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Recorded Symposia Presentations

All symposia at the 2018 ADSA Annual Meeting are being recorded and will be available free of charge to meeting attendees shortly after the meeting ends for a period of 60 days. Thereafter, recordings will be available for purchase. Please note that individual presentations may be excluded from a symposium recording if presenter permission was not granted. The icon in the scientific program indicates that a presentation is being recorded.
Sunday, June 24

WORKSHOPS AND SYMPOSIA

Workshop:
National Animal Nutrition Program (NANP) Models
Chair: Timothy Hackmann, University of Florida
Sponsors: NANP-NIFA and McNamara Research Fund in Agriculture Firm
Room 300 CD

9:00 AM 1 Introduction and model construction: Part I (lecture).
Timothy J. Hackmann*, Mark D. Hanigan†, and Veridiana L. Daley‡,
1University of Florida, Gainesville, FL, 2Virginia Tech, Blacksburg, VT, 3National Animal Nutrition Program, University of Kentucky, Lexington, KY.

9:30 AM 2 Introduction and model construction: Part II (exercises).
Mark D. Hanigan*, Veridiana L. Daley‡, and Timothy J. Hackmann§,
1Virginia Tech, Blacksburg, VA, 2National Animal Nutrition Program, University of Kentucky, Lexington, KY, 3University of Florida, Gainesville, FL.

10:45 AM Break

11:00 AM 3 Model evaluation: Part I (lecture).
Ermias Kebreab*, University of California, Davis, Davis, CA.

11:30 AM 4 Model evaluation: Part II (exercises).
Ermias Kebreab*, University of California, Davis, Davis, CA.

12:45 PM Lunch

1:45 PM 5 Meta-analysis: Part I (lecture).
R. R. White*, Virginia Tech, Blacksburg, VA.

2:15 PM 6 Meta-analysis: Part II (exercises).
Douglas M. Liebe* and Robin R. White, Virginia Tech, Blacksburg, VA.

3:30 PM Break/transition to reception

3:45 PM 7 Opportunities for federal funding of modeling research.
Steven I. Smith* and Mark A. Miranda, USDA-National Institute of Food and Agriculture, Institute of Food Production and Sustainability, Washington, DC.

Workshop:
Spore Sources and Transmission from Farm to Fork—Detection and Control Strategies
Chair: Samuel Alcaine, Cornell University
Sponsor: National Dairy Council
Room 301 D

10:00 AM Opening remarks.
Martin Wiedmann, Cornell University, College of Food Science, Ithaca, NY.

10:15 AM 8 Introduction to dairy-relevant sporeformers and detection methodologies.
Martin Wiedmann*, Cornell University, College of Food Science, Ithaca, NY.
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<tr>
<td>11:15</td>
<td>Break</td>
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<td>11:30</td>
<td><strong>On-farm sources and control strategies.</strong></td>
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<td>N. Martin*, Cornell University, Ithaca, NY.</td>
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<tr>
<td>12:15</td>
<td>Lunch</td>
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<tr>
<td>1:15</td>
<td><strong>Introduction to dairy-relevant sporeformers and detection methodologies.</strong></td>
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<td>T. Erickson*, Ecolab, St. Paul, MN.</td>
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<td>2:00</td>
<td>Breakout groups, discussion.</td>
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<td>Martin Wiedmann.</td>
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<td>2:30</td>
<td>Break</td>
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<td>2:45</td>
<td>Panel Q&amp;A</td>
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<td>Sam Alcaine (moderator).</td>
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<td>3:15</td>
<td>Closing remarks.</td>
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<td></td>
<td>Martin Wiedmann.</td>
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**2018 Mini Symposium: Priorities for Fiber Research (DC33 Follow-Up)**

**Room 301 A**

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<td>2:00</td>
<td>Introductory comments.</td>
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<td>Larry Miller.</td>
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<td>2:15</td>
<td><strong>Priorities for future research to improve fiber utilization by animals.</strong></td>
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<tr>
<td></td>
<td>D. R. Mertens*, Mertens Innovation &amp; Research LLC, Belleville, WI.</td>
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**ADSA Graduate Student Symposium: Manuscript Writing for Graduate Students**

**Chair: Matthew Borchers, University of Kentucky**

**Room 200 DE**

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<tr>
<td>2:00</td>
<td><strong>Tips and tricks for turning your ideas into peer-reviewed publications.</strong></td>
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<td>Marina A., G. von Keyserlingk* and Daniel M. Weary, University of British Columbia, Vancouver, BC, Canada.</td>
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<td>2:30</td>
<td><strong>Collaborating with co-authors: Writing, presenting, and publishing.</strong></td>
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<td>D. M. Barbano*, Cornell University, Ithaca, NY.</td>
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<td>3:00</td>
<td><strong>Manuscript preparation, navigating journal submission, and the peer-review process.</strong></td>
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<td>L. E. Armentano*, University of Wisconsin, Madison, WI.</td>
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<tr>
<td>3:30</td>
<td><strong>Will your research impact dairy farmers?</strong></td>
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<tr>
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<td>Corey Geiger*, Hoard’s Dairyman, Fort Atkinson, WI.</td>
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OTHER EVENTS

Teaching Workshop:
How to Implement and Evaluate Active Learning Activities in Your Classroom
Chair: Michel Wattiaux, University of Wisconsin-Madison
Room 301 B
1:00 to 4:30 PM

Workshop: Dairy Records Analysis
Chair: Kas Ingawa, North Carolina State University
Room 301 C
1:00 to 4:30 PM

Late-Breaking Original Research Session
Ballroom C
3:00 to 5:00 PM
Monday, June 25

POSTER PRESENTATIONS

ADSA Dairy Foods Graduate Student Poster Competition

M1 Development and validation of a rapid method for measurement of casein in raw milk using front-face fluorescence spectroscopy and chemometrics.
Yizhou B. Ma* and Jayendra K. Amamcharla, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan, KS.

M2 Hunter versus CIE color measurement systems for analysis of milk-based beverages.
Ni Cheng*, David Barbano², and MaryAnne Drake¹, ¹North Carolina State University, Raleigh, NC, ²Cornell University, Ithaca, NY.

M3 Optimizing the emulsification properties of heated whey protein isolate (WPI)-pectin complexes for emulsions containing 20% oil at pH 5.0.
Akkasubha Kotchabhakdi* and Bongkish Vardhanabhuti, University of Missouri, Columbia, MO.

M4 Evaluation of the drying kinetics of micellar casein concentrate and reduced-mineral micellar casein concentrate at different solids concentrations.
Hiral N. Vora* and Lloyd E. Metzger, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

M5 Whey proteins enhance color and stability of anthocyanin pigments.
Gonzalo Miyagusuku-Cruzado*, Rafael Jimenez-Flores, and M. Monica Giusti, The Ohio State University, Columbus, OH.

M6 Production and storage stability of liquid micellar casein concentrate.
Ahmed R. A. Hammam* and Lloyd E. Metzger, South Dakota State University, Brookings, SD.

M7 Use of micro- and nano-bubbles for improving the functional properties of Greek-style yogurt.
Karthik Sajith Babu*, Dylan Zhe Liu, and Jayendra K. Amamcharla, Kansas State University, Manhattan, KS.

M8 Ratiometric fluorescence spectroscopy—a novel technique for rapid detection of bacterial endospores.
Nancy Awasti* and Sanjeev Anand, Midwest Dairy Food Research Center, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

ADSA Graduate Student (MS) Production Poster Competition

M9 Response of Holstein dairy cattle to a sodium propionate supplement fed postpartum.
Morgan Wukadinovich* and Heidi A. Rossow, University of California, Davis, Davis, CA.

M10 Effects of timing of local anesthesia on cortisol and adrenocorticotropic hormone levels in calves after dehorning.
Amanda J. Mathias*, Cathleen C. Williams¹, Clare Scully², and Steven J. Blair³, ¹Louisiana State University AgCenter, Baton Rouge, LA, ²Louisiana State University School of Veterinary Medicine, Baton Rouge, LA.

M11 Feeding a low-starch fresh cow diet may increase NDF digestibility.
Caroline E. Knoblock*, Weina Shi¹, Ilkyu Yoon², and Masahito Oba³, ¹Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Diamond V, Cedar Rapids, IA.

M12 Determining immune-modulating components of Saccharomyces cerevisiae with RAW 264.7 murine macrophages.
Sarah E. Sivinski*, Rachel A. Rusk, Jodi L. McGill, and Barry J. Bradford, Kansas State University, Manhattan, KS.

M13 Evaluating forage and feed cost per hundredweight of milk sold on 4 dairy farms double cropping winter annuals with corn silage in northern and western Pennsylvania.
Eric J. Ranck* and Lisa L. Holden, Pennsylvania State University, State College, PA.
M14 Effects of different organic pastures on dairy heifer growth.  
Jacob A. Hadfield*1, Marcus Rose2, Rusty Stott3, Blair L. Waldron2, Allen Young1, Stephen C. Isom2, Kerry A. Rood1, and Kara J. Thornton4, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT, 2Forage and Range Research, USDA–Agricultural Research Service, Logan, UT.

M15 Automatic feed push-up frequency effects on dairy cattle behavior and milk production.  
Michelle D. Adamczyk*, Lori N. Grinster*, Amanda R. Lee1, Jeffrey M. Bemley1, and Joao H. C. Costa1, 1Dairy Science Program, Department of Animal and Food Sciences, University of Kentucky, Lexington, KY, 2Department of Animal Science, University of Tennessee Knoxville, Knoxville, TN, 3CowFocused Housing, Bardstown, KY.

M16 Effects of pasture quality on feed efficiency and production of organic dairy cows in the southeastern United States.  
Hannah R. Bailey*, David M. Butler1, Gary M. Bates1, Gina M. Pighetti1, Peter D. Krawczel1, S. Ray Smith2, Kelly Mercier1, David W. McIntosh1, and Agustin G. Rius1, 1Department of Animal Science, University of Tennessee, Knoxville, TN, 2College of Agriculture, Food and Environment, University of Kentucky, Lexington, KY.

M17 Effects of extended colostrum feeding on plasma glucagon-like peptide 1 concentration in newborn calves.  
Yudai Inabu*, Jade Pyo1, Sarah Pletts2, Michael Steele2, and Toshihisa Sugino1, 1The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

M18 Fetuin-A modulates lipid mobilization in bovine adipose tissue by enhancing lipogenic activity of adipocytes.  
Clarissa Strieder-Barboza* and G. Andres Contreras, Department of Large Animal Clinical Sciences, Michigan State University East Lansing, MI.

M19 Ruminal, diet, and environmental factors that affect dairy calf performance.
Carrie A. Ceh*, Robin R. White, and Kristy M. Daniels, Virginia Polytechnic Institute and State University, Blacksburg, VA.

M20 Epigenetic regulation of nuclear factor erythroid 2 like 2 (NFE2L2) signaling pathway through methionine supply during the periparturient period in liver of dairy cows.
Fernanda Batistel*, Sadaf Moeez1, Liqiang Han1, Claudia Parys2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

M21 Milking intervals of cows with contrasting production.
Fernando Masiá1,3, Mónica Lyons1, Mónica Balzarini1,3, Russell Hovey1, and Sergio García1, 1Cátedra de Estadística y Biometría de la Facultad de Ciencias Agropecuarias de la Universidad Nacional de Córdoba, Córdoba, Argentina, 2Intensive Livestock Industries, NSW Primary Industries, Elizabeth Macarthur Agricultural Institute, Menangle, NSW, Australia, 3Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Córdoba, Argentina, 4Department of Animal Science, University of California, Davis, CA, 5School of Life and Environmental Sciences and Sydney Institute of Agriculture, The University of Sydney, Camden, NSW, Australia.

M22 Evaluating the effects of fibrolytic enzymes derived from Trichoderma reesei fungal extraction on rumen fermentation, omasal nutrient flow and production performance in dairy cows during early lactation.
Basim Refat*, David Christensen1, John McKinnon1, Aaron Beattie3, Tim McAllister3, Wenzhu Yang1, Osuama AlZahal4, and Peiqiang Yu1, 1Department of Animal and Poultry Science, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Crop Development Center, Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 3Lethbridge Research and Development Centre, Lethbridge, AB, Canada, 4Ab Vista, Marlborough, United Kingdom.

M23 Supplemental methionine and lipopolysaccharide alters galectin gene expression in polymorphonuclear leukocytes (PMNL) from Holstein cows in vitro.
Emmanuel Asiamah*, Mario Vailati-Riboni1, Mulumebet Worku2, and Juan Loor1, 1North Carolina A&T State University, Greensboro, NC, 2University of Illinois Urbana-Champaign, Urbana, IL.

M24 Aluminosilicate clay reduces the deleterious effects of an aflatoxin challenge on performance in lactating Holstein cows.  
Russell T. Pate*, Devan M. Paulus Compart1, and Felipe C. Cardoso1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2PMI Nutritional Additives, Shoreview, MN.
M25 A double-stranded RNA, polyninosinic-polycytidylic acid (Poly I:C) enhances the expression of galectins-1, -3, -4, -8, and -9 in cow blood. Emmanuel Asiamah*, Sarah Adjei-Fremah, Kingsley Ekwemalor, Bertha Osei, and Mulumebet Worku, North Carolina A&T State University, Greensboro, NC.

M26 The effect of ruminal administration of 5-hydroxytryptophan on circulating serotonin in the dairy cow. Meghan K. Connelly*1, Aaron M. Marshall2, and Laura L. Hernandez2, 1University of Wisconsin-Madison, Madison, WI, 2Amelgo LLC, Covington, KY.

M27 Effects of feeding more milk on periprandial plasma glucagon-like peptide-2 (GLP-2) concentrations in dairy calves. Jennifer L. Haisan*1, Masahito Oba1, and Toshihisa Sugino1, 1University of Alberta, Edmonton, AB, Canada, 2Hiroshima University, Higashi-Hiroshima, Japan.

M28 E affects of citrus oil components on Escherichia coli P4 growth and on bovine neutrophils. Cynthia M. Scholte*1, Theodore H. Elsasser2, Stanislaw Kahl2, Debabrata Biswas1, and Kasey M. Moyes1, 1Department of Animal and Avian Sciences, University of Maryland, College Park, MD, 2Animal Biosciences and Biotechnology Laboratory, USDA-Agricultural Research Service, Beltsville, MD.

M29 Evaluating the effects of a rumen and hindgut starch challenge on the inflammatory immune response in Holstein cows. Amanda M. Barnard*, MacKenzie Conklin, Bridget Aylward, Robert Dyer, Ryan Arsenault, and Tanya F. Gressley, Department of Animal and Food Sciences, College of Agricultural and Natural Resources, University of Delaware, Newark, DE.

ADSA-SAD Original Research Undergraduate Poster Competition

M30 Body measurements comparison between slick and wild type-haired Puerto Rican Holstein cows. Gabriela A. Soriano-Varela*, Melvin Mercado-Ayala, Eduardo Matos-Padilla, Gladysa Muñiz-Colón, Katherine Domenech-Pérez, and Héctor L. Sánchez-Rodríguez, University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico.

M31 Modification of rumen microbiome by supplementing the dairy cow diet with a blend of probiotics and evaluation of changes in energy balance and milk quality. Hayley L. Mulchay*1, Blayne Jensen1, Zayne Evangelos, Richard Silacci1, Christopher Kitts2, and Chi Kong Yeung1, 1Animal Science Department, California Polytechnic State University, San Luis Obispo, CA, 2Biological Sciences Department, California Polytechnic State University, San Luis Obispo, CA.

M32 Effect of calf hutch type on calf performance and calf hutch temperature humidity index. Kimberly J. Reuscher*1, Barbara W. Jones1,2, and Ellen R. Jordan3, 1Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX, 3Texas A&M AgriLife Extension, Dallas, TX.

M33 Ultra-short spontaneous cure rates of intramammary infection among mastitis pathogens in dairy cattle. Anyaphat Srithanasuwan*, Noppason Pangprasit, Montira Intanon, and Wittaya Suriyasathaporn, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand.

M34 Effects of anti-inflammatory treatment and milking frequency on mRNA abundance of adipose tissue from early lactation cows. Melissa Riley*, Miriam Garcia, Caroline Ylioja, Laman K. Mamedova, and Barry J. Bradford, Kansas State University, Manhattan, KS.


M36 Analysis of bulk tank milk differential bacteria tests and pipeline cleaning cycle temperatures on 4 Michigan dairy farms. J. S. Myers*, L. L. Timms, and S. Clark, Iowa State University, Ames, IA.

M37 Validation of an automated body condition scoring camera. Israel Mullins*1, Carissa Truman1, Jeffrey Bewley2, and Joao Costa1, 1Dairy Science Program, Department of Animal and Food Sciences, University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

M38 The role of serotonin in systemic immune response during mid to late lactation in dairy cows. Hannah P. Fricke*, Meghan K. Connelly, and Laura L. Hernandez, University of Wisconsin-Madison, Madison, WI.
M39  In vitro fermentability of rumen fluid from heat-stressed or cooled cows fed high or low dietary crude protein.
Christopher M. Johnson*, Jeffrey D. Kaufman, Hannah R. Bailey, Amanda M. Devolk, Carlos A. Steren, Frank E. Loeﬄer, and Agustín Rius, University of Tennessee, Knoxville, TN.

M40  Effect of rumen-protected methionine supplementation on milk production in dairy cows.
H. R. Bailey1, E. M. Belanger2*, J. D. Kaufman1, B. Barton1, C. Zimmerman2, K. Estes2, and A. G. Rius1, University of Tennessee, Knoxville, TN; 2Balchem Corp., New Hampton, NY.

M41  The effects of comfortable or stressful housing environments on short-term behavior, milk quality, and milk production following group transition for Holstein dairy cattle.
Anna Bradtmueller*, Matthew Borchers2, and Jeffrey Bewley3, University of Kentucky, Lexington, KY; 3CowFocused Housing, Bardstown, KY.

Animal Behavior and Well-Being I

M42  Preference of flavored concentrate premixes by young ruminants.
K. Nedelkov1, M. T. Harper2*, A. Melgar4, X. Chen3, S. Räisänen5, C. M. M. R. Martins4, E. H. Wall6, and A. N. Hristov2, 1Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria; 2Department of Animal Science, The Pennsylvania State University, University Park, PA; 3College of Pastoral Agriculture Science and Technology, Lanzhou University, Gansu, China; 4School of Veterinary Medicine and Animal Science, University of Sao Paulo, Pirassununga, Brazil; 5Fancosma, Geneva, Switzerland.

M43  Impact of a reduction in dietary energy density on feeding behavior, intake, and production of dairy cows.
Sydney M. Moore* and Trevor J. DeVries, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

M44  Impact of dietary transition at dry off on the feed sorting behavior of dairy cows.
Kaitlyn M. Dancy, Eduardo S. Ribeiro, and Trevor J. DeVries2*, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

M45  Effects of different feed type exposure in early life on performance, rumen fermentation and feed preference of dairy calves.
Ya Jing Wang*, Jianxin Xiao, Shengli Li, Zhijun Cao, and Gibson Maswayi Alugongo, China Agricultural University, Beijing, P. R. China.

