>, J. Kowal<sup>2</sup>, A. Wyrobisz-Papiewska<sup>2</sup>, J. Flaga<sup>1</sup>, D. Wojtysiak<sup>3</sup>, R. Militko<sup>4</sup>, M. Clauss<sup>5</sup>, and P. Górka<sup>1</sup>, <sup>1</sup>*Department of Animal Nutrition and Biotechnology, and Fisheries, Faculty of Animal Sciences, University of Agriculture in Kraków, Kraków, Poland*, <sup>2</sup>*Department of Zoology and Animal Welfare, Faculty of Animal Sciences, University of Agriculture in Krakow, Kraków, Poland*, <sup>3</sup>*Department of Animal Genetics, Breeding and Ethology, Faculty of Animal Sciences, University of Agriculture in Krakow, Kraków, Poland*, <sup>4</sup>*The Kielanowski Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Jablonna, Poland*, <sup>5</sup>*Clinic for Zoo Animals, Exotic Pets and Wildlife, Vetsuisse Faculty, University of Zurich, Zürich, Switzerland*.
- P123 **Relationship between fecal mucin content and fermentation profile in lactating dairy cows.**  
Y. Nishikawa<sup>\*</sup>, N. Nagahaka, and M. Kondo, *Mie University, Tsu, Mie, Japan*.
- P124 **Performance evaluation and enteric methane emission in bovines treated with natural Fator P additive.**  
L. Fernandes<sup>\*1</sup>, L. Ferreira<sup>1</sup>, W. Araújo<sup>1</sup>, A. D'Aurea<sup>1</sup>, G. Moura<sup>2</sup>, V. Fonseca<sup>2</sup>, and A. Maia<sup>2</sup>, <sup>1</sup>*Premix Company, Ribeirão Preto, São Paulo, Brazil*, <sup>2</sup>*São Paulo State University, Jaboticabal, São Paulo, Brazil*.
- P125 **Can preweaning supplementation of beef females influence performance and blood characteristics in other growth phases?**  
L. Pistillo<sup>1</sup>, E. Detmann<sup>1</sup>, M. Duarte<sup>2</sup>, P. Paulino<sup>3</sup>, and C. Sampaio<sup>\*1</sup>, <sup>1</sup>*Universidade Federal de Viçosa, Viçosa, MG, Brazil*, <sup>2</sup>*Department of Animal Biosciences, University of Guelph, Ghelph, ON, Canada*, <sup>3</sup>*Cargill Animal Nutrition, Campinas, SP, Brazil*.
- 2:15 PM–2:15 PM Adjourn. Afternoon free for recreation/ticketed events.
- 7:00 PM–10:00 PM Gala Banquet (Separate ticket purchase required)  
Salon I (7th Floor)

**Thursday, August 29**

7:00 AM–12:30 PM      Registration Desk  
Lobby (7th Floor)

**SESSION 7: GENOMICS AND EPIGENETIC IMPACTS ON RUMINANT PHYSIOLOGY AND EFFICIENCY**

**Chair:** Joel Caton  
Salon II (7th Floor)  
8:00 AM–10:45 AM

8:00 AM                      **16    Maternal nutrient supply: Impacts on physiological and whole animal outcomes in offspring.**  
J. S. Caton<sup>\*1</sup>, M. S. Crouse<sup>2</sup>, C. R. Dahlen<sup>1</sup>, A. K. Ward<sup>3</sup>, W. J. S. Diniz<sup>4</sup>, K. M. Hauxwell<sup>1</sup>, and L. P. Reynonds<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo, ND*, <sup>2</sup>*U.S. Meat Animal Research Center, Clay Center, NE*, <sup>3</sup>*University of Saskatchewan, Saskatoon, SK, Canada*, <sup>4</sup>*Auburn University, Auburn, AL*.

8:45 AM                      **17    Paternal nutrient supply: Impacts on physiological and whole animal outcomes in offspring.**  
C. R. Dahlen<sup>\*1</sup>, K. A. Bochantin-Winders<sup>1</sup>, G. D. Ramirez-Zamudio<sup>1,2</sup>, M. S. Crouse<sup>3</sup>, K. J. McLean<sup>4</sup>, W. J. S. Diniz<sup>5</sup>, S. Amat<sup>1</sup>, A. P. Snider<sup>3</sup>, J. S. Caton<sup>1</sup>, and L. P. Reynolds<sup>1</sup>, <sup>1</sup>*North Dakota State University, Fargo, ND*, <sup>2</sup>*University of São Paulo, Pirassununga, SP, Brazil*, <sup>3</sup>*U.S. Meat Animal Research Center, Clay Center, NE*, <sup>4</sup>*University of Tennessee, Knoxville, TN*, <sup>5</sup>*Auburn University, Auburn, AL*.

9:30 AM                      **18    Early regulation of mammalian development: Establishing the full extent and mechanistic basis of environmental effects.**  
K. D. Sinclair<sup>\*</sup>, *University of Nottingham, Loughborough, Leicestershire, UK*.

10:15 AM                      **Abstract Highlights.**

**POSTER SESSION 5: GENOMICS AND EPIGENETICS**

Salon III (7th Floor)  
10:45 AM–12:15 PM

P126                              **Identification of transcriptional regulators and signaling pathways mediating postnatal rumen growth in cattle.**  
B. Pokhrel<sup>\*</sup>, Z. Tan, and H. Jiang, *Virginia Polytechnic Institute and State University, Blacksburg, VA*.

P127                              **Hepatic gene transcript changes from late gestation to early lactation.**  
J. K. Drackley<sup>\*</sup> and J. J. Loor, *University of Illinois Urbana-Champaign, Urbana, IL*.

P128                              **Methionine and guanidinoacetic acid supplementation of beef heifers during the periconceptual period impacts fetal hepatic transcriptome.**  
K. M. Hauxwell<sup>\*1</sup>, R. A. Cushman<sup>2</sup>, J. S. Caton<sup>1</sup>, W. J. S. Diniz<sup>3</sup>, A. K. Ward<sup>4</sup>, A. K. Lindholm-Perry<sup>2</sup>, A. P. Snider<sup>2</sup>, H. C. Freetly<sup>2</sup>, C. R. Dahlen<sup>1</sup>, S. Amat<sup>1</sup>, B. W. Neville<sup>2</sup>, J. F. Thorson<sup>2</sup>, W. T. Oliver<sup>2</sup>, J. R. Miles<sup>2</sup>, M. S. Crouse<sup>2</sup>, <sup>1</sup>*North Dakota State University, Fargo, ND*, <sup>2</sup>*U.S. Meat Animal Research Center, Clay Center, NE*, <sup>3</sup>*Auburn University, Auburn, AL*, <sup>4</sup>*University of Saskatchewan, Saskatoon, SK, Canada*.

P129                              **Mammary transcriptome response to sodium acetate and CLA-induced milk fat depression in dairy cows.**



A. Haile\*, C. Matamoros, and K. Harvatine, *Pennsylvania State University, University Park, PA.*

12:15 PM–1:00 PM      Adjourn (Lunch on your own)

12:15 PM–12:45 PM    Remove all posters (all sessions, all days)

12:45 PM–7:00 PM    Fair Oaks Farm Tour. Meet at Marriott Ohio Street Entrance at 12:45. Bus will board from Ohio Street on the north side of Marriott. (Separate ticket purchase required)  
Fair Oaks Farms

## NOTES