M46  Effects of feeding corn stover pelleted with soybean meal or distillers grains on chewing activity and ruminal pH of dairy cows.
Aaron J. DuMez2, Brooke C. Dooley*, Emily H. Branstad1, Carrie S. McCarthy2, Gaston M. Bonetto1, Russ Zeeck1, Abigail G. Carpenter1, Jhones O. Surtori1, and Hugo A. Ramirez-Ramirez2, 1Iowa State University, Ames, IA; 2Pellet Technology USA, Gretna, NE; 3Instituto Nacional de Tecnologia Agropecuaria, Manfredi, Córdoba, Argentina; 4University of Guelph, Ridgetown, ON, Canada; 5Texas Tech University, Lubbock, TX.

M47  Providing environmental enrichment during the milk-feeding stage influences cognition of group-housed dairy calves.
Kaitlin N. Gingerich*, Kelsey C. Horvath, and Emily K. Miller-Cushon, University of Florida, Gainesville, FL.

M48  Individual differences in responses to weaning in dairy calves.

M49  Influences of environmental enrichment on activity and performance of group-housed dairy calves.
Kelsey C. Horvath* and Emily K. Miller-Cushon, University of Florida, Gainesville, FL.

M50  Acquired immunity and performance of single versus pair housed Holstein dairy calves.
Clay B. Kesterson*, Liesel G. Schneider1, Marc Caldwell1, Peter D. Krawczel1, and Gina M. Pighetti4, 1The University of Tennessee, Knoxville, TN; 2College of Veterinary Medicine, The University of Tennessee, Knoxville, TN.

M51  Using behavior as an early predictor of calf’s health disorder.
M. A. Belaid*, M. Rodriguez-Prado1, D. V. Rodriguez-Prado2, E. Chevaux3, and S. Calsamiglia1, 1Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain; 2Universitat Pompeu Fabra, Barcelona, Spain; 3Lallemand Animal Nutrition, Blagnac, France.

M52  Influences of disbudding on feeding behavior and brush use in group-housed dairy calves.
Catherine L. Hixson* and Emily K. Miller-Cushon, University of Florida, Gainesville, FL.
M53  Round-day behavior of ewe-lambs at grazing.
Eliel González-García*1, Moutaz Alhamada1, Ana Clara Canto Souza2, Zuzana Holubová3, and Greg Bishop-Hurley4, 1SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), INRA, Montpellier SupAgro, CIRAD, Unv Montpellier, Montpellier, France, 2Universidade Estadual de Londrina (UEL), Londrina, Brazil, 3Czech University, Prague, Czech Republic, 4CSIRO, Queensland, Australia.

M54  Water intake behavior of lactating heifers during the transition period.
Sheila C. B. Stivanin1, Elissa F. Vizzotto1, Vivian Fischer*1, Fernanda S. Machado1, Mariana M. Campo1, Thierry R. Tomich1, and Luiz G. R. Pereira1, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil, 2Empresa Brasileira de Pesquisa Agropecuaria, Juiz de Fora, MG, Brazil.

M55  Validating a novel precision dairy monitoring technology recording activity, rumination, and feeding behaviors in dairy cattle.
Siobhán Gavigan*1, Matthew Borchers1, and Jeffrey Bewley2, 1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

M56  Effect of body condition score on activity of dairy cows in estrus.
Hawar M. H. Zebari*1, Gemma L. Charlton2, Mark S. Rutter1, and Emma C. L. Bleach2, 1College of Agriculture, University of Duhok, Duhok, Kurdistan Region, Iraq, 2Department of Animal Production, Welfare and Veterinary Sciences, Harper Adams University, Newport, Shropshire, United Kingdom.

Animal Health I

M57  Pathologic features of Staphylococcus aureus-induced mastitis in dairy cows and isobaric tags for relative and absolute quantitation proteomics analyses.
Zhi Chen, Mingxun Li, Huimin Zhang, Yongjiang Mao, and ZhangPing Yang*, College of Animal Science and Technology, Yangzhou University, Yangzhou, China.

M58  BoHV-1 neutralizing antibody response of calves vaccinated with licensed infectious bovine rhinotracheitis (IBR) modified live virus vaccines in field.

M59  The effect of pegbovigrastim on circulating neutrophil count in dairy cattle.
Sabrina J. Van Schyndel*1, Jérôme Carrier2, Osvaldo Bogado Pascottini1, and Stephen J. LeBlanc1, 1University of Guelph, Guelph, ON, Canada, 2Elanco Canada Ltd, Guelph, ON, Canada.

M60  Changes in ruminal and fecal microbiota due to the challenges of indigestion, mastitis, and laminitis in Holstein cows.
Jing J. Liu, Shou K. Ji, Ya J. Wang, Tao Jiang, Chun Y. Guo, Hui Yan, Zhi J. Cao, Sheng L. Li, and Fei R. Wang*, State Key Laboratory of Animal Nutrition, Beijing Engineering Technology Research Center of Raw Milk Quality and Safety Control, College of Animal Science and Technology China Agricultural University, Beijing, China.

M61  Central administration of an acute phase protein, α-1-acid-glycoprotein, increases rectal temperature in sheep.
B. A. Gregg*, P. A. Parker1, M. K. Waller1, M. Garcia2, B. J. Bradford2, J. A. Daniel3, and B. K. Whitlock1, 1College of Veterinary Medicine, University of Tennessee, Knoxville, TN, 2Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS, 3Department of Animal Science, Berry College, Mount Berry, GA.

M62  Impact of Saccharomyces cerevisiae fermentation product (SCFP) on oxidative status and immune response of transition dairy cattle.
Sarah E. Sivinski*1, Katie E. Olagaray1, Laman K. Mamedova1, Joseph M. McIntosh1, Ben A. Saylor1, James E. Shaffer1, Julie A. Sauls1, Ikyu Yoon2, and Barry J. Bradford1, 1Kansas State University, Manhattan, KS, 2Diamond V, Cedar Rapids, IA.

M63  Effects of lameness at dry-off on the incidence of transition period disease of dairy cows.

M64  Estrogen receptor alpha and progesterone receptor expression in uninfected and Staphylococcus aureus-infected quarters.
Benjamin D. Enger*, Hannah L. M. Tucker1, Catherine L. M. Parsons1, Stephen C. Nickerson2, and R. Michael Akers3, 1Virginia Polytechnic Institute and State University, Blacksburg, VA, 2University of Georgia, Athens, GA.
Development of antibody-conjugated chitosan microparticles selectively targeting Shiga toxin producing Escherichia coli in the gastrointestinal tract.
Zhengxin Ma1,2, Minyoung Kang1, Shanyu Meng2, Zhaohui Tong2, Adegbola Adesogan2, and Kwangcheol Jeong1,2, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Emerging Pathogens Institute, University of Florida, Gainesville, FL, 3Department of Agricultural and Biological Engineering, University of Florida, Gainesville, FL.

M66 Staphylococcus aureus surface proteins extraction method with immunoproteomics and electron microscopic study.
Reta D. Abdi*,1, John R. Dunlap2, Desta B. Ensermu3, Barbara. E. Gillespie1, Raul A. Almeida1, Stephen P. Oliver1, and Oudessa Kerro Dego1, 1Department of Animal Science, The University of Tennessee, Knoxville, Knoxville, TN, 2JIAM Microscopy Center and Advanced Microscopy and Imaging Center, The University of Tennessee, Knoxville, TN.

M67 New intramammary infections within 7 days after antibiotic treatment of clinical mastitis.
W. Chaisri1, T. Panyamongkol2, K. Leelaphongsathan1, S. Uraiorg1, and W. Suriyasathaporn1,2, 1Department of Food Animal Clinics, Chiang Mai University, Chiang Mai, Thailand, 2Chiang Mai Artificial Inseminations and Biotechnology Research Center, Department of Livestock Development, Chiang Mai, Thailand, 3Department of Veterinary Public Health, Kasetsart University, Nakhon Pathom, Thailand, 4Zoetis (Thailand), Bangkok, Thailand.

Arnaud Delafosse1, Baptiste Poupée1, and Christine Julien2,3, 1GDS, Alençon, France, 2Phileo Lesaffre Animal Care, Marcq-en-Barœul, France.

M69 Feed restriction as a model to induce systemic inflammation in dairy cows before calving.
O. B. Pascottini1,2, M. R. Carvalho2, E. Ticiani2, J. F. W. Spricigo2, E. S. Ribeiro2, and S. J. LeBlanc1, 1Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, 2Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

M70 Impact of colostrum pasteurization on serum concentration of selected cytokines.
Marta Terré1,2, Anna Bassols1, Maria Vidal1, Jordi Galian1, and Alex Bach2, 1Institut de Recerca i Tecnologia Agroalimentàries, Caldes de Montbui, Spain, 2Universitat Autònoma de Barcelona, Bellaterra, Spain, 3Granja Murucuc, Gerb, Spain, 4Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain.

M71 Genetic diversity and associated enterotoxin production patterns of Staphylococcus aureus isolates from cases of bovine mastitis.
Jacqueline M. Vaughn*, Reta D. Abdi, Barbara E. Gillespie, Caitlin E. Merrill, and Oudessa K. Dego, The University of Tennessee, Knoxville, TN.

M72 Galectin expression in blood of cows with high and low milk somatic cell count.
Bharath Kumar Mulakala*, Eboghoye Eluka-Okoludoh, Sarah Adjei-Fremah, Emmanuel Asiamah, Kingsley Ekwemalor, Salam Ibrahim, and Mulumebet Worku, North Carolina Agricultural and Technical State University, Greensboro, NC.

M73 Protective effects of staphylococcal surface proteins as vaccine antigens to control mastitis in dairy cows.
Caitlin E. Merrill1,2, Desta B. Ensermu1, Reta D. Abdi1, Barbara E. Gillespie1, Jacqueline Vaughn1, Susan I. Headrick1, Kody Hash2, Tate B. Walker1, Raul A. Almeida1, S. P. Oliver1, and Oudessa Kerro Dego1, 1The University of Tennessee, Department of Animal Science, Knoxville, TN, 2The University of Tennessee, East Tennessee Research and Education Center-Little River Animal and Environmental Unit, Walland, TN.

Animal Health II

M74 Metabolic stress biomarkers in dairy cows during early involution.
Lorraine M. Sordillo*, Ashely Putnam, Jennifer Brown, and Jeffery C. Gandy, Michigan State University, East Lansing, MI.

M75 Genome-wide variation for visceral fat deposition in Holstein dairy cows.
Pedro Melendez1,2, Scott Pooch3, Pablo Pinedo1, Diego Manriquez2, Stephen Moore3, Matt Lucy4, Patrick Pithua1, Jessica Neal3, and Jeremy Taylor3, 1College of Veterinary Medicine, University of Missouri, Columbia, MO, 2Department of Animal Sciences, Colorado State University, Fort Collins, CO, 3Division of Animal Sciences, University of Missouri, Columbia, MO.

M76 Acetoacetate induces hepatocytes apoptosis by the reactive oxygen species (ROS)-mediated MAPKs pathway in ketotic cows.
Xiliang Du, Guowen Liu, and Xinwei Li*, College of Veterinary Medicine, Jilin University, Changchun, Jilin, China.

M77 Enhanced hepatic mitochondrial functional in dairy cows with mild fatty liver.
Zhen Shi, Xiaobing Li, Guowen Liu, and Xinwei Li*, College of Veterinary Medicine, Jilin University, Changchun, Jilin, China.
Yeast culture alters volatile fatty acids production in a ruminal in vitro fermentation system.

Time of rumen fluid collection relative to feeding alters in vitro fermentation outcomes.
Shelby A. Armstrong*, Larissa A. Pless2, Ashlyn N. Brewster1, Ashlyn N. Brewster1, and Derek J. McLean2, Phibro Animal Health Corp., Teaneck, NJ, Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR.

Factors affecting prevalence of subclinical hypocalcemia in a 1,724-cow survey.

Effects of fully acidified close-up diets and dietary calcium content on blood metabolites and mineral concentrations of transition dairy cows.
Kristen M. Glosson*, Xiangfei Zhang3, Scott S. Bascom3, Angie D. Rowson3, and James K. Drackley1, Department of Animal Sciences, University of Illinois, Urbana, IL, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, Sichuan, China, Phibro Animal Health Corp., Teaneck, NJ.

Near-infrared spectroscopy for measuring plasma metabolites in dairy cows.
Michele Premi, Giulia Ferronato, Marcello Nembrini, Luigi Calamari, Erminio Trevisi*, and Paolo Bani, Department of Animal Science, Food and Nutrition, Università Cattolica del Sacro Cuore, Piacenza, Italy.

Comparison of β-hydroxybutyric acid concentration determined via an electronic meter and a laboratory method to diagnose ketosis in dairy cows in a commercial herd in Northern Mexico.
Gabriela Perez-Hernandez*, Agustín Ruiz-Flores1, José G. García-Muñiz3, Carrie S. McCarthy2, Lance H. Baumgard2, Leo L. Timms2, and Hugo A. Ramírez-Ramírez2, Universidad Autónoma Chapingo, Chapingo, Mexico, Iowa State University, Ames, IA.

Ionized calcium and glucose changes in refrigerated heparinized blood samples from dairy cows.
A. Valdecabres*, R. Lopes, and N. Silva-del-Río, Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.

Association of subclinical hypocalcemia and teat canal diameter after milking in dairy cattle.
A. A. Barragan*, L. da Costa2, S. Bas2, A. Della Libera, E. Hovingh1, S. Rassler1, M. A. Ostach1, and F. da Costa1, Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, Facultad de Medicina Veterinaria y Zootecnia, Universidad de São Paulo, São Paulo, Brazil, Olentangy Liberty High School, Powell, OH.

Reference blood parameter for Holstein dairy cows diagnosed with different health events.
A. A. Barragan*, S. Bas2, K. Heckman1, and A. Ludwikowski1, Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, Department of Veterinary Preventive Medicine, Columbus, OH.

Mineral profile of grazing dairy cows in the northwestern of Argentina.
Gabriela Marcela Martinez*, Juan Francisco Micheloud1, Victor Humberto Suarez1, Guillermo Matioli2, and Diana Rosa2, Instituto Nacional de Tecnología Agropecuaria, Salta, Argentina, Universidad Nacional de La Plata, La Plata, Buenos Aires, Argentina.

Relationships between test-day fatty acid concentrations and early lactation survival.
Isaac W. Haagen* and Chad D. Dechow, The Pennsylvania State University, University Park, PA.

Effect of ketosis on lying time in transition dairy cows.
J. M. Piñeiro*, B. T. Menichetti1, A. A. Barragan1, A. Relling2, W. P. Weiss1, S. Bas1, and G. M. Schuenemann1, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, Department of Animal Sciences, The Ohio State University, Wooster, OH.

Using once per day milking as an adjunct treatment of hyperketonemia.
Maggie E. Williamson*, Todd F. Duffield, Stephen Leblanc, Trevor DeVries, and Brian W. McBride, University of Guelph, Guelph, ON, Canada.

Epidemiology of subclinical hypocalcemia in early-lactation Holstein cows.
Rafael Neves1, Brittany Leno1, Kathryn Bach1, and Jessica McArt*, Cornell University, Ithaca, NY, Texas Tech University, Lubbock, TX.
Detection of health problems by changes in milk estimated blood nonesterified fatty acids (NEFA) and milk fat, protein, and fatty acids.
Alex Pape*, Heather M. Dann1, David M. Barbano2, and Richard J. Grant3, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2Department of Food Science, Northeast Dairy Food Research Center, Cornell University, Ithaca, NY.
Impact of inulin on the quality parameters of low-fat Cheddar cheese.
Mian S. Murtaza*1, Aysha Sameen1, Mian A. Murtaza1, and Umar Farooq1, 1Department of Food Science and Technology, Muhammad Nawaz Sharif University of Agriculture, Multan, Punjab, Pakistan, 2National Institute of Food Science and Technology, University of Agriculture, Faisalabad, Punjab, Pakistan, 3Institute of Food Science and Nutrition, University of Sargodha, Sargodha, Punjab, Pakistan.

Development of a rapid method using near-infrared spectroscopy to quantify starch in shredded mozzarella cheese.
Leilany Vázquez-Portalatin* and Tonya C. Schoenfuss, University of Minnesota, Saint Paul, MN.

β-Lactam antibiotics in goat’s milk affecting the characteristics of mature cheeses.
Paloma Quintanilla1, Maria C. Beltrán1, Ana Molina2, Isabel Escricane3, and Maria P. Molina*4, 1Universitat Politècnica de València, Valencia, Spain, 2Universidad de Castilla-La Mancha, Albacete, Spain.

Influence of increasing milk protein concentration from 4 to 9% using ultrafiltration on Cheddar cheese pH and moisture.
Mahmoud M. Motawee*2 and Donald J. McMahon1, 1Western Dairy Center, Utah State University, Logan, UT, 2Department of Nutritional Evaluation and Food Sciences, National Organization for Drug Control and Research, Giza, Egypt.

Method development to quantify paste stability for surface mold-ripened cheeses.
Danton Batty*, Joy Waite-Cusic, and Lisbeth Meunier-Goddik, Oregon State University, Corvallis, OR.

The effect of high hydrostatic pressure on the microbiological quality and shelf life of Camembert-type cheese.
Danton Batty*, Alex Emch, Lisbeth Meunier-Goddik, and Joy Waite-Cusic, Oregon State University, Corvallis, OR.

**Dairy Foods II: Microbiology**

Selective growth using MRS broth for raw milk microbiome of naturalized Brazilian breeds Curraleiro Pé-Duro and Panta-neiro.
Nayana R. Soares1, Marilia C. Sola2, Clarice Gebara1,2, Giovana V. Barancelli2, Ozana F. Zaccaroni2, Maria Clarinda S. Fioravanti4, Edmar S. Niclau1, and Cintia S. Minafra-Rezende2, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2Unified Higher Education Institute, Objetivo Faculty, Goiânia, Goiás, Brazil, 3Department of Agro-Industry, Food and Nutrition, “Luiz de Queiroz” College of Agriculture, University of São Paulo, Piracicaba, São Paulo, Brazil, 4School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

Effect of farm interventions on sporeformers and milk quality.
Rhaisa A. Crespo*, Bismarck A. Martinez, Jayne Stratton, and Andreia Bianchini, University of Nebraska-Lincoln, Lincoln, NE.

Increasing producer profitability through farm-level interventions designed for optimization of spore counts in raw milk.
Rachel L. Evanowski*, David J. Kent, Nicole H. Martin, Kathryn J. Boor, and Martin Wiedmann, Cornell University, Ithaca, NY.

Sporulating behavior influences the population dynamics of sporeformers during raw milk holding.
Nancy Awasthi*, Sanjeev Anand1, and Gemechis Djira2, 1Midwest Dairy Food Research Center, Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Department of Mathematics and Statistics, South Dakota State University, Brookings, SD.

Feasibility of hydrodynamic cavitation, in line with HTST pasteurization, for inactivating sporeformers and spores in skim milk.
Pratibha Chaudhary*, Sanjeev Anand, and Sergio M. Monteaugudo, Midwest Dairy Foods Research Center, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Efficacy of sub-pasteurization thermal treatments to inactivate Salmonella, Shiga toxin-producing Escherichia coli (STEC), and Listeria monocytogenes in fluid milk.
Alex Emch*, Lisbeth Goddik, Jovana Kovacevic, and Joy Waite-Cusic, Oregon State University, Corvallis, OR.

Effect of freezing and hardening on injured versus intact cells of Listeria in ice cream mix.
Neha Neha*, Sanjeev Anand2, Brian Kraus2, and Suresh Sutariya2, 1South Dakota State University, Brookings, SD, 2Wells Enterprises Inc., Le Mars, IA.

Enhanced efficacy of nisin loaded zein microcapsules against Listeria monocytogenes in Queso Fresco.
Luis Alberto Ibarra-Sanchez*, Yiming Feng, Youngsoo Lee, and Michael J. Miller, University of Illinois at Urbana-Champaign, Champaign, IL.
M119  High-voltage atmospheric cold plasma on inactivation of *Listeria innocua* on Queso Fresco cheese.  
Zifan Wan*, S. K. Pankaj, Guo Li, and Kevin Keener, Iowa State University, Ames, IA.

M120  Screening of lipolytic, proteolytic, and antibacterial activities of lactic acid bacteria with biotechnological significance isolated from dairy products.  
Israel García-Cano*, Diana Rocha-Mendoza, Joana Ortega-Anaya, and Rafael Jiménez-Flores, The Ohio State University, Columbus, OH.

M121  Addition of *Lactobacillus paracasei* and *Lactobacillus rhamnosus* bacteria to yogurts for inhibition of yeast growth and improvement of their quality.  
Chul-Hong Kim1, Myoung Soo Nam1, and Young W. Park*3, 1Binggrae Company, Kyaunki-Do, South Korea, 2Chungnam National University, Deajeon, South Korea, 3Fort Valley State University, Fort Valley, GA.

M122  Growth of lactic acid bacteria in milk phospholipids enhances lipolysis and increases the possible absorption in Caco-2 cell line.  
Diana Rocha-Mendoza*, Israel García-Cano, Joana Ortega-Anaya, and Rafael Jiménez-Flores, The Ohio State University, Columbus, OH.

M123  Rapid method for measuring the effect of prebiotics on probiotic bacterial growth.  
Dana Hoffman*, Craig Oberg, and Matthew Domek, Weber State University, Ogden, UT.

M124  Flax seed enhances acid tolerance of *Streptococcus thermophilus* ST-M5.  
Ian Moppert*1 and Kayanush Aryana23, 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University Agricultural Center, Baton Rouge, LA.

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**Dairy Foods III**

M125  Isolation of protein fractions of serum of milk by preparative disc-electrophoresis.  
V. Yukalo*1, O. Tsitsaryk2, and K. Datsyshyn1, Ternopil Ivan Puluj National Technical University, Ternopil, Ukraine, 2Lviv National University of Veterinary Medicine and Biotechnology, Lviv, Ukraine.

M126  Combined effects of bovine casein or caprine casein and resveratrol on the chemical stability of α-tocopherol in sunflower oil-in-water emulsions.  
Adela Mora-Gutierrez*, Rahmat Attaie, Maryuri T. Nuñez de González, Yoonsung Jung, Jeneanne M. Kirven, and Selamawit Woldesenbet, Prairie View A&M University, Prairie View, TX.

M127  Interactions of micellar casein and β-Glucan as a functional ingredient in a model food system.  
Stelios Sarantis*, Farnaz Maleky, Rafael Jimenez-Flores, and Valente Alvarez, Department of Food Science and Technology, The Ohio State University, Columbus, OH.

M128  Inclusion of ground coffee to dairy cattle rations and its impact on the milk proteome.  
Mallory C. Honan*, Sarah L. Zeger1, David B. Ebenstein1, Ying-Wai Lam23, Jana Kraft1, Richard A. Scuderi1, and Sabrina L. Greenwood1, 1Department of Animal and Veterinary Sciences, The University of Vermont, Burlington, VT, 2Vermont Genetics Network Proteomics Facility, The University of Vermont, Burlington, VT, 3Department of Biology, The University of Vermont, Burlington, VT.

M129  Simultaneous texturization and extraction of phospholipids (STEP) from a dairy by-product (whey protein phospholipid concentrate) using ethanol.  
Nathan R. Price*, Tao Fei, Stephanie Clark, and Tong Wang, Iowa State University, Ames, IA.

M130  Effect of different phosphate mixtures and homogenization pressure on the particle size distribution of whole milk.  
Igor Lima de Paula1, Erica Felipe Mauricio1, Italo Tuler Perrone12, Antonio Fernandes de Carvalho*1, Luiz Fernando Cappa de Oliveira1, and Rodrigo Stephani1, 1Universidade Federal de Vícosa, Vícosa, MG Brazil, 2Universidade Federal de Juiz de Fora, Juiz de Fora, MG Brazil.

M131  Efficacy of local vitamin D-fortified dairy products versus oral vitamin D supplementation in Saudi adolescents.  
Nasser Al-Daghi*, Mohammed Ghouse Ahmed Ansari1, Shaun Sabico1, Yousef Al-Saleh2, Naji Aljohani3, Hanan Alfawaz1, Mohammed Alharbi1, Abdalaziz Al-Othman4, Majed Alokal5, and Sunil Wimalawansa6, 1King Saud University, Riyadh, Saudi Arabia, 2King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia, 3Ministry of Health, Riyadh, Saudi Arabia, 4Sehhati National Medical Company, Riyadh, Saudi Arabia, 5Cardio Metabolic Institute, New Jersey, NJ.
M132 Influence of milk pH on the manufacture of Licor de Oro, a beverage produced in Chiloé island, Chile.
Rodrigo A. Ibáñez*1, Marfa F. Muñoz1, Natalia Brossard1, Stefanie Wyhmeister1, Fernando Osorio2, and Einar Vargas-Bello-Pérez3, Pontificia Universidad Católica de Chile, Santiago, Chile, 2Universidad de Santiago de Chile, Santiago, Chile, 3University of Copenhagen, Copenhagen, Denmark.

M133 Use of the simplex-centroid mixture design to development of whey fermented beverages with buttermilk and Brazilian Cerrado fruit.
Renata T. Pfirmer*1, Lohanne Damasceno1, Claudio F. Cardoso1, Fernanda A. Freitas1, Eli Regina B. de Souza2, Emmanuel Arnhold3, Edmar S. Nicolau1, and Clarice Gebara1, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil, 3School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

M134 Effects of polymerized whey protein on goaty flavor and texture properties of goat milk yogurt in comparison with β-cyclodextrin.
Ce Wang*3, Cuina Wang3, Feng Gao3, Yanyang Xu3, and Mingruo Guo1, 1University of Vermont, Burlington, VT, 2Northeast Agriculture University, Harbin, Heilongjiang, China.

M135 The role of hydrocolloids and saliva in rheological behavior and texture perception of yogurt.
Maryam Baniasadidehkordi and Helen S. Joyner (Melito)*, University of Idaho, Moscow, ID.

M137 Storage stability of commercial powder goat milk in relation to changes in physico-chemical properties under different temperature and time treatments.
Brittany I. Davis, Roshan Paswan*, Aftab Siddique, and Young W. Park, Fort Valley State University, Fort Valley, GA.

M138 Effect of relative humidity and storage temperature on the physical, chemical, and thermal properties of deproteinized whey powders.
Priyamvada Thorakkattu* and Jayendra K. Amamcharla, Kansas State University, Manhattan, KS.

M139 Impact of supercritical fluid extraction with CO2 on milk powders.
Sowmyanarasimhan Sreenivasaraghavan* and Rafael Jimenez-Flores, The Ohio State University, Columbus, OH.

M140 Effect of storage temperature and protein content on the flowability and morphological characteristics of milk protein concentrate powders.
Karthik Sajith Babu*1, Kaliramesh Siliveru1, Jayendra K. Amamcharla1, Praveen V. Vadlani1, and Kingsly Ambrose2, 1Kansas State University, Manhattan, KS, 2Purdue University, West Lafayette, IN.

M141 Freezing point determination of raw milk using Fourier-transform infrared spectroscopy (FTIR).

M142 Management tools for monitoring milk quality in dairy industries.
V. M. Araújo1, A. H. N. Rangel**, S. B. P. Barbosa1, A. M. V. Batista1, and J. G. B. Galvão Jr.3, 1Universidade Federal Rural de Pernambuco, Recife, PE, Brazil, 2Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, 3Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil.

M143 Refrigerated raw milk quality among dairy processors in northeastern Brazil.
V. M. Araújo1, A. H. N. Rangel**, S. B. P. Barbosa1, J. G. B. Galvão Jr.2, and A. M. V. Batista3, 1Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, 2Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, 3Universidade Federal Rural de Pernambuco, Recife, PE, Brazil.

M144 Transcriptome analysis revealed that aflatoxin M1 causes cell cycle arrest in differentiated Caco-2 cells.
X. Y. Bao1, Y. N. Gao1, Jiaqi Wang*1, and Nan Zheng1, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2College of Animal Science and Technology, Huazhong Agricultural University, Wuhan, China.

M145 Combined intestine toxicity effects of aflatoxin (AFlB, and AFM1 in mice.
Muchen Zhang1,2, Nan Zheng1,2, and Jiaqi Wang*1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.
Prevalence, antimicrobial susceptibility, and molecular characterization of Staphylococcus aureus isolated from different raw milks in China.
Huimin Liu1,2, Lu Meng1,2, Lei Dong1,2, Nan Zheng1,2, and Jiaqi Wang*1,2, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

The effect of furosine on gut microflora in ICR mice model.
Nan Zhao1,2, Huiling Li2, Nan Zheng1,2, Jiaqi Wang*1,2, and Jianbo Cheng1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

An UPLC method for the quantitation of furosine in liquid milk.
Fengen Wang1,2, Yangdong Zhang1,2, Nan Zheng1,2, Fang Wen1,4, Peng Li1,4, Qian Wang1,2, Bingyao Du1,2, Guoxin Huang1,2, Weiyong Du1,2, and Jiaqi Wang*1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 3Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 4Milk and milk product Inspection Center of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Intestinal cells exposed to different thermo treated bovine milk exhibited diverse gene expressive pattern.
Huaigu Yang1,2, Nan Zheng1,2, and Jiaqi Wang*1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Extension Education I

Bringing research to the farm: How producers adopted new practices following an on-farm calf management workshop.
Debora E. Santschi*, Steve Adam, and Daniel M. Lefebvre, Palacta, Ste-Anne-de-Bellevue, QC, Canada.

Factors associated with variation in dry period length.
Pornpamol Pattamanont* and Albert De Vries, Department of Animal Sciences, University of Florida, Gainesville, FL.

On-farm bacteriologic milk culturing: Producer perception and decision impact.
Brittany L. Bowman, Marina D. Denny, and Amanda E. Stone*, Mississippi State University, Starkville, MS.

Semillas program: Engaging dairy farm workers’ youth to the dairy industry.
Maristela Rovai*1 and Donna Bittiker2, and Alvaro Garcia1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2-H Program, South Dakota State University, Brookings, SD.

Needs assessment for Cooperative Extension dairy programs in California.
J. P. N. Martins*1, B. Karle2, and J. Heguy1, 1University of California Agriculture & Natural Resources, Tulare, CA, 2University of California Agriculture & Natural Resources, Glenn, CA, 3University of California Agriculture & Natural Resources, Modesto, CA.

Silage safety: Preventing serious injury and fatality accidents involving machinery.
K. K. Bolsen*1 and R. R. Bolsen1, 1Kansas State University, Manhattan, KS, 2Keith Bolsen Silage Safety Foundation, Austin, TX.

Employee training and updated chemical sanitation may be insufficient for resolution of post-pasteurization contamination in HTST fluid milk plants.
Samuel J. Reicher1, Sarah I. Murphy1, Tony Erickson2, Nicole H. Martin1, Kathryn J. Boor1, and Martin Wiedmann1, 1Cornell University, Ithaca, NY, 2Ecolab Inc., Eagan, MN.

Survey of top-producing Jersey Herds in the United States.
Sarah Y. Morrison*1, Kristen M. Glosson1, James. H. Baltz1, Michael F. Hutgens1, and Cari W. Wolfe3, 1University of Illinois, Urbana, IL, 2American Jersey Cattle Association, Reynoldsburg, OH.
Forages and Pastures I

M158 Effects of floury and brown midrib corn varieties treated with foliar fungicide on whole-plant corn silage quality fed to lactating Holstein cows. Laura J. Wente*, 1, Maegan E. Weatherly, 1, Russell T. Pate, 1, Matt S. Akins, 1, and Felipe C. Cardoso, 1, 2University of Illinois, Urbana, IL, 3University of Wisconsin-Madison, Marshfield, WI.

M159 Foliar fungicide application effects on fiber composition of whole plant BMR and floury corn varieties and corn silage ensiled for 0, 30, 90, or 150 days. Maegan E. Weatherly*, 1, Russell T. Pate, 1, Laura Hedges, 1, Santiago Mideros, 1, Gary M. Fellows, 1, Matt Akins, 1, Michael R. Murphy, 1, and Felipe C. Cardoso, 1, 2University of Illinois, Department of Animal Sciences, Urbana, IL, 3University of Illinois, Department of Crop Sciences, Urbana, IL, 4B.A.S.F. Corp., Research Triangle Park, NC, 5University of Wisconsin-Madison, Marshfield, WI.


M161 Dry matter yield, nutritive value, and ensilability of triticale harvested at 3 maturity stages and 2 cutting times in Los Altos de Jalisco, Mexico. Carlos H. Blanco Castellanos*, 1, José I. Olmos Colmenero, 1, Francisco E. Contreras-Govea, 1, and Michel A. Wattiaux, 1Departamento de Ciencias Pecuarias y Agrícolas, Centro Universitario de Los Altos de la Universidad de Guadalajara, Tepatitlán, Jalisco, México, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

M162 Effects of growth stage on quality characteristics of triticale forages. Wayne K. Cobelentz*, 1, Matthew S. Akins, 1, Kenneth F. Kalscheur, 1, Geoffrey E. Brink, 1, and Jason S. Cavadi, 1US Dairy Forage Research Center, Marshfield, WI, 2University of Wisconsin-Madison, Madison, WI, 3US Dairy Forage Research Center, Madison, WI.


M164 Nutrient composition and fermentation characteristics of sorghum preserved as silage in California. Jennifer M. Heguy*, 1, Joao Paulo Martins, 1, Nicholas E. Clark, 1, and Deanne Meyer, 1University of California Agriculture & Natural Resources, Modesto, CA, 2University of California, Davis, Davis, CA, 3University of California Agriculture & Natural Resources, Tulare, CA.

M165 Effect of bacterial inoculants containing Lactobacillus buchneri and/or Lactobacillus hilgardii on the fermentation and quality of sorghum silage. Kathy G. Arriola, 1, Diwaker Vyas, 1, Donghyeon Kim, 1, Marielle C. Garussi, 1, Vanessa P. Silva, 1, Juan M. Flores, 1, Yun Jiang, 1, Andres A. Pech-Cervantes, 1, and Adebola T. Adesogan, 1University of Florida. Department of Animal Sciences, Gainesville, FL.

M166 Comparing leaf:stem ratio and stem characteristics between reduced lignin and conventional alfalfas over a growth cycle. Derek M. Donnelly*, 1, João R. R. Dórea, 1, Caleb W. Karls, 2, Daniel M. Schaefar, 2, Daniel J. Undersander, 2, and David K. Combs, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 3Department of Animal Science, University of Wisconsin-Madison, Madison, WI.

M167 Evaluation of a microbial inoculant isolated from ruminal contents on corn silage fermentation parameters. Ezequias Castillo-Lopez*, 1, Siera Rohde, 1, Samodha C. Fernando, 1, and Paul J. Kononoff, 1Universidad Nacional Autonoma de Mexico, Cuautitlan, Mexico, Mexico, 2University of Nebraska-Lincoln, Lincoln, NE.


M169 Growth rate and biomass accumulation of mucuna (Mucuna pruriens), centrosema (Centrosema pubescens), gliricidia (Glicidica sepium), and leucaena (Leucaena leucocephala). A. B. Afe, 1, A. H. Ekeocha, 1, and A. A. Aganga, 2Federal University Oye-Ekiti, Oye-Ekiti, Ekiti State, Nigeria.
Lactation Biology I

M170 Chemical composition and kinetics of in vitro ruminal degradation of savoy grass (Panicum maximum Jacq.) silage with the tropical fruit residues.

M171 Effect of treating alfalfa fibrous residue silages with corn flour or apple pomace on fermentation quality, nutritive value, and proteolysis.
Yan L. Yue*, Yun Jiang, Diwaker Vyas, Lin Sun, Guo M. Yin, Yuan Y. Zhang, Si. B. Liu, Zhu Yu, Qi Z. Sun, and Adegbola T. Adesogan, 1Inner Mongolia Academy of Agriculture and Animal Husbandry Sciences, Hohhot, Inner Mongolia, China, 2Department of Animal Sciences, University of Florida, Gainesville, FL, 3Department of Animal Sciences, China Agricultural University, Beijing, China, 4Institute of Grassland Research, Chinese Academy of Agricultural Sciences, Hohhot, Inner Mongolia, China.

M172 SESN2 negatively regulates cell proliferation and casein synthesis by inhibition the amino acid-mediated mTORC1 pathway in cow mammary epithelial cells.
Chaochao Luo, Shengguo Zhao, Muchen Zhang, Yanan Gao, Mark D. Hanigan, and Nan Zheng, 1College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, China.

M173 Tea polyphenols protect bovine mammary epithelial cells from hydrogen peroxide-induced oxidative damage by activating the NFE2L2/HMOX-1 pathway.
Yanfen Ma, Lei Zhao, Min Gao, and Juan J. Loor, 1Institute of Animal Nutrition and Feed, Inner Mongolia Academy of Agriculture and Animal Husbandry Sciences, Hohhot, Inner Mongolia, China, 2Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.

M174 Effect of temporary cessation of milking for 3 days on innate immune components in goat milk.
Naoki Isebo*, Jo Ueda, and Yukinori Yoshimura, Hiroshima University, Hiroshima, Japan.

M175 Heat stress and OmniGen-AF alter mammary gland gene expression and endocrine responses in the dry period.

M176 A novel method for predicting mammary glands’ function by measuring their metabolic activities.
Yao Xiao*, and Benjamin Renquist, University of Arizona, Tucson, AZ.

M177 In-depth discovery of milk proteomes and detection of biomarkers using SWATH mass spectrometry.
Lorenzo E. Hernández-Castellano, Emake Bendixen, 1Department of Animal Science, Aarhus University–Foulum, Tjele, Denmark, 2Department of Molecular Biology and Genetics, Faculty of Science and Technology, Aarhus University, Aarhus, Denmark.

M178 Palmitic acid increased the gene expression of lipogenic genes from the de novo milk fat synthesis pathway in cultured mammary explants from lactating dairy ewes.
Priscila C. Carraro, Evelyn D. Da Silva, Maurício Camêra, and Dimas E. Oliveira*, Santa Catarina State University, Lages, Santa Catarina, Brazil.

M179 Impact of different methods at dry-off on cure rate and new intramammary infections in the dry period.
A. I. de Prado-Taranilla, K. Krogh, A. Pearn, and A. Antona, 1Ceva Sante Animale, Libourne, France, 2Dairy Data Warehouse, Assen, the Netherlands.

M180 Distribution of prevalence of cows leaking milk after dry-off in different countries.
A. I. de Prado-Taranilla*, M. Holstege, A. Bach, Y. H. Schukken, and A. Velthuis, 1Ceva Sante Animale, Libourne, France, 2GD Animal Health, Deventer, the Netherlands, 3ICREA, Barcelona, Spain, 4Department of Ruminant Production, IRTA, Barcelona, Spain.
Adaptive responses of Mérinos d’Arles adult ewes submitted to nutritional and β-adrenergic challenges.
Ellen González-García*, Moutaz Alhamad*, Nathalie Debus*, Jean-Baptiste Menassol*, Jéssica Gonçalves Vero*, Bruna Barboza†, and François Bocquier,† SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), INRA, Montpellier SupAgro, CIRAD, Université Montpellier, Montpellier, France, SELMET, Montpellier SupAgro, CIRAD, INRA, Univ Montpellier, Montpellier, France, †Universidade Estadual de Londrina (UEL), Centro de Ciências Agrárias, Londrina, Paraná, Brazil.

Physiologic responses to feeding rumen-protected glucose to lactating dairy cows.
Julie A. Sauls*,†, Sebastián Banelos‡, Branko Atanasov*,‡, Lance H. Baumgard†, Barry J. Bradford†, and Jeffrey S. Stevenson*,† Kansas State University, Manhattan, KS, ‡Ss. Cyril and Methodius University, Skopje, Republic of Macedonia, †Iowa State University, Ames, IA.

Dose-frequency of prostaglandin F2α treatment of dairy cows exposed to presynchronization and either 5- or 7-d Ovsynch program durations: Ovulatory, luteolytic, and pregnancy risks.
Jeffrey S. Stevenson*, Julie A. Sauls, Luís G. D. Mendonça, and Benjamin E. Voelz, Kansas State University, Manhattan, KS.

Relationship between air and vaginal temperatures in wild type and slick-haired Puerto Rican Holstein cows.
Héctor Sánchez-Rodríguez* and Katherine Domenech-Pérez, University of Puerto Rico, Mayaguez Campus, Mayaguez, Puerto Rico.

Sodium propionate and sodium butyrate effects on histone deacetylase (HDAC) activity, histone H3 acetylation, and inflammatory gene expression in bovine mammary epithelial cells.
Lorrayny Galoro da Silva*,†, Bradley Ferguson‡, Andre Sanches Avila*, and Antonio Faciola,‡ University of Florida, Gainesville, FL, ‡University of Nevada, Reno, NV, †Universidade Estadual do Oeste do Parana, Marechal Cândido Rondon, PR, Brazil.

Contribution of hormone-sensitive lipase to adipose tissue lipolysis and its regulation by insulin in periparturient dairy cows.
Jenne De Koster*, Rahul Nelli*, Clarissa Strieder-Barboza*, Jonas de Souza*, Adam L. Lock*, and G. Andres Contreras*,† Department of Large Animal Clinical Sciences, Michigan State University, East Lansing, MI, †Department of Animal Science, Michigan State University, East Lansing, MI.

The oxidized linoleic acid metabolite 13-hydroxyoctadecadienoic acid modulates lipolysis in bovine adipose tissue and adipocytes.
G. Andres Contreras*, Sarah LaTendresse, Jenne De Koster, Clarissa Strieder-Barboza, Jonas De Souza, and Adam L. Lock, Michigan State University, East Lansing, MI.

In vitro adipogenic differentiation of subcutaneous primary bovine preadipocytes: A coculture model.
Clarissa Strieder-Barboza*, Eileen Thompson, Kyan Thelen, and G. Andres Contreras, Department of Large Animal Clinical Sciences, Michigan State University, East Lansing, MI.

Osteopontin expression dynamics link macrophage infiltration and lipolysis intensity in adipose tissues of periparturient cows.
Eileen Thompson*, Clarissa Strieder-Barboza, Jonas de Souza, Rahul Nelli, Jenne De Koster, Adam Lock, and Andres Contreras, Michigan State University, East Lansing, MI.

The adipocyte marker FABP4 is most prominently induced by combined supplementation of ascorbic acid and bovine serum lipids in cultured bovine adipocytes.
Sandra Jurek*, Mansur A. Sandhu*, Martin Kolisek*, Gerhard Sponder*, and Joerg R. Aschenbach*, Institute of Veterinary Physiology, Berlin, Germany, †PMAS-Arid Agriculture University, Rawalpindi, Pakistan, ‡Comenius University Bratislava, Bratislava, Slovakia.

Effects of fully acidified close-up diets and dietary calcium content on in vitro innate immune function in transition dairy cows.
Xiangfei Zhang*, Kristen M. Glosson*, Scott S. Bascom*, Angie D. Rowson*, and James K. Drackley*, Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chengdu, Sichuan, China, ‡University of Illinois, Department of Animal Sciences, Urbana, IL, ‡Phibro Animal Health Corp., Teaneck, NJ.

Effects of fully acidified close-up diets and dietary Ca content on urinary mineral excretion in transition dairy cows.
Kristen M. Glosson*, Xiangfei Zhang*, Scott S. Bascom*, Angie D. Rowson*, and James K. Drackley*, University of Illinois, Department of Animal Sciences, Urbana, IL, †Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chengdu, Sichuan, China, ‡Phibro Animal Health Corp., Teaneck, NJ.
Production, Management, and Environment I

M201 Assessment of heat and methane production through infrared thermography in mid-lactation dairy cows.
Anne R. Guadagnin¹, Vivian Fischer², Joao P. Matiello³, Luiz G. R. Pereira³, and Fernanda S. Machado³, ¹Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil, ²Empresa Brasileira de Pesquisa Agropecuaria, Juiz de Fora, MG, Brazil.

M202 Effect of a combination of natural additives to support milk production without harming the environment.
André Pastori D'Aurea¹, Lauriston Bertelli Fernandes¹, Ricardo Ferreira Godinho¹, Guillaume Desrousseaux², and Rodrigo Tozetto², ¹Research Center-Premix Company, Patrocínio Paulista, São Paulo, Brazil, ²Laboratoires Phodé, Terssac, France, ³State University of Minas Gerais, Passos, Minas Gerais, Brazil.

M203 Effect of the forest biomass as bedding material on bacterial counts in compost bedded pack for dairy cows.
Lourdes Lloch¹, Lorena Castillejos, Xavier Manteca, and Alfred Ferret, Animal Nutrition and Welfare Service (SNIBA), Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.

M204 Whole-farm economic and environmental impact of feeding strategies to decrease the enteric CH₄ emissions on Canadian dairy farms.
Jose Velarde-Guillén¹, Doris Pellerin¹, Chaouki Benchaar², and Édith Charbonneau³, ¹Université Laval, Quebec, QC, Canada, ²Agriculture ans Agri-Food Canada, Sherbrook, QC, Canada.

M205 Development of an equation to estimate the enteric methane emissions from Canadian Holstein dairy cows.
Jose Velarde-Guillén¹, Doris Pellerin¹, Chaouki Benchaar², Michel A. Wat tiaux³, and Édith Charbonneau³, ¹Université Laval, Quebec, QC, Canada, ²Agriculture ans Agri-Food Canada, Sherbrook, QC, Canada, ³University of Wisconsin-Madison, Madison, WI.

M206 Whole-farm nitrogen and phosphorus balance of intensive dairies in central Mexico.
Omar I. Santana¹,² and Michel A. Wattiaux³, ¹Department of Dairy Science. University of Wisconsin-Madison, Madison, WI, ²INIFAP, Pabellon, Aguascalientes, Mexico.

M207 Comparison of Holstein and Jersey milk production with a new stochastic animal model.
M. Li¹, V. E. Cabrera¹, and K. F. Reed², ¹Department of Dairy Sciences, University of Wisconsin, Madison, WI, ²USDA-ARS Dairy Forage Research Center, Madison, WI.
An assessment of different modelling strategies to predict milk fatty acid content using Fourier-transform infrared spectroscopy.

M209 Use of 3-dimensional camera to predict body weight in pre-weaned dairy calves.

M210 Modeling the effects of heat stress in different zones of Spain and the technical and economic impact of cooling systems.
Oscar R. Espinoza* and Sergio Calsamiglia, Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain.

M211 Using milk somatic cell score to predict of milk yield losses of organic dairy farms in the northeast United States.
J. G. B. Galvão Jr., A. H. N. Rangel**, A. F. Brito, J. B. A. Silva, A. F. Benson, A. N. Hafla, H. M. Darby, K. J. Soder, R. Kersbergen, and V. Brossillon, 1Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, 2Universidade Federal do Rio Grande do Norte, Maceió, RN, Brazil, 3University of New Hampshire, Durham, NH, 4Universidade Federal Rural do Semiárido, Mossoró, RN, Brazil, 5Cornell University Cooperative Extension, Cortland, NY, 6USDA-ARS, University Park, PA, 7University of Vermont, St. Albans, VT, 8University of Maine, Orono, ME, 9Ecole Supérieure d’Agricultures, Angers, France.

M212 Characterization of dairy farm management practices for mastitis control by use of multiple correspondence analysis.

M213 Use of a stochastic simulation model to estimate digital dermatitis, sole ulcer, and white line disease cost per case by severity, incidence timing, and parity group in dairy cattle.
Karmella A. Dolecheck*, Michael W. Overton, Tyler B. Mark, and Jeffrey M. Bewley, 1University of Kentucky, Lexington, KY, 2Elanco Animal Health, Greenfield, IN, 3CowFocused Housing, Bardstown, KY.

M214 A survey of United States dairy hoof care professionals on costs associated with treatment of hoof diseases.
Karmella A. Dolecheck*, Roberta M. Dwyer, Michael W. Overton, and Jeffrey M. Bewley, 1University of Kentucky, Lexington, KY, 2Elanco Animal Health, Greenfield, IN, 3CowFocused Housing, Bardstown, KY.

M215 A case study on the effect of barn type on milk yield and income over feed cost in commercial dairy farms in Argentina.
F. Bargo*, J. L. Monge, E. Giugge, and C. Chiavassa, 1Universidad de Buenos Aires, Buenos Aires, Argentina, 2Grupo Chiavassa, Carlos Pellegrini, Argentina, 3Universidad Nacional de Villa Maria, Villa Maria, Argentina.

Reproduction I

M216 Impact of estrous expression on progesterone concentrations and its association with fertility.
A. M. L. Madureira*, T. A. Burnett, J. L. M. Vasconcelos, and R. L. A. Cerri, 1University of British Columbia, Vancouver, BC, Canada, 2University of São Paulo State University, Botucatu, São Paulo, Brazil.

M217 Fertility response to commercially available GnRH products in lactating cows synchronized with the Double-Ovsynch protocol.
Max Luchterhand, C. A. Gamarra, Rodrigo S. Gennari, Jerry N. Guenther, Paulo D. Carvalho, Alexandre H. Souza, and Rafael V. Barletta, 1Elastive Hill dairy, Madison, WI, 2Independent Dairy Consultant, Madison, WI, 3Animal Reproduction Department, VRA-USP University, Sao Paulo, SP, Brazil.

M218 Reproductive performance of lactating dairy cows managed with the Short-Resynch or the Day25-Resynch protocol.
Robert Wijma*, Martin M. Pérez, Emily M. Sitko, Matteo Scarbolo, Froylan Sosa Hernandez, and Julio O. Giordano, Cornell University, Ithaca, NY.

M219 Effects of intrauterine infusion of seminal plasma at artificial insemination on fertility of lactating Holstein cows.
William G. Ortiz*, Jason A. Rizo, Luciano R. Carvalheira, Eliab C. Estrada, Bo R. Harstine, John J. Bromfield, and Peter J. Hansen, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Dept. de Clinica e Cirurgia Veterinárias, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil, 3Select Sires Inc., Plain City, OH.
Association among calving season, milk yield, and body condition score during the dry period and pregnancy at first artificial insemination in Argentinian dairy herds.
Pedro Melendez*, 1, Fernando Bargo, 1, Gonzalo Tuñón, 1, and Juan Grigera, 1, College of Veterinary Medicine, University of Missouri, Columbia, MO, 2Universidad de Buenos Aires, Buenos Aires, Argentina, 1INIA, Uruguay, 2Private consultant, Argentina.

Maximizing inseminations at detected estrus for second and greater services in lactating dairy cows.
Magdalena Masello*1, Bob Cegłowski2, Mark J. Thomas2, and Julio O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Dairy Health and Management Services, Lowville, NY.

Association between hoof lesions and fertility of dairy cows.
Bobwealth O. Omontese**, Roger Bellet-Elias1, Almudena Molinero1, Giovana D. Catandi1, Renan Casagrande1, Zelmar Rodriguez2, Rafael S. Bisinotto2, and Gerard Cramer1, 1Department of Veterinary Population Medicine, University of Minnesota, St. Paul, MN, 2Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL.

Prevalence of purulent vaginal discharge in dairy herds depends on timing but not method of diagnosis—A meta-analysis.
Alessandro Ricci**, Kristen Reed1, and Osvaldo Pascottini1, 1DPT Science Veterinaria, University of Torino, Torino, Italy, 2USDA-Agricultural Research Service, US Dairy Forage Research Center, Madison, WI, 1Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

Bellowing and vaginal discharge as secondary symptoms of estrus detection for successful insemination of dairy cattle in tie-stall barns in a tropical environment.
Siribhorn Kanwichai**, Sasithorn Panasophonkul1, P. L. A. M. Vos2, and Witaya Suriyasathaporn1, 1Department of Food Animal Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand, 2Department of Companion Animal and Wildlife Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand, 1Departments of Farm Animal Health, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands.

Ruminant Nutrition I

Feeding regime does not affect estimation of daily urine output but it affects estimation of total purine derivatives excretion in spot urinary sampling.
Kristina Kjak¢1, Felipe Pino2, and Arlyn J. Heinrichs3, 1Department of Animal Nutrition, Faculty of Agriculture, University of Zagreb, Zagreb, Croatia, 2Department of Animal Science, The Pennsylvania State University, University Park, PA.

Rumen-protected lysine prototype supplementation increased milk production in lactating dairy cows.
Hannah R. Bailey*1, Jeffrey D. Kaufman1, Barbara Barton2, Clay Zimmerman2, Kari Estes2, and Agustin G. Rius1, 1University of Tennessee, Knoxville, TN, 2Balchem Corp., New Hampton, NY.

Ingestive behavior of Holstein dairy cows grazing temperate pasture versus TMR fed in confinement: daily pattern.
J. P. Soutto*1, P. Gile1, A. L. Astessiano2, M. Carriquiry1, P. Chilibroste1, and A. I. Trujillo1, 1Facultad de Agronomía, UDELAR, Montevideo, Uruguay, 2Facultad de Agronomía, UNCPBA, Azul, Argentina.

Ingestive behavior of Holstein dairy cows grazing temperate pasture vs. TMR fed in confinement: First daily eating event.
A. I. Trujillo1, J. P. Soutto1, P. Gile1, A. L. Astessiano2, M. Carriquiry1, and P. Chilibroste1, 1Facultad de Agricultura, UDELAR, Montevideo, Uruguay, 2Facultad de Agronomía, UNCPBA, Azul, Argentina.

Effects of pulse-dose intraruminal butyrate infusion on glucagon-like peptide 2 in dairy calves.
Bayissa Hatew1, **Yudai Inabu1, 1Toshihisa Sugino2, and Michael Steele1, 1University of Alberta, Edmonton, AB, Canada, 2Hiroshima University, Graduate School of Biosphere Science, The Research Center for Animal Sciences, Higashi-Hiroshima, Hiroshima, Japan.

Effect of corn silage with highly digestible starch on dry matter intake, daily gain, milk production and blood component of lactating cows.
Naruhisa Nishizawa*, Kei Obata1, Hiroshi Kubozono1, Akito Saegusa1, and Yusuke Murai1, 1ZEN-RAKU-REN, Nishi-shirakawa, Fukushima, Japan, 2Kaneko Seeds Co. Ltd. Kunisada Breeding Station, Isesaki-City, Gunma, Japan.

Effects of feeding purple corn silage (Zea mays L.) on productivity and antioxidant function of lactating cows.
Takashi Matsuba**, Hiroshi Kubozono1, Akito Saegusa1, Kei Obata1, Kazumi Gotoh2, Kazuyoshi Miki2, and Takanori Akiyama3, 1ZEN-RAKU-REN, Nishi-shirakawa, Fukushima, Japan, 2Nagano Animal Industry Experiment Station, Nagano, Japan, 3Takii & Co. Ltd, Kyoto, Japan.
M232 Change in feeding strategy affects intake, rumination behavior, and ruminal pH pattern in dairy cows.
Damiano Cavallini*, Ludovica Mammi†, Alberto Palmonari†, Mattia Fustini†, Jud Heinrichs‡, and Andrea Formigoni§, 1University of Bologna, Ozzano Emilia, BO, Italy, 2Pennsylvania State University, University Park, PA.

M233 Effect of age and physical form of oats within calf starter on hepatic enzyme expression in pre-weaned dairy calves.
Ghazanfar Ali Chishti*, Issac Salfer†, Javier Suarez-Mena‡, and Aryln Jud Heinrichs§, 1The Pennsylvania State University, University Park, PA, 2Provinci North America, Brookville, OH.

M234 The factors affecting the milk urea nitrogen concentration in Chinese Holstein cows.
Hongrui Jiang, Mingxun Li, Zhi Chen, ZhangPing Yang, and Huimin Zhang*, College of Animal Science and Technology, Yangzhou University, Yangzhou, Jiangsu, China.

M235 Assessing three levels of a rumen-protected methionine prototype on dairy cow performance.
Amanda M. Barnard*, MacKenzie Conklin†, Kari Estes‡, Barbara A. Barton§, Clay Zimmerman¶, and Tanya F. Gressley∥, 1Department of Animal and Food Sciences, College of Agricultural and Natural Resources, University of Delaware, Newark, DE, 2Balchem Corp., New Hampton, NY.

M236 Validating and optimizing spot sampling of urine to estimate urine output using creatinine in dairy cows.
Chanhee Lee*, Dennis L. Morris, and Phyllis A. Dieter, Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH.

M237 Effect of protein supplementation on performance of crossbred dairy cows grazing tropical pasture.
Jose Antonio Freitas*, Ciro Amoral Bittencourt†, Alexandre Michelon Herzog‡, and Veridiana Lourenco Daley§, 1Federal University of Paraíba, Palotina, Brazil, 2University of Kentucky, Lexington, KY.

M238 The effect of fructose infusion on dry matter intake in dairy cattle.
Roni Yair*, Sameer J. Mabjesh‡, and Michael S. Allen§, 1Department of Animal Science, Michigan State University, East Lansing, MI, 2Department of Animal Science, Faculty of Agriculture, The Hebrew University, Rehovot, Israel.

M239 Stability of different rumen-protected lysine products in total mixed rations.
Toshihisa Sugino*, Saki Ishimaru†, Maki Nakamura‡, Hidetada Funo§, and Takeo Obitsu∥, 1The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan, 2Shimane Prefectural Livestock Technology Center, Izumo, Japan.

M240 Use of indirect calorimetry to study energy utilization in lactating Jersey dairy cattle consuming distillers dried grains with solubles or canola meal.
Mickayla A. Myers†, Jared V. Judy‡, Kevin J. Herrick§, Allison L. Knoll∥, and Paul J. Kononoff‡, 1University of Nebraska-Lincoln, Lincoln, NE, 2POET Nutrition LLC, Sioux Falls, SD.

M241 Palatability of total mixed rations containing 3-nitrooxypropanol for lactating dairy cows.
A. Meigard*, K. Nedeltsov, C. M. M. R. Martins†, K. C. Welter‡, X. Chen§, M. T. Harper∥, S. Duval¶, and A. N. Hristov∥, 1The Pennsylvania State University, University Park, PA, 2Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria, 3University of São Paulo, Pirassununga, Brazil, 4College of Pastoral Agriculture Science and Technology, Lanzhou University, China, 5Research Centre for Animal Nutrition and Health, DSM Nutritional Products, France.

M242 Exogenous enzymes on performance and rumen function of mid-lactation dairy cows.
Elissandra Maiara de Castro Zilio†, Tiago Antônio Del Valle§, Lucas Ghedin Ghizzi∥, Mauro Sergio Silva Dias¶, Alanne Tenório Nunes§, Nathalia Trevisan Scognamiglio Grigoletto∥, Guilherme Gomes da Silva§, Tássia Barrera da Paula e Silva∥, Júlia Avansi Marques‡, Daniel Graugnard§, and Francisco Palma Rennô¶, 1Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil, 2Alltech Inc., Nicholasville, KY.

M243 Effects of microalgae on intake and milk yield, composition and fatty acids profile of dairy cows.
Julia Avansi Marques†, Tiago Antônio Del Valle§, Lucas Ghedin Ghizzi∥, Mauro Sergio Silva Dias¶, Alanne Tenório Nunes‡, Nathalia Trevisan Scognamiglio Grigoletto∥, Larissa Schneider Gueller~1, Tássia Barrera de Paula e Silva§, Elissandra Maiara de Castro Zilio†, Guilherme Gomes da Silva§, Leandro Kurita∥, and Francisco Palma Rennô¶, 1Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil, 2Alltech do Brasil, Araucária, Paraná, Brazil.

M244 Intake, digestibility and milk production in mid-lactation dairy cows fed exogenous enzymes.
Elissandra Maiara de Castro Zilio†, Tiago Antônio Del Valle§, Lucas Ghedin Ghizzi∥, Alanne Tenório Nunes‡, Mauro Sergio Silva Dias¶, Nathalia Trevisan Scognamiglio Grigoletto∥, Guilherme Gomes da Silva§, Larissa Schneider Gueller~1, Anne Koontzz, and Francisco Palma Rennô¶, 1Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil, 2Alltech Inc., Nicholasville, KY.
Supplementing aluminosilicate clay on the reduction of aflatoxin M₁ in milk and biomarkers of liver function in dairy cows.
Emily H. Branstad*, Carrie S. McCarthy¹, Brooke C. Dooley¹, Sydney M. Rous¹, Carlos Domenech¹, Julia Pie², George E. Rottinghaus¹, Erin Bowers¹, Lance H. Baumgard², and Hugo A. Ramirez-Ramirez², ¹Iowa State University, Ames, IA, ²Biovet S.A., Tarragona, Spain, ³University of Missouri, Columbia, MO.

Effects of molasses and corn grain at 2 levels of ruminally degradable protein on lactating cow ruminal fermentation and rumen content mass.
Geoffrey I. Zanton* and Mary Beth Hall, USDA-Agricultural Research Service; Dairy Forage Research Center, Madison, WI.

Effects of molasses and corn grain at 2 levels of ruminally degradable protein on lactating cow performance.
Mary Beth Hall* and Geoffrey I. Zanton, U.S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

The effect of dietary supplementation of yeast culture on the lactation performance of crossbred dairy cattle.
Ellisa M. Jimenez**, Lea A. Kinman², William B. Smith¹, Shelby A. Armstrong¹, and Barbara W. Jones¹,², ¹Department of Animal Science and Veterinary Technology, Tarleton State University, Stephenville, TX, ²Texas A&M AgriLife Research, Stephenville, TX, ³Phibro Animal Health, Teaneck, NJ.

Effect of betaine supplementation on total-tract digestibility and production performance in mid-lactating Holstein dairy cows.
Hao-Che Hung*, Chia-Yu Tsai¹, Gwinyai Chibisa¹, Mireille Chahine¹,², Mark McGuire¹, and Pedram Rezamand¹, ¹Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, ²Twin Falls Research and Extension Center, Twin Falls, ID.

Physical characterization of palmitic acid supplements of varying enrichment.
Richard Shepardson*, Ekaterina Bazilevskaya, and Kevin Harvatine, Penn State University, University Park, PA.

Performance and metabolism of multiparous Holstein dairy cows as affected by corn silage type and supplementation with monensin throughout the transition period.

Evaluation of eight prototypes of rumen-protected lysine on performance of lactating Holstein cows.
M. I. Rivelli*, M. J. Cecava¹, P. H. Doane², and F. C. Cardoso³, ¹University of Illinois, Urbana, IL, ²ADM Research Division, Decatur, IL.

Effects of a novel rumen-undegradable protein source on nitrogen utilization in lactating Holstein cows.
M. I. Rivelli*, M. J. Cecava¹, P. H. Doane², and F. C. Cardoso³, ¹University of Illinois, Urbana, IL, ²ADM Research, Decatur, IL.

Effects of eight rumen-protected lysine prototypes on plasma amino acids concentrations in lactating Holstein cows.
M. I. Rivelli*, M. J. Cecava¹, P. H. Doane², and F. C. Cardoso³, ¹University of Illinois, Urbana, IL, ²ADM Research Division, Decatur, IL.

In vitro ruminal dry matter degradability and volatile fatty acid and gas production of DDGS with varying fat content.
K. C. Krogstad¹, J. L. Anderson*¹, J. S. Osorio²,³, and K. J. Herrick¹, ¹Dairy and Food Science Department, South Dakota State University, Brookings, SD, ²POET Nutrition, Sioux Falls, SD.

Linearity of response of plasma sulfur amino acids in lactating dairy cows to abomasally infused dl-2-hydroxy-4-methylthiobutanoic acid.
Nancy L. Whitehouse*, Charles G. Schwab¹², and Shane M. Fredin³, ¹University of New Hampshire, Durham, NH, ²Schwab Consulting LLC, Boscochet, WI, ³Adisseo, Alpharetta, GA.

Linear relationships between abomasal infusions of histidine and plasma histidine and histidine metabolites.
Nancy L. Whitehouse*, Yu Zang¹, Bailey L. Basiel¹, Andre F. Brito¹, and Makoto Miura³, ¹University of New Hampshire, Durham, NH, ²Ajinomoto Co. Inc., Kawasaki-shi, Japan.

Influence of rumen-protected amino acids supplementation pre- and postpartum on lactation performance by dairy cows.
E. M. Paula*, L. F. Ferraretto¹, C. S. Ballard², C. J. Sniffen³, I. Shinzato³, and T. Takagi³, ¹University of Florida, Gainesville, FL, ²The William H. Miner Agricultural Research Institute, Chazy, NY, ³Fencrest LLC, Holderness, NH, ⁴Ajinomoto Heartland Inc., Chicago, IL.

Methionine and choline supply alter transmethylation, transulfuration, and CDP-choline pathways to different extents in primary dairy cow hepatocytes.
Zheng Zhou¹²⁴, Yuanfei Zhou¹³, and Juan J. Loor¹, ¹University of Illinois, Urbana-Champaign, Urbana, IL, ²Clemson University, Clemson, SC, ³Huazhong Agricultural University, Wuhan, Hubei, China.
In vivo evaluation of a new rumen-protected methionine supplement.
Hector L. Diaz*, Jacob Albrecht1, Charles Soderholm1, Jim Linn1, Jeffrey Firkens2, Paul Kononoff3, and John K. Bernard4, 1Milk Specialties Global, Eden Prairie, MN, 2The Ohio State University, Columbus, OH, 3University of Nebraska, Lincoln, NE, 4University of Georgia, Tifton, GA.

M261 Predicting weekly calf starter intake by measuring calf starter intake once, twice, or three times a week.
Yu Liang*, Emily Davis, Tyler Batchelder, and Michael Ballou, Texas Tech University, Lubbock, TX.

M262 Effect of incremental amounts of rumen-protected His on plasma and muscle His and His-dipeptides in lactating dairy cows fed a low-CP diet.
Yu Zang*, Luiz H. P. Silva1, Mohammad G. Khan1, Andre F. Brito1, and Makoto Miura1, 1University of New Hampshire, Durham, NH, 2Federal University of Viçosa, MG, Brazil, 3Ajinomoto Co. Inc., Kawasaki-shi, Japan.

M263 In sacco evaluation of the effect of a source of slow release urea on dry matter, nitrogen and NDF digestibility.
Colm Moran1, Jason Keegan1, Sini Saloma2, Anne Koontz3, and Juha Apajaalaiti4, 1Alltech SAREL, Vire, France, 2Alimetrics Ltd, Espoo, Finland, 3Alltech Inc., Nicholasville, KY.

M264 Effect of microalgae on rumen microbiota and feed digestibility using an in vitro fermentation model.
Juha Apajaalaiti1, Osmo Siikanen1, Anne Koontz2, Jason Keegan1, and Colm Moran1, 1Alimetrics, Espoo, Finland, 2Alltech Inc., Nicholasville, KY, 3Alltech Inc., Vire, France.

M265 Effect of Aurantiomyctrium sp. microalgae on rumen fermentation, microbial population and milk fatty acid profile.
Colm Moran1, Teemu Rinttilä1, Jason Keegan1, Anne Koontz2, and Juha Apajaalaiti1, 1Alltech SAREL, Vire, France, 2Alimetrics, Espoo, Finland, 3Alltech Inc., Nicholasville, KY.

M266 Effect of physical form and nutrient content of calf starter on growth and development.
David Vagnoni*, Christine Sousa1, Jacqueline Aenlle1, and Mike Messman2, 1California Polytechnic State University, San Luis Obispo, CA, 2Cargill Animal Nutrition, Elk River, MN.

M267 Towards the compositional prediction of the ruminal microbial community using temporal modeling in healthy and milk depressed states.
Cameron Martino*, Grant Gogel1, James Gaffney1, Alfonso Lago1, and Mallory Embree1, 1Ascus Biosciences, San Diego, CA, 2DairyExperts Inc., Tulare, CA.

M268 Influence of supplemental copper and selenium source on reproductive parameters, milk yield and composition in Norman- do dairy cattle.

M269 Genome sequencing of native rumen microorganisms from Holstein cows reveals diverse range of functional capabilities.
James Gaffney*, Cameron Martino, Grant Gogel, Miranda Striluk, and Mallory Embree, Ascus Biosciences, San Diego, CA.

M270 The effects of cut height and ensiling time on the fermentation profile of whole-plant corn silage.
T. A. Damery*, R. T. Pate1, M. Atkins2, R. Myers3, and F. C. Cardoso4, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2University of Wisconsin-Madison, Marshfield, WI, 3Bayer CropScience LP, Research Triangle Park, NC.

M271 Comparison of residual feed intake, net energy, and economic models of feed efficiency in dairy cattle.
Dave J. Seymour*, Filippo Miglior, Gail Ritchie, Vern R. Osborne, John P. Cant, and Angela Cánovas, University of Guelph, Guelph, ON, Canada.

M272 Production responses to rumen-protected choline and methionine supplemented during the transition period differ for prini- and multiparous cows.
Sarah B. Potts, Cynthia M. Scholte*, and Richard A. Erdman, University of Maryland, College Park, MD.

M273 Associations between ruminal and reticular pH during induction and recovery from subacute ruminal acidosis in dairy cows.
Eveline Sandri1, Yvon Couture2, Rachel Gervais3, Liliana Fadul-Pacheco4,5, Janie Levesque1, and Daniel Rico6, 1CRSAD, Deschambault, QC, Canada, 2Université de Montréal, Saint-Hyacinthe, QC, Canada, 3Université Laval, Quebec, QC, Canada, 4Valacta, Ste-Anne-de-Bellevue, QC, Canada, 5Université McGill, Ste-Anne-de-Bellevue, QC, Canada.

M274 Effect of rumen-bypass flaxseed supplementation for 8 weeks on milk production and milk fatty acid composition in Jersey cows.
Katherine Swanson1, Sarah Akers*, Randi Wilson1, Mark Keller1, Lisbeth Goddik2, Gita Cherian1, Russell Day3, and Gerd Bobe3, 1Oregon State University, Corvallis, OR, 2N, Tualatin, OR.
The relationship between circulating ceramides, plasma fatty acids, and adipose tissue measures of inflammation and lipolysis.
William A. Myers*1, J. Eduardo Rico1, Daniel E. Rico2, Qi Zeng3, Jonas de Souza4, Adam L. Lock4, P. Yvan Chouinard2, G. Andres Contreras2, Rachael Gervais2, and Joseph W. McFadden1, 1Cornell University, Ithaca, NY, 2Université Laval, Quebec, QC, Canada, 3West Virginia University, Morgantown, WV, 4Michigan State University, East Lansing, MI.

A lipidomic analysis of bovine liver during metabolic disease.
Sina Saed Sami1,2, Yu Zang2, William A. Myers*1,2, Ester Grilli3, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV, 3University of Bologna, Bologna, Italy.

Metabolic profile of Holstein heifers fed carinata meal compared with canola meal and a control diet.
Karla Rodriguez-Hernandez*1,2, Jill L. Anderson1, Jeffrey A. Clapper1, and George A. Perry1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias,Matamoros, Coahuila, México, 3Animal Science Department, South Dakota State University, Brookings, SD.

Effects of replacing dietary starch with digestible NDF at two agitation speeds on fiber digestibility and fermentation parameters in continuous culture fermentors.
Haley E. Johnson*, Yan Sun, Gladys E. Margaria, Paola Piantoni, Antoon A. Jacobs, Neva A. Nachtrieb, Glogerley T. Sales, and Guillermo F. Schroeder, Cargill Animal Nutrition Innovation Campus, Elk River, MN.

Inhibition of serine palmitoyltransferase prevents palmitic acid-induced ceramide synthesis in bovine primary hepatocytes.
Joseph W. McFadden*, J. Eduardo Rico1, Sophia J. Erb2, and Heather M. White1, 1Cornell University, Ithaca, NY, 2University of Wisconsin, Madison, WI.

The effect of feeding zeolite A during the prepartum period on serum mineral concentrations in multiparous Holstein cows.
Allison L. Kerwin1, Charlene M. Ryan2, Brittany M. Leno1, Morten Jakobsen2, Per Theilgaard3, and Thomas R. Overton1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Protekt Inc., Lucknow, ON, Canada, 3Vitfoss, Graasten, Denmark.

The effect of feeding zeolite A during the prepartum period on peripartum performance in multiparous Holstein cows.
Allison L. Kerwin1, Charlene M. Ryan2, Brittany M. Leno1, Morten Jakobsen2, Per Theilgaard3, and Thomas R. Overton1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Protekt Inc., Lucknow, ON, Canada, 3Vitfoss, Graasten, Denmark.

Impact of a direct-fed microbial blend on performance of early lactation dairy cows.
Devan M. Paulus Compart* and Theodore P. Karnezos, PMI Nutritritional Additives, Shoreview, MN.

Mycotoxin mitigation on commercial farms when feeding Equalize Dairy.
Kayla M. Hultquist* and David P. Casper, Furst-McNess Company, Freeport, IL.

Milk enteroactone concentration in response to sucrose and flaxseed oil supplementation to dairy cows fed flaxseed meal.
Caren Paludo Ghedini, Andre Fonseca de Brito*, Kathleen Krieger, and Gianna Tempera, Department of Biological Sciences, University of New Hampshire, Durham, NH.

Meta-analysis of the use of canola meal in diets for dairy cows.

Effect of prepartal maternal diets supplemented with essential fatty acids and their preweaned calves on performance of the newborn calf.
Alireza Jolazadeh1, Tahereh Mohammadabadi1, Mehdi Dehghan-Banakady**, Mortez A Chaji1, and Miriam Garcia1, 1Department of Animal Science, Khuzestan Ramin Agricultural and Natural Resources University, Mollasani, Ahvaz, Iran, 2Department of Animal Science, Campus of Agriculture and Natural Resources, University of Tehran, Karaj, Iran, 3Department of Animal Science and Industry, Kansas State University, Manhattan, KS.

Effect of camelina meal and camelina expeller on rumen microbial fermentation and nutrient flow in a continuous culture system.
Hector Salas*, Lorena Castillejos, Montserrat Lopez-Suarez, and Alfred Ferret, Animal Nutrition and Welfare Service (SNIBA), Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.
Repeated inoculation of young calves failed to modulate rumen microbiota consistently but lowered diarrhea.
Lingling Wang1, Lu Ma2,3, Xin Zhang, Jianchu Xu2,3, Zhongtang Yu1, and Dengpan Bu1,4, 1Department of Animal Sciences, The Ohio State University, Columbus, OH, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 3CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 4Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China.

Effects of selenium source on, performance and antioxidant status in lactating dairy cows during oxidative stress-inducing conditions.
Lingling Sun1, Shengtao Gao1, Kun Wang1, M. V. Sanz Fernandez4, L. H. Baumgard5, and Dengpan Bu1,4, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 3Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China, 4Comparative Physiology Group, SGIT-INIA, Madrid, Spain, 5Department of Animal Science, Iowa State University, Ames, IA.

Effects of rumen-protected methionine supplementation on dairy cows during early postpartum.
Tainara C. Michelotti1, Haydyl A. Pacheco1, Fernanda Lopes1, and Rodrigo de Almeida1*, 1Universidade Federal do Paraná, Curitiba, PR, Brazil, 2Adisseo South America, São Paulo, SP, Brazil.

Characterization of sphingomyelin in bovine lipoproteins during the peripartum.
Amanda N. Davis1,2, J. Eduardo Rico1,3, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

Application of fast protein liquid chromatography to characterize bovine lipoproteins during the periparturient period.
Amanda N. Davis1,2, J. Eduardo Rico1,2, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

Effect of washing method, grinding size, and the determination of an undegraded fraction on in situ effective ruminal disappearance and disappearance rate of starch in mature corn grain.
T. Fernandes1,2, C. L. S. Ávila1, M. N. Pereira1, and L. F. Ferraretto1*, 1Federal University of Lavras, Lavras, MG, Brazil, 2University of Florida, Gainesville, FL.

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Evaluating the impact of Bovamine on performance, nutrient digestibility, and digestive function in lactating dairy cows.
MacKenzie Conklin1*, Stephanie Polukis1, Amanda Barnard1, Karl Nestor1, Limin Kung1, and Tanya Gressley1, 1University of Delaware, Newark, DE, 2Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark.

The effects of rumen degradable starch and fiber on differential gene expression of the rumen epithelium.
Linda Beckett1, Andrea Bedford, Claire Gleason, Doug Liebe, Taylor T. Yohe, Kristy M. Daniels, and Robin R. White, Virginia Tech, Blacksburg, VA.

Effect of palmitic acid-enriched supplements with different levels of fatty acid peroxidation on short-term feed intake and production responses of lactating dairy cows.
Arnulfo Pineda* and Adam L. Lock, Michigan State University, East Lansing, MI.

Effects of dietary undigested and physically effective neutral detergent fiber on ruminal pH, volatile fatty acids, and ruminal digesta characteristics of lactating dairy cows.
Wyatt A. Smith1*, Kyohei Ishida1, Jeffrey W. Darrah1, Heather M. Dann1, Catherine S. Ballard1, Michael D. Miller1, and Rick J. Grant1, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2ZEN-NOH National Federation of Agricultural Cooperative Associations, Japan.

Immunocaactivation is related to low plasma arginine and branched-chain amino acid concentrations in lactating dairy cows.

Effects of two endomicrobial supplement combinations on Holstein heifers milk composition and yield.
Jordan Embree1*, Justin Wong1, Miranda Striluk1, James Gaffney1, Grant Gogel1, Cameron Martino1, Terry TerHune2, and Mallory Embree1, 1Ascus Biosciences, San Diego, CA, 2HMS Veterinary Development, Tulare, CA.
Supplementation of Red Propolis for dairy calves: effects on performance, health and metabolism.
Giovana S. Sланzon, Ariny F. Toledo, Ana P. Silva, Marcos D. Silva, Marina G. Coelho, and Carla Maris M. Bittar*, Depart. Of Animal Sciences, College of Agriculture Luiz de Queiroz (ESALQ), University of Sao Paulo, Piracicaba, SP, Brazil.

Investigating a novel source of nutritional selenium for ruminant animals.
K. Nedelkov1, C. M. M. R. Martins2, X. Chen3, A. Melgar4, M. T. Harper**, S. Räsänen4, J. Oh4, E. H. Wall3, and A. N. Hristov4, 1Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria, 2School of Veterinary Medicine and Animal Science, University of Sao Paulo, Pirassununga, Brazil, 3College of Pastoral Agriculture Science and Technology, Lanzhou University, Gansu, China, 4Department of Animal Science, The Pennsylvania State University, University Park, PA, 5Pancosma, Geneva, Switzerland.

Effects of exogenous amylase on in vitro ruminal digestion kinetics of whole-crop corn silages harvested in late maturity stage.
Abias S. Silva¹, Thierry R. Tomich², Márcio S. Pedreira¹, Fernanda S. Machado³, Mariana M. Campos², Cristina S. Cortinhas⁴*, Tiago S. Acedo³, João P. Rodrigues³, and Luiz G. R. Pereira³, ¹State University of Southwestern Bahia, Itapetinga, BA, Brazil, ²Embrapa Dairy Cattle, Juiz e Fora, MG, Brazil, ³DSM Produtos Nutricionais Brasil SA, São Paulo, SP, Brazil, ⁴Federal University of São João Del Rey, São João Del Rey, MG, Brazil.

Effects of exogenous amylase and essential oils in cross-breed dairy cows diets: Energy use, methane production, and blood parameters.
Leile D. R. Freire¹, Thierry R. Tomich¹, Alexandre L. Ferreira¹, Fernanda S. Machado³, Mariana M. Campos², Cristina S. Cortinhas⁴*, Tiago S. Acedo³, Luiz F. M. Tamassia³, Márcio S. Pedreira¹, and Luiz G. R. Pereira³, ¹State University of Southwestern Bahia, Itapetinga, BA, Brazil, ²Embrapa Dairy Cattle, Juiz de Fora, MG, Brazil, ³DSM Produtos Nutricionais Brasil SA, São Paulo, SP, Brazil.

Validating intrinsic markers and optimizing spot sampling frequency to estimate fecal outputs.
Dennis L. Morris¹, Lucas R. Rebelo, Phyllis A. Dieter, and Charinee Lee, Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH.

Frequency of diet delivery to dairy cows: Effect on methane emissions from stored manure.
Fadi Hassanat*, Chirine Cherif, and Chaouki Benchara, Sherbrooke Research and Development Center, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.

Frequency of diet delivery to dairy cows: Effect on enteric methane emissions.
Chirine Cherif¹², Fadi Hassanat¹, Rachel Gervais¹, and Chaouki Benchara¹, ¹,²Sherbrooke Research and Development Center-Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²Département des Sciences Animales, Université Laval, Québéc, QC, Canada.

A field study on prevention of subclinical hypocalcemia in dairy cows supplemented synthetic aluminum silicate or anionic salts in late pregnancy.
Theilgaard Per**, and Jakobsen Morten², ¹Vitfoss, Graasten, Denmark, ²Protektac Inc., Ontario, Canada.

In vitro fermentation parameters and gas production in high producing dairy cow diets with yeast and lactic acid bacteria as probiotics.
Hugo F. Monteiro**, Andressa Faccenda¹³¹, Ana L. J. Lelis¹, Andre S. Avila¹³¹, Virginia L. N. Brandao¹, Xiaoxia Dai¹, Lorrayny G. Silva¹, and Antonio P. Faciola¹, ¹Department of Animal Sciences, University of Florida, Gainesville, FL, ²Department of Animal Sciences, State University of Maringa, Maringa, PR, Brazil, ³Department of Animal Sciences, State University of Western Parana, Marechal Candido Rondon, PR, Brazil.

Pre- and post weaning performance and health of dairy calves fed milk replacers formulated with 5 or 10% levels of spray-dried bovine plasma.
David M. Ziegler**, Hugh Chester-Jones¹, Ronelle M. Blome², and David R. Wood³, ¹University of Minnesota, Waseca, MN, ²Anmix LLC, Juneau, WI.

Effects of feeding wood kraft pulp on preventing subacute ruminal acidosis in cattle.
Shigeru Sato**, Yo-han Kim¹, Shiro Kushibiki², and Kei-ichiro Kizaki³, ¹Cooperative Department of Veterinary Medicine, Iwate University, Morioka, Iwate, Japan, ²National Institute of Livestock and Grassland Science, Tsukuba, Ibaraki, Japan.

Evidence of intraflock variability in the feed efficiency of lactating Lacaune dairy ewes.
Elie González-García¹, João Paulo Dos Santos², and Philippe Hassoun³, ¹INRA SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), Montpellier, France, ²Faculty of Veterinary, Universidade Federal do Pará (UFPA), Castanhal, PA, Brazil.
M313 Weaning age affects rumen fermentation and bacterial communities of Hu lambs.
Huiling Mao*,1, Yinglei Xu1, Chong Wang3, and Zhongtang Yu2, 1College of Animal Science and Technology, Zhejiang A and F University, Lin’an, China, 2Department of Animal Sciences, The Ohio State University, Columbus, OH.

M314 Feed processing temperature affects lactational performance.
A. Van De Kerckhove1, A. Delaquis2, F. Mueller3, T. Steen4, J. Guyader5, and Aaron Park*, 1Federated Co-operators Limited, Saskatoon, SK, Canada, 2La Coop Fédérée, Montréal, QC, Canada, 3Kalmbach Feeds Inc., Upper Sandusky, OH, 4Tennessee Farmers Cooperative, LaVergne, TN, 5Neovia, Château-Thierry, France, 6Cooperative Research Farms, Richmond, VA.

M315 Non-linear relationship study between altered carbohydrate traits in hull-less barley (Hordeum vulgare L.) and predicted truly absorbed nutrient supply to dairy cattle.
Baoli Sun, Basim Refat, Manji Sun, and Peiqiang Yu*, Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada.

M316 Comparison of near-infrared (NIR) and Fourier transform mid-infrared (ATR-FT/MIR) spectroscopy in prediction of intestinal protein digestibility in dairy cows.
Haitao Shi, Na Liu, Yaogeng Lei, Luciana Louzada Prates, Basim Refat, and Peiqiang Yu*, Department of Animal and Poultry Science, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada.

M317 Optimizing microbial protein synthesis to increase milk production: A meta-analysis approach.

M318 Mycotoxin mitigation when feeding Equalize Dairy.
Kayla M. Hultquist*, and David P. Casper, Furst-McNess Company, Freeport, IL.

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M319 Biohydrogenation patterns in digestive contents of lambs fed babassu or buriti oils.
Ní talo André Farias Machado1, Michelle de Oliveira Maia Parente1, Rui José Branquinho Bessa1, Henrique Nunes Parente1, Susana Paula Alves1, Graziele Silva Oliveira1*, Anderson de Moura Zanine1, Daniele Ferreira de Jesus1, Leilson Rocha Bezerra1, Danielle de Oliveira Maia1, and Luana França Anjos2, 1Universidade Federal do Maranhão, Chapadinha, Maranhão, Brazil, 2Universidade de Lisboa, Lisboa, Portugal.

M320 Assessment of nutrient digestibility in goats fed diets with increasing levels of babassu mesocarp flour.
Aylyp Renan Dutra, Michelle de Oliveira Maia Parente, Henrique Nunes Parente, Miguel Arcanjo Moreira Filho, Graziele Silva de Oliveira1, Hyanecosta Lima, Maykon Nunes Sousa, Ní talo André Farias Machado, Ruan Mourão Gomes, and Leonardo Miranda Freitas, Universidade Federal do Maranhão, Chapadinha, Maranhão, Brazil.

M321 Secretion of galectins-1, -3, and -9 in goat blood during the periparturient period.
Kingsley Ekwemalor*, Sarah Adjei-Fremah, Emmanuel Asiamah, Egbogoye Eluka-Okoludoh, Bertha Osei, and Mulumebet Worku, North Carolina Agricultural and Technical State University, Greensboro, NC.

M322 Spatial modeling of population membership in indigenous Eastern Adriatic sheep breeds using codominant marker genotypes.
Dragica Salamon and Alen Dzidic*, Faculty of Agriculture, University of Zagreb, Zagreb, Croatia.

M323 Effect of a blend of artificial sweetener and capsicum on productive performance and blood profile in lambs.
Xianjiang Chen1, Krum Nedelkov1, Jooppyo Oh1*, Michael Harper1, Emma Wall1, and Alexander Hristov1, 1Lanzhou University, Lanzhou, Gansu, China, 2Agricultural University, Stara Zagora, Bulgaria, 3The Pennsylvania State University, University Park, PA, 4Pancosma, Geneva, Switzerland.

M324 Effect of algae supplementation on milk fatty acid profile in lactating dairy goats.
Ping Wang*, Yan Xue2, Anne Koontz2, Xueying Zhang3, and Jun Luo2, 1Alltech-NWAFU Animal Science Research Alliance, College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, China, 2Alltech China, Chaoyang District, Beijing, China.
Teaching/Undergraduate and Graduate Education

M325  Cooperative Real Education in Agriculture Management at the University of New Hampshire. Andrew B. Conroy, Peter S. Erickson, Kayla M. Aragona*, and Eric Hatungimana, University of New Hampshire, Durham, NH.

M326  Teaching final-year veterinary students about dairy cattle welfare. Todd F. Duffield, Lena J. Levison*, and Derek B. Haley, University of Guelph, Guelph, ON, Canada.
# SYMPOSIA AND ORAL SESSIONS

## ADSA Graduate Student Dairy Foods Oral Competition

Chair: Rani Govindasamy-Lucey, Center for Dairy Research, University of Wisconsin-Madison

Room 200 DE

<table>
<thead>
<tr>
<th>Time</th>
<th>Number</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 AM</td>
<td>16</td>
<td>Efficiency of ceramic microfiltration removal of whey protein from sweet whey.</td>
<td>Brandon Carter*, David Barbano, and MaryAnne Drake, North Carolina State University, Raleigh, NC, Cornell University, Ithaca, NY.</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>17</td>
<td>Concentration of acid whey from Greek-style yogurt using a combination of reverse osmosis and forward osmosis.</td>
<td>Pedro Menchik* and Carmen Moraru, Cornell University, Ithaca, NY.</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>18</td>
<td>Feasibility of front-face fluorescence spectroscopy as a tool to understand protein leak during dairy ultrafiltration.</td>
<td>Yizhou B. Ma* and Jayendra K. Amamcharla, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan, KS.</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>19</td>
<td>Transcriptomics characterization of genes involved in exopolysaccharide production in <em>Streptococcus thermophilus</em> ASCC1275 under the influence of various sugars.</td>
<td>Aparna Padmanabhan*, Qinglong Wu, and Nagesh P. Shah, The University of Hong Kong, Hong Kong.</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>20</td>
<td>Maintaining a high level of intact casein in Cheddar cheese during aging.</td>
<td>Britney M. Riebel*, Selvarani Govindasamy-Lucey, John J. Jaeggi, Mark E. Johnson, and John A. Lucey, University of Wisconsin-Madison, Madison, WI, Center for Dairy Research, Madison, WI.</td>
</tr>
<tr>
<td>10:45 AM</td>
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<td>Break</td>
<td></td>
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<tr>
<td>11:00 AM</td>
<td>21</td>
<td>Preparation of a non-surface-active solution from fluid milk for interfacial experiments of milk fat globule membrane polar lipids.</td>
<td>Luis M. Real Hernandez* and Rafael Jimenez Flores, The Ohio State University, Columbus, OH.</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>22</td>
<td>Tracking <em>Listeria</em> survival at different stages of ice cream manufacture.</td>
<td>Neha Neha* and Sanjeev Anand, South Dakota State University, Brookings, SD.</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>23</td>
<td>Subcritical hydrolysis of ice cream wastewater: Modeling and hydrolyzates properties.</td>
<td>Maryam Enteshari* and Sergio Martinez-Monteagudo, South Dakota State University, Brookings, SD.</td>
</tr>
<tr>
<td>11:45 AM</td>
<td>24</td>
<td>Predicting quality attributes of yogurt-ice cream through fluorescence spectroscopy.</td>
<td>Niaz Muhammad*, Amna Sahar, Nuzhat Humayun, Aysha Sameen, and Ubaid Rahman, National Institute of Food Science and Technology (NIFSAT), Faculty of Food Science and Technology, University of Agriculture Faisalabad (UAF), Faisalabad, Pakistan, Department of Food Engineering, Faculty of Agricultural Engineering, UAF, Faisalabad, Pakistan.</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>25</td>
<td>Predicting butter adulteration with Fourier transform infrared spectroscopy and multi-variant analysis.</td>
<td>Amna Sahar*, Muhammad Usman Akram, Ubaid Rahman, Muhammad Azam Khan, Muhammad Issa Khan, and Imran Pasha, National Institute of Food Science and Technology (NIFSAT), Faculty of Food Science and Technology, University of Agriculture Faisalabad (UAF), Faisalabad, Pakistan, Department of Food Engineering, Faculty of Agricultural Engineering, UAF, Faisalabad, Pakistan.</td>
</tr>
</tbody>
</table>
ADSA Graduate Student (PhD) Production Oral Competition
Chair: Heather Dann, William H. Miner Agricultural Research Institute
Room 301 D

9:30 AM  26  Intramammary infection in growing, nonlactating mammary glands.
Benjamin D. Enger*, Carly E. Crutchfield, Taylor T. Yohe, Kellie M. Enger, Stephen C. Nickerson, Catherine L. M. Parsons, and R. Michael Akers. 1 Virginia Polytechnic Institute and State University, Blacksburg, VA, 2 University of Georgia, Athens, GA.

9:45 AM  27  Genetic analysis of subclinical mastitis resistance in early lactation in first-parity cows.
Saranya G. Narayana*, Filippo Miglior*, Syed A. Naqui, Francesca Malchiodi, Pauline Martin, and Herman W. Barkema. 1 Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 2 CGIL, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 3 Canadian Dairy Network, Guelph, ON, Canada.

10:00 AM  28  Predicting composition of empty body weight of Holstein heifers and cows.
Rodrigo A. de Souza* and Michael VandeHaar. Michigan State University, East Lansing, MI.


10:30 AM  30  Metabolic profile of Holstein heifers fed carinata meal compared with canola meal and a control diet.
Karla Rodríguez-Hernandez*, J. Eduardo Rico*, Jeffrey A. Clapper, and George A. Perry. 1 Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2 Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Matamoros, Coahuila, México, 3 Animal Science Department, South Dakota State University, Brookings, SD.

10:45 AM  31  Low-density lipoprotein ceramide accrual develops with steatosis, hyperlipidemia, and insulin antagonism during the transition from gestation to lactation.
Amanda N. Davis*, J. Eduardo Rico*, William A. Myers, and Joseph W. McFadden. 1 Cornell University, Ithaca, NY, 2 West Virginia University, Morgantown, WV.

11:00 AM  32  Aluminosilicate clay reduces the deleterious effects of an aflatoxin challenge on inflammation markers in lactating Holstein cows.
Russell T. Pate*, Devan M. Paulus Compart, and Felipe C. Cardoso. 1 University of Illinois, Department of Animal Sciences, Urbana, IL, 2 PMI Nutritional Additives, Shoreview, MN.

11:15 AM  33  Effects of feeding a Saccharomyces cerevisiae fermentation product during the periparturient period on performance of dairy cows fed postpartum diets differing in starch content.
Weina Shi*, Caroline E. Knoblock, Ilkyu Yoon, and Masahito Oba. 1 Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2 Diamond V, Cedar Rapids, IA.

11:30 AM  34  Dietary supplementation of Scutellaria baicalensis extract (SBE) during early lactation decreases milk somatic cells and increases whole lactation milk yield in dairy cattle.
Katie E. Olagaray*, Micheal J. Brouk*, Laman K. Mamedova, Fabrice Robert, Emilien Dupuis, Maya Zachut, and Barry J. Bradford. 1 Kansas State University, Manhattan, KS, 2 CCPA Group, Janze, France, 3 Agriculture Research Organization, Volcani Center, Rishon Lezion, Israel.

11:45 AM  35  Bioavailability of rumen-protected histidine, lysine and methionine assessed by fecal amino acid excretion.
Animal Behavior and Well-Being Platform Session: Assessment of Affective States of Dairy Cattle
Chair: Trevor J. DeVries, University of Guelph
Sponsor: Dean Foods
Room 300 AB

9:30 AM  Introduction.
Trevor J. DeVries, University of Guelph, Guelph, ON, Canada.

9:30 AM  The scientific assessment of affective states in dairy cattle.
Daniel M. Weary*, University of British Columbia, Vancouver, BC, Canada.

10:15 AM  Dairy calves anticipate the opportunity to access an alternative environment.
Heather W. Neave*, James Webster1, and Gosia Zobel2, 1 University of British Columbia, Vancouver, BC, Canada, 2 AgResearch Ltd, Hamilton, New Zealand.

10:30 AM  Effects of local anesthetic and/or systemic analgesia on pain associated with cautery disbudding in calves: A systematic review and meta-analyses.
C. B. Winder*, C. L. Miltenburg1, J. M. Sargeant1,2, S. J. LeBlanc3, D. B. Haley4, K. D. Lissemore4, M. A. Godkin5, and T. F. Duffield6; 1 Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2 Centre for Public Health and Zoonoses, University of Guelph, Guelph, ON, Canada, 3 Ontario Ministry of Agriculture, Food, and Rural Affairs, Elora, ON, Canada.

10:45 AM  Break

11:00 AM  Development of a newborn calf vigor scoring system.
Christine Murray-Kerr*, Ken Leslie1, Sandra Godden2, Sheila McGuirk2, and Whitney Knauer3; 1 Trouw Nutrition, Guelph, ON, Canada, 2 University of Guelph, Guelph, ON, Canada, 3 University of Minnesota, St. Paul, MN.

11:15 AM  Effect of implementing a novel calf vitality scoring system and early intervention program on pain management in newborn dairy calves.
Sandra Godden1, Whitney Knauer1, Ken Leslie*2, Christine Murray-Kerr1, Sheila McGuirk1, Hans Coetzee5, Debbie Haines5, Craig Gapinski5, Keith Yorek1, and Rochelle Hullinsky1; 1 University of Minnesota, St. Paul, MN, 2 University of Wisconsin, Madison, WI.

11:30 AM  Can calving assistance influence dairy cows’ lying times?
Marianne Villettaz Robichaud1,2, David L. Pearl3, Jeffrey Rushen3, Sandra M. Godden1, Stephen J. LeBlanc2, Anne Marie de Passille1, and Derek B. Haley3; 1 Université Laval, Québec, QC, Canada, 2 University of Guelph, Guelph, ON, Canada, 3 University of British Columbia, Vancouver, BC, Canada, 4 University of Minnesota, St. Paul, MN.

11:45 AM  Pain mitigation in cattle following soft tissue surgery.
Amber D. Futrell*, J. Marc Caldwell3, Peter D. Krawczel3, Brian K. Whitlock2, and David E. Anderson3; 2 University of Tennessee College of Veterinary Medicine, Knoxville, TN, 3 Animal Science Department, University of Tennessee Institute of Agriculture, Knoxville, TN.

Animal Health I
Chair: Kasey Moyes, University of Maryland
Room 300 CD

9:30 AM  Comparison between conventional culture, MALDI-TOF, and 16S rRNA for test agreement in diagnosis of bacteria in individual cow milk samples.
David J. Wilson*, John Middleton2, Pamela Adkins2, and Gregory M. Goodell3; 1 Utah State University, Logan, UT, 2 University of Missouri, Columbia, MO, 3 The Dairy Authority, Greeley, CO.

9:45 AM  Investigation of risk factors of subclinical mastitis in large-scale dairy farms.
Y. F. Zhong*, Y. M. Wu, and J. X. Liu; Institute of Dairy Institute, Zhejiang University, Hangzhou, China.
Use of electrical conductivity for the differentiation of mastitis-causing pathogens.
Sushil Paudyal*, Pedro Melendezz, Diego Manriquezv, Ana Velasquezz, Pablo Pinedo, and Gustavo Pena, 1Colorado State University, Fort Collins, CO, 2University of Missouri, Columbia, MO, 3Zoetis, Parsippany, NJ.

Flax oil supplementation affects systemic blood biomarkers and polymorphonuclear leukocytes mRNA expression in neonatal dairy calves.
Fernanda Rosa*, Chelsea R. Schossow, Nathaly A. Carpinelli, Erminio Trevisi, Jill L. Anderson, and Johan S. Osorio, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Department of Animal Sciences, Food and Nutrition, Università Cattolica del Sacro Cuore, Piacenza, Italy.

Validation of methods to practically evaluate failure of passive transfer in calves arriving to a veal facility.
David L. Renaud*, Todd F. Duffield, Stephen J. LeBlanc, and David F. Kelton, Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

Moved to Animal Health III (page XXX)

ARPAS Symposium: Sustainable Dairy Production
Chair: N. Andy Cole, USDA-ARS (retired)
Sponsor: Innovation Center for US Dairy
Room 301 E

Opening comments.
Andy Cole, USDA-ARS.

Understanding and addressing nutrient losses to the environment from livestock production.
Greg Zwicke*, USDA-NRCS, Air Quality and Atmospheric Change Team, Fort Collins, CO.

Mitigation of greenhouse gases emissions from dairies (the cow, the manure, and the field).
Michel A. Wattiaux*, Randy D. Jackson, and Rebecca A. Larson, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Agronomy, University of Wisconsin-Madison, Madison, WI, 3Department of Biological Systems Engineering, University of Wisconsin-Madison, Madison, WI.

Modifications to the CNCPS related to environmental issues—Capability to evaluate greenhouse gasses, nitrogen and phosphorus excretion at the farm level.
Michael E. Van Amburgh* and Larry E. Chase, Cornell University, Ithaca, NY.
**Breeding and Genetics I: Health and Fertility**  
Chair: Daniela Lourenco, University of Georgia  
Room 301 B

9:30 AM  56  
Genetic and environmental analysis of diseases with major economic impact in Israeli Holsteins.  
Joel I. Weller*, 1 Ephraim Ezra, 2 and Michael van Straten, 3  
1ARO, The Volcani Center, Rishon LeZion, Israel, 2Israel Cattle Breeders Association, Caesaria Industrial Park, Israel, 3Hachaklait, Mutual Society for Veterinary Services, Caesarea Industrial Park, Israel.

9:45 AM  57  
Gene mapping and gene-set analysis for milk fever in Holstein dairy cattle.  
Hendyel A. Pacheco, 1 Anil Sigdel, 1 Chun K. Mak, 1 Klibs N. Galvão, 1 Laila T. Dias, 1 and Francisco Peñagaricano*, 1  
1University of Florida, Gainesville, FL, 2Federal University of Paraná, Curitiba, PR, Brazil.

10:00 AM  58  
Identification of genomic regions associated with resistance to clinical mastitis in US Holstein cattle.  
John B. Cole*, 1 Kristen L. P. Gaddis, 2 Colin Willard, 2 Daniel J. Null, 3 Christian Maltecca, 1 and John S. Clay, 1  
1Animal Genomics and Improvement Laboratory, ARS, USDA, Beltsville, MD, 2Council on Dairy Cattle Breeding, Bowie, MD, 3Department of Animal Science, College of Agriculture and Life Sciences, North Carolina State University, Raleigh, NC, 4Dairy Records Management Systems, Raleigh, NC.

10:15 AM  59  
Single-step genome-wide association study of digital dermatitis and sole ulcer in Holstein cattle.  
Francesca Malchiodi, 1 Luiz F. Brito, 1 Anne-Marie Christen, 1 Allison Fleming, 1 David F. Kelton, 3 Flavio S. Schenkel, 1 and Filippo Miglior, 1  
1Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Valacta, Sainte-Anne-de-Bellevue, QC, Canada, 3Department of Population Medicine, OVC, University of Guelph, Guelph, ON, Canada, 4Canadian Dairy Network, Guelph, ON, Canada.

10:30 AM  60  
Additive genetic effect of cow on pathogen-specific single-quarter udder infection and differential somatic cell count.  
Emmanuel A. Lozada-Soto, 1 Kevin Anderson, 1 Christian Maltecca, 1 and Francesco Tiezzi, 1  
1Department of Animal Science, North Carolina State University, Raleigh, NC, 2Department of Population Health and Pathobiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC.

10:45 AM  Break

11:00 AM  62  
Multitrait modeling of first versus later parities for US yield, somatic cell score, and fertility traits.  
Paul M. VanRaden* and Melvin E. Tooker, USDA Animal Genomics and Improvement Laboratory, Beltsville, MD.

11:15 AM  63  
Relationships between daughter phenotypes and sire PTA for production and fertility traits in US organic Holstein cows.  
Lydia C. Hardie*, 1 Isaac W. Haagen, 1 Longfei Han, 1 Brad J. Heins, 1 Dorthy E. Fitzsimmons, 1 and Chad D. Dechow, 1  
1Pennsylvania State University, University Park, PA, 2University of Minnesota, Minneapolis, MN, 3Alfred State University, Alfred, NY.

11:30 AM  64  
Genetic analysis of heat tolerance for conception rate in US Holstein cows.  
Anil Sigdel*, 1 Julio A. Vacal, 1 Ignacio Aguilar, 1 Rostam Abdollahi-Arpanahi, 1 and Francisco Peñagaricano*, 1  
1University of Florida, Gainesville, FL, 2Instituto Nacional de Investigación Agropecuaria, Las Brujas, Canelones, Uruguay, 3University of Tehran, Tehran, Pakdasht, Iran.

11:45 AM  65  
Genetic dissection of sire conception rate in US Jersey cattle.  
Fernanda M. Rezende, 1 Grace O. Dietsch, and Francisco Peñagaricano, 1University of Florida, Gainesville, FL.

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**Dairy Foods: Joint ADSA-American Society of Nutrition Symposium:**  
New Views on Milk and Human Health  
Chair: Don Beitz, Iowa State University  
Ballroom F

9:30 AM  Introductory comments.  
Don Beitz, Iowa State University.
9:30 AM 68  Milk glycobiome and impact on human health. 
J. Bruce German**†, 1University of California-Davis, Davis, CA, 2Foods for Health Institute, University of California-Davis, Davis, CA.

10:15 AM 69  Bioactive peptides in dairy products. 
Nagendra P. Shah*, The University of Hong Kong, Hong Kong.

11:00 AM 70  Milk fat implications on human health: The emerging scientific evidence. 
Moises Torres-Gonzalez*, National Dairy Council, Rosemont, IL.

11:45 AM 71  Milk, calcium, and human health. 
B. R. Martin* and C. M. Weaver, Purdue University, West Lafayette, IN.

12:30 PM 72  Closing comments. 
Don Beitz, Iowa State University.

Forages and Pastures I
Chair: Andre Brito, University of New Hampshire
Ballroom A

9:30 AM 72  Effects of supplementing a xylanase enzyme on production performance of high-producing Holstein cows consuming diets containing corn or sorghum silage as the forage source. 
Yang Yang**, Gonzalez Ferreira†, and Brian T. Campbell‡, 1Department of Dairy Science, Virginia Tech, Blacksburg, VA, 2DSM Nutritional Products, Parsippany, NJ.

9:45 AM 73  Effects of a brown midrib corn silage hybrid with enhanced starch digestibility on production and nutrient digestibility in lactating dairy cows. 
Alexander Tebbe* and William Weiss, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH.

10:00 AM 74  Composition and digestibility of cell walls from corn stems and corn leaves according to plant cutting height. 
Gonzalo Ferreira* and Christy L. Teets, Department of Dairy Science, Virginia Tech, Blacksburg, VA.

10:15 AM 75  Fermentation quality, and in vitro digestibility of alfalfa and red clover silages treated with pre-fermented juice. 
Yun Jiang**†, Yan L. Xue‡, Diwakar Vyas*, Lin Sun‡, Guo M. Yin†, Yuan Y. Zhang‡, Si. B. Liu†, Zhu Yu‡, Qi. Z. Sun‡, and Adegbola T. Adesogan†, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Inner Mongolia Academy of Agriculture and Animal Husbandry, Hohhot, Inner Mongolia, China, 3Department of Animal Sciences, China Agricultural University, Beijing, China, 4Institute of Grassland Research, Chinese Academy of Agricultural Sciences, Hohhot, Inner Mongolia, China.

10:30 AM 76  Temporal trends in financial performance of spring-calving pasture-based dairy farms segregated by profit or feed use category. 
George Ramsbottom**, 1Teagasc, Oak Park, Carlow, Ireland, 2Teagasc, Animal and Pastureland Research and Innovation Centre, Moorepark, Fermoy, Cork, Ireland, 3School of Agriculture and Food Science, UCD, Belfield, Dublin, Ireland, 4Dairy NZ, Hamilton, New Zealand, 5School of Biological Sciences, University of Auckland, Auckland, New Zealand.

10:45 AM 77  Mycotoxin occurrence in southern US pasture grasses. 
Paige N. Gott**, 1Aaron Stam†, Alex Johns‡, Brett A. Bell†, Santa Maria Mendoza†, Erika G. Hendel†, Ursula Hofstetter-Schähs‡, Timothy Jenkins‡, and G. Raj Murugesan†, 1Biomin America Inc., Overland Park, KS, 2Federally Recognized Tribal Extension Program, University of Florida, Okeechobee, FL, 3Seminole Tribe of Florida Inc., Okeechobee, FL, 4Biomin Holding GmbH, Getzersdorf, Lower Austria, Austria.
Post-ruminal choline ion supplementation during a feed restriction-induced negative energy balance alters milk production and liver triacylglycerol concentration in Holstein cows.
Danielle N. Coleman*, 1, Mario Vailati-Riboni1, Ahmed A. Elolimy1, Felipe C. Cardoso1, Makoto Miura2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Ajinomoto Co. Inc., Tokyo, Japan.

Methionine supply during the periparturient period alters plasma amino acid profiles and liver metabolism in dairy cows.
Fernanda Batistel*, 1, Rainie R. C. Yambao1, Yuan-Xiang Pan1, Claudia Parys1, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

Insulin sensitivity and glucose utilization in response to methionine supply during the periparturient period in dairy cows.
Fernanda Batistel*, 1, Cesar C. I. Garces1, Claudia Parys2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

Francisco A. Leal Yepes*1,2, Sabine Mann2, Thomas R. Overton1, Joseph J. Wakshlag2, and Daryl V. Nydam2, 1College of Agriculture and Life Sciences, Ithaca, NY, 2College of Veterinary Medicine, Ithaca, NY.

Reducing milking frequency from three to twice a day during the first month of lactation improves energy balance and metabolic status of cows with minor effects on yields.
Uzi Moallem*1,2, Hadar Kamer2,3, Ayelot Hod4,5, Lila Livshits1, Gitit Kra1, Shamay Jacoby1, Yuri Portnick1, and Maya Zachut1, 1Department of Ruminants Science, Volcani Center, Rishon LeZion, Israel, 2Department of Animal Science, the Hebrew University of Jerusalem, Rehovot, Israel.

Endocrine effects of milking frequency and anti-inflammatory treatment in early lactation.
C. M. Ylioja*, M. Garcia, L. K. Mamedova, and B. J. Bradford, Kansas State University, Manhattan, KS.

Expression and activity of the branched-chain α-keto acid dehydrogenase (BCKDH) in different tissues of early-lactating dairy cows.
Laura A. Webb*, 1, Helga Sauерwein1, Dirk von Soosten2, Sven Dänicke2, and Hassan Sadri1, 1Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, North Rhine-Westphalia, Germany, 2Institute of Animal Nutrition, Friedrich-Loeffler Institut, Federal Research Institute for Animal Health, Brunswick, Lower Saxony, Germany.

Characterizing changes in the proteome of high-density lipoprotein over the transition period in dairy cows.
Erica Behling-Kelly*1, 1, Sean Davidson2, Daryl Nydam1, Franco Leal-Yepes1, and Sabine Mann2, 1Cornell University, Ithaca, NY, 2University of Cincinnati, Cincinnati, OH.

Association between bile acid with energy balance, and glucose to insulin ratio during the transition period.

PBMC mitochondrial enzyme activity in high- and low-producing Holstein cows during early lactation.
Ashley Niesen*, 1, Heidi Rossow1, and Olivia Genther-Schroeder2, 1UC Davis, Davis, CA, 2Purina Animal Nutrition Center, Gray Summit, MO.

Effects of level of DCAD and duration of feeding on responses to glucose tolerance test and insulin challenge in prepartum dairy cows.
Achilles Vieira-Neto*, 1, Camilo Lopera1, Roney Zimpel2, Francisco R. Lopes Jr.1, Paula Molinari1, Bolivar Faria1, Maria L. Gambarini1, Elliot Block2, William W. Thatcher1, Corwin Nelson1, and Jose E. P. Santos1, 1University of Florida, Gainesville, FL, 2Church and Dwight Animal Nutrition, Ewing, NJ.

Association of residual feed intake with abundance of ruminal bacteria and biopolymer hydrolyzing enzyme activities during the periparturient period and early lactation in Holstein dairy cows.
Ahmed Elolimy*, 1, José Arroyo1,2, Fernanda Batistel1, Michael Iakiviak1, and Juan Loor1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Department of Nutrition Animal, Instituto de Producción Animal, Facultad de Veterinaria, Universidad de la Republica, San José, Uruguay, 3Division of Nutritional Sciences, Illinois Informatics Institute, University of Illinois, Urbana, IL.
Production, Management, and Environment I
Chair: Phil Cardoso, University of Illinois at Urbana-Champaign
Ballroom C

9:30 AM 90 Validating a “heat stress” model: The effects of an electric heat blanket and nutritional plane on lactating dairy cows.

9:45 AM 91 Dry period heat stress reduces dam, daughter, and granddaughter productivity.
Jimena Laporta*, Fernanda C. Ferreira, Bethany Dado-Senn, Albert De Vries, and Geoffrey E. Dahl, Department of Animal Sciences, University of Florida, Gainesville, FL.

10:00 AM 92 Relationship between environments, vaginal temperature, and behaviors of lactating cows on pasture.
Thiago N. Marins*, Ruth M. Orelana, John K. Bernard, and Sha Tao, University of Georgia, Tifton, GA.

Andrea Bedford*, Linda Beckett, Taylor T. Yohe, Laura Harthan, Chong Wang, Ning Jiang, Hollie Schramm, Mark Hanigan, Kristy M. Daniels, and Robin R. White, Virginia Tech, Blacksburg, VA.

10:30 AM 94 Relationship between the accumulative effects of heat stress and Holstein dairy cows’ milk performances in eastern Canada.
Véronique Ouellet*, Victor E. Cabrera, Liliana Fadul-Pacheco, Patrick Grenier, Edith Charbonneau, Département des sciences animales, Université Laval, Québec, QC, Canada, Department of Dairy Science, University of Wisconsin, Madison, WI, Valacta, Saint-Ane-de-Bellevue, QC, Canada, Department of Animal Science, McGill University, Saint-Anne-de-Bellevue, QC, Canada, Consortium Ouro, Montréal, QC, Canada.

10:45 AM 95 Effects of fully acidified close-up diets and dietary calcium content on production and milk composition of transition dairy cows.
Kristen M. Glosson*, Xiangfei Zhang, Scott S. Bascom, Angie D. Rowson, and James K. Drackley, University of Illinois, Department of Animal Sciences, Urbana, IL, Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chengdu, Sichuan, China, Phibro Animal Health Corp., Teaneck, NJ.

11:00 AM Break

11:15 AM 96 Determining the change in body weight per unit of body condition score in Holstein cows.
Rodrigo A. de Souza* and Michael VandeHaar, Michigan State University, East Lansing, MI.

11:30 AM 97 Estrus detection with an activity and rumination monitoring system in an organic grazing and in a low-input conventional herd.
Glenda M. Pereira*, Bradley J. Heins, Marcia Endres, and Kota Minegishi, University of Minnesota, St. Paul, MN.

11:45 AM 98 Evaluation of G7G-Ovsynch protocol with or without heat detection and milk pregnancy-associated glycoproteins as non-invasive pregnancy diagnosis method.

12:00 PM 99 Factors associated with low colostrum yield in Jersey cattle.
Kevin Gavin, Holly Neibergs, Alea Hoffman, Jennifer Kaiser, Macy Cornmesser, Sara Amirpour Haredasht, Beatrix Martinex-Lopez, John Wenz, and Dale Moore*, Washington State University, Pullman, WA, Sunrise Veterinary Service, Dalhart, TX, University of California, Davis, CA.

12:15 PM 100 Improving nutritional accuracy and economics through multiple ration-grouping strategy.
Jorge A. Barrientos Blanco*, Victor Cabrera, and Randy D. Shaver, University of Wisconsin Madison, Madison, WI.
Reproduction: Joint ADSA-SSR Symposium:  
The Immune–Reproduction Nexus: The Good, the Bad, and the Ugly  
Chair: Peter J. Hansen, University of Florida  
Ballroom E

9:30 AM  101  The ugliness at the evolutionary root of mammalian pregnancy.  
Gunter Wagner*, Yale University, New Haven, CT.

10:15 AM  102  Immune recognition of the periattachment conceptus.  
Troy L. Ott*, Pennsylvania State University, University Park, PA.

11:00 AM  103  Mechanisms for disruption of fertility by infectious diseases of the reproductive tract.  
Robert Gilbert*, Ross University School of Veterinary Medicine, Basseterre, St. Kitts and Nevis.

11:45 AM  104  A role for seminal fluid in promoting optimal pregnancy outcomes.  
John J. Bromfield*, University of Florida, Gainesville, FL.

Ruminant Nutrition I: Fat  
Chair: Jonas de Souza, Michigan State University  
Ballroom G

9:30 AM  105  Saturated fat supplemented in the form of triglycerides decreased digestibility and reduced performance of dairy cows as compared to calcium salt of fatty acids.  
Adeoye Oyebade*1,2, Lilya Lifshitz1, Hanna Lehrer1, Shamay Jacoby1, Yuri Portnick1, and Uzi Moallem1, 1Department of Ruminant Science, ARO, Volcani Center, Rishon LeZion, Israel, 2Department of Animal Science, University of Jerusalem, Rehovot, Israel.

9:40 AM  106  Effect of supplementation of pasture based diet on n-3 and n-6 fatty acid profile of sheep milk.  
Andrea Cabiddu*, Addis Margherita, Mauro Decandia, and Giovanni Molle, Agris, Loc. Bonassai, Olmedo, Sassari Italy.

9:55 AM  107  Milk production responses to altering the dietary ratio of palmitic and oleic acids varies with production level in dairy cattle.  
Marin M. Western*, Jonas de Souza, and Adam L. Lock, Michigan State University, East Lansing, MI.

10:00 AM  108  Effects of altering the ratio of stearic and oleic acids in supplemental fat blends on fatty acid digestibility and production responses of dairy cows.  
Crystal M. Prom* and Adam L. Lock, Michigan State University, East Lansing, MI.

10:25 AM  109  Effect of dietary supplementation of acetate on milk fat synthesis in lactating dairy cows.  
Natalie L. Urrutia*1,2, Rebecca Bomberger1, and Kevin J. Harvatine1, 1The Pennsylvania State University, University Park, PA, 2Instituto de Investigaciones Agropecuarias, Osorno, Region de Los Lagos, Chile.

10:40 AM  110  Ceramide inhibits insulin sensitivity in primary bovine adipocytes.  
J. Eduardo Rico*1,2, William A. Myers1,2, David J. Laub1, Amanda N. Davis1,2, Qi Zeng1, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

10:55 AM  111  Effects of commercially available palmitic and stearic acid-enriched supplements on nutrient digestibility and production responses of lactating dairy cows.  
Marin M. Western*, Jonas de Souza, and Adam L. Lock, Michigan State University, East Lansing, MI.

11:10 AM  112  Impact of abomasal infusion of oleic acid on fatty acid digestibility and milk production of dairy cows.  
Crystal M. Prom*1, John Newbold2, and Adam L. Lock1, 1Michigan State University, East Lansing, MI, 2Volac International Ltd, Orwell, Royston, United Kingdom.
Long-term effects of olive oil and hydrogenated vegetable oil supplementation on the expression of genes related to fatty acid metabolism in adipose tissue of dairy cows. Einar Vargas-Bello-Pérez*, Nathaly Cancino-Padilla1, Pietro Sciarresi-Arechabala2, María del Sol Morales2, Jaime Romero2, Massimo Bionaz4, and Juan J. Loor5, 1Pontificia Universidad Católica de Chile, Santiago, Chile, 2Universidad de Chile, Santiago, Chile, 3Instituto de Nutrición y Tecnología de los Alimentos, Santiago, Chile, 4Oregon State University, Corvallis, OR, 5University of Illinois, Urbana, IL.

Altering the ratio of dietary palmitic and oleic acids impacts production and metabolic responses during the immediate postpartum and carryover period in dairy cows. Jonas de Souza*, Crystal Prom, and Adam L. Lock, Department of Animal Science, Michigan State University, East Lansing, MI.

Changes in the omasal flow of long-chain fatty acids alters the yield of de novo and preformed milk fatty acids. Jonas de Souza*, Heidi Leskinen1, Kevin J. Shingfield2,3, Adam L. Lock1, and Pekka Huhtanen3, 1Department of Animal Science, Michigan State University, East Lansing, MI, 2Animal Genomics, Green Technology, Natural Resources Institute Finland (Luke), Jokioinen, Finland, 3Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden, 4Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, United Kingdom.

Comparison of fat supplements containing palmitic or stearic acid on intake and production in lactating dairy cows. Richard Shepardson* and Kevin Harvatine, Penn State University, University Park, PA.

Ruminant Nutrition:
Management and Nutrition of Dairy Cattle in the New Era of Automation
Chair: Hugo Ramirez-Ramirez, Iowa State University
Lecture Hall

What have we learned about automated milk feeders? Marcia Endres*, University of Minnesota, St. Paul, MN.

Economics considerations for automatic milking systems (AMS). Larry Tranel*, Iowa State University Extension and Outreach Dairy Team, Ames, IA.

Successful feeding and nutrition in robotic herds. Micheal Brouk*, Kansas State University, Manhattan, KS.

Incorporating technologies in nutrition and transition management. E. A. Eckelkamp*, J. M. Bewley, University of Tennessee Institute of Agriculture, Knoxville, TN, 2CowFocused Housing, Bardstown, KY.

Opportunities and limitations in farm data integration and analytics for strategic decision-making. Michael J. Jerred*, Guillermo F. Schroeder, Ricardo A. Daura, and Chantal Van Der Meiilde, Cargill Animal Nutrition, Minnetonka, MN.

Technology, automation, and dairy industry: How far can we go? A. D. Aguiar* and N. Charlton, DeLaval, Bannockburn, IL.
Small Ruminant Platform Session:
Addressing Management Challenges and Improving Performance in Small Ruminants
Chair: Maristela Rovai, South Dakota State University
Room 301 A

9:30 AM 123 Review of old and new approaches to evaluate milking impact and milking ability in goats.
Pierre-Guy Marnet*, Alen Dzidic, Leila Le Caro, and Alice Hubert, Agrocampus Ouest, Department of Animal Sciences, Agri-food and Human Nutrition, Rennes, France, Faculty of Agriculture, University of Zagreb, Zagreb, Croatia, Chamber of agriculture d’illé et Vilaine, Rennes, France, French Livestock Institute, animal health and milk products quality, Le Rheu, France.

10:45 AM 125 Protecting dietary n-3 fatty acid and vitamin E and C in feed and its effect on the nutritional profile of goat milk.
Andrea Discua, Jung Hoon Lee*, and Chelsea Jeanjulien, Fort Valley State University, Fort Valley, GA.

11:00 AM 126 The fatty acid profile of goat milk with supplementation of fish oil in the diet.
Maryuri Núñez de González*, Rahmat Attaie, Adela Mora-Gutierrez, Selamawit Woldesenbet, Yoonsung Jung, Jeanne Kirven, and Deland Myers, University of Florida, Gainesville, FL.

11:15 AM 127 Thermophysiological traits within a flock of dairy ewes and variability in the response to a heat stress challenge.
Abdelali Elhadi* and Gerardo Caja, Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain.

11:30 AM 128 On-farm welfare assessment update and its relation to productivity in dairy small ruminants.
Gerardo Caja*, Maristela Rovai, Universidad Autonoma de Barcelona, Bellaterra, Barcelona, Spain, Gestion Empresarial Ovina, Benavente, Zamora, Spain, South Dakota State University, Brookings, SD.

ADSA-SAD Dairy Foods Undergraduate Oral Competition
Chair: Jillian Bohlen, University of Georgia
Room 200 A

11:00 AM 129 A2 variant of β-casein: Friend or foe?
Lydia R. Harrison*, David R. Winston, and Kristy M. Daniels, Virginia Tech, Blacksburg, VA.

11:15 AM 130 Comparison between non-dairy milk-like beverages and cow’s milk.
Carrie P. Cecil*, Gustavo Mazon, and Joao H. C. Costa, University of Kentucky, Lexington, KY.

11:30 AM 131 Spore-forming bacteria reduce milk quality.
Zane P. Itle* and Dale R. Olver, The Pennsylvania State University, University Park, PA.

11:45 AM 132 An udder option: A2 milk.
Brittney Davidson*, Bethany Dado-Senn, and Jimena Laporta, University of Florida, Gainesville, FL.
ADSA Graduate Student (MS) Production Oral Competition
Chair: Heather Dann, William H. Miner Agricultural Research Institute
Room 301 D

2:00 PM 133 Evaluating the duration of increased milking frequency during early lactation for increased yield through lactation. Kaley R. Tate*, Michael L. McGilliard, Andrea J. Lengi, and Benjamin A. Corl, Virginia Tech, Blacksburg, VA.

2:15 PM 134 Effects of differing planes of pre- and post-weaning phase nutrition on intake, growth and puberty in Holstein heifer calves. Justin P. Rosadiuk*, Farid Moslemipour1,2, Tony C. Bruinjé1, Divakar J. Ambrose1,3, and Michael A. Steele1,1 Department of Agricultural, Food, and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2 Gonbad Kavous University, Golestan, Iran, 3 Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada.

2:30 PM 135 Effects of feeding supplemental butyrate on passive transfer of immunity in Holstein calves. Rebecca Hiltz* and Anne Laarman, University of Idaho, Moscow, ID.

2:45 PM 136 Double-blind, block-randomized, placebo-controlled clinical trial on effectiveness of zinc supplementation on diarrhea and average daily gain in pre-weaned dairy calves. Hillary R. Feldmann*, Deniece R. Williams1, John D. Champagne1, Terry W. Lehenbauer1,2, and Sharif S. Aly1,2,1 Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California, Davis, Tulare, CA, 2 Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, Davis, CA.

3:00 PM 137 Manipulating serotonin pathway impacts glucose metabolism in dairy calves. Sena L. Field*, Marcela G. Marrero-Pérez, Amy L. Skibiel, Bethany Dado-Senn, Debora R. Silva, and Jimena Laporta, Department of Animal Sciences, University of Florida, Gainesville, FL.

Animal Behavior and Well-Being I
Chair: Emily K. Miller-Cushon, University of Florida
Room 300 AB

2:00 PM 138 Feeding behavior, dry matter intake and intake rate in dominant and subordinate dairy heifers allocated in competitive dyads. Carolina Fiol*, Ignacio Donadio1, Leticia Eustathiou1, Guillermo Matto1, María Noel Méndez1, Verónica Sánchez1, Francisco Triay1, Martín Aguerre1, Mariana Carriquiry1, and Rodolfo Ungerfeld1,1 Departamento de Bovinos, Facultad de Veterinaria, UdelaR, Libertad, San José, Uruguay, 2 Red Tecnológica Sectorial de Lechería, Montevideo, Uruguay, 3 Departamento de Producción Animal y Pasturas, Facultad de Agronomía, UdelaR, Montevideo, Uruguay, 4 Departamento de Fisiología, Facultad de Veterinaria, UdelaR, Montevideo, Uruguay.

2:15 PM 139 Will dairy cows sort their diet in response to negative energy balance? Sydney M. Moore* and Trevor J. DeVries, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

2:30 PM 140 Dynamic feed delivery times of an automatic feeding system and the effects on feeding behavior of dairy cows. Rosemarie Oberschätzl-Kopp*, Bernhard Haidn2, Rudolf Peis2, Klaus Reiter2, and Heinz Bernhardt3, 1 Lely Germany GmbH, Waldstetten, Germany, 2 Bavarian State Research Center for Agriculture, Poing-Grub, Germany, 3 Technical University of Munich, Freising, Germany.

2:45 PM 141 Nutrient intake and feeding patterns of growing bulls fed different concentrate levels and corn stover silage as a single fiber source. Aziz ur Rahman Muhammad*, Chuan Qi Xia1, Lin Mao Ji1, Huawei Su1, and Binghai Cao1, 1 State Key Laboratory of Animal Nutrition, Beijing, China, 2 Institute of Animal and Dairy Sciences, University of Agriculture, Faisalabad, Faisalabad, Punjab, Pakistan.
Effect of a mechanical calf brush on the behavior and performance of recently weaned heifer calves.
Ana Velasquez*, Diego Manriquez1, Sushil Paudyal1, Gilberto Solano1, Hyungchul Han1, Robert Callan2, Juan Velez3, and Pablo Pinedo1, 1Department of Animal Sciences, College of Agricultural Sciences, Colorado State University, Fort Collins, CO, 2Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO, 3Aurora Organic Dairy, Boulder, CO.

Ice cream break in Exhibit Hall

A novel approach to estimate intake of lactating dairy cows through multiple on-cow accelerometer sensors.
Nathaly A. Carpinelli*, Fernanda Rosa, Rodrigo C. B. Grazziotin, and Johan S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

The effect of two different indoor AMS loose-housing options and pasture-access on dairy cow step activity and time budget.
Elise Shepley*, Hélène Leruste2, Joop Lensink1, and Elsa Vasseur*, Department of Animal Science, McGill University.

The effect of feeding synthetic zeolite A prepartum on indices of mineral and metabolic status, milk production and reproduction in grazing dairy cows.
John R. Roche1, Axel Heiser2, Mallory A. Crookenden1, Christopher R. Burke1, Sally-Anne Turner1, Barbara Kuhn-Sherlock1, and Claire V. C. Phyn*, 1DairyNZ Ltd, Hamilton, New Zealand, 2AgResearch Ltd, Palmerston North, New Zealand, 3DairyNZ Ltd, Auckland, New Zealand.

First study into the temporal relationship between metabolic disorders and lameness events over the course of a lactation.
Axelle Mineur*, Christa Egger-Danner2, Johann Sölkner3, Sylvie Vanderick1, Hedi Hammami1, and Nicolas Gengler1, 1ULiege-GxABT, Gembloux, Belgium, 2ZuchtData, Vienna, Austria, 3BOKU, Vienna, Austria.

Animal Health II
Chair: Barry Bradford, Kansas State University
Room 300 CD

An observational longitudinal cross-over study of the impact of an ammonium-lactate commercial product for the prevention of subclinical ketosis in postpartum lactating dairy cows.
G. Poppy*, D. Barkey1, and J. Pinter2, 1Fermented Nutrition Corp., Luxemburg, WI, 2Perdue AgriBusiness, Salisbury, MD.

Validation of an infrared test measuring β-hydroxybutyrate on test-day milk samples to detect hyperketonemia.
David L. Renaud*, David F. Kelton, and Todd F. Duffield, Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

Perilipin5 promotes hepatic steatosis in dairy cows via increasing lipid synthesis and inhibiting VLDL assembly.
Xudong Sun, Guowen Liu, Xiaobing Li, and Xinwei Li*, College of Veterinary Medicine, Jilin University, Changchun, Jilin, China.

The effect of feeding synthetic zeolite A prepartum on indices of mineral and metabolic status, milk production and reproduction in grazing dairy cows.
John R. Roche1, Axel Heiser2, Mallory A. Crookenden1, Christopher R. Burke1, Sally-Anne Turner1, Barbara Kuhn-Sherlock1, and Claire V. C. Phyn*, 1DairyNZ Ltd, Hamilton, New Zealand, 2AgResearch Ltd, Palmerston North, New Zealand, 3DairyNZ Ltd, Auckland, New Zealand.

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Axelle Mineur*, Christa Egger-Danner2, Johann Sölkner3, Sylvie Vanderick1, Hedi Hammami1, and Nicolas Gengler1, 1ULiege-GxABT, Gembloux, Belgium, 2ZuchtData, Vienna, Austria, 3BOKU, Vienna, Austria.

An evaluation of the relationship between hyperketonemia and pre- and post-calving hoof lesions in dairy cattle.
Erin M. Wynands* and Gerard Cramer, College of Veterinary Medicine, University of Minnesota, St. Paul, MN.
4:00 PM  153  Using once per day milking as an adjunct treatment of hyperketonemia.
Maggie E. Williamson*, Todd F. Duffield, Stephen Leblanc, Trevor DeVries, and Brian W. McBride, University of Guelph, Guelph, ON, Canada.

4:15 PM  154  Calves born from cows fed with alfalfa enriched with selenium have higher Se in blood and higher phagocytosis.
Matteo Mezzetti*, Shana Jaaf, Sebastiano Busato, Michele Premi, Erminio Trevisi, Gerd Bobe, and Massimo Bionaz, Oregon State University, Corvallis, OR, Università Cattolica del Sacro Cuore, Piacenza, Italy.

4:30 PM  155  Establishing blood gas ranges in healthy bovine neonates differentiated by age, sex, and breed type.
Patrick Dillane*, Lea Krump, Aideen Kennedy, Riona Sayers, and Gearoid Sayers, Department of Biological and Pharmaceutical Sciences, Institute of Technology Tralee, Tralee, Ireland, Animal & Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Ireland.

Animal Health: Joint ADSA-National Mastitis Council Platform Session:
Milk Quality and the Dairy Industry Today
Chair: Lecture Hall

2:00 PM  156  Milk quality challenges and opportunities in robotic milking systems.
David Kelton*, Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

2:30 PM  157  Precision dairy technology-generated health alert accuracy and disease prediction.
Elizabeth A. Eckelkamp*, and Jeffrey M. Bewley, University of Tennessee Institute of Agriculture, Knoxville, TN, CowFocused Housing, Bardstown, KY.

2:45 PM  158  Intramammary casein hydrolysate alone or combined with other treatments when drying off dairy cows.
Justine E. Britten*, David J. Wilson, and Kerry A. Rood, Utah State University, Logan, UT.

3:00 PM  159  Selective versus blanket dry cow therapy.
A. Lago*, DairyExperts Inc., Tulare, CA.

3:30 PM  160  Ice cream break in Exhibit Hall

4:00 PM  161  Assessment of acoustic pulse therapy (APT), a non-antibiotic treatment for mastitis in dairy cows.
Gabriel Gabriel*, David Zilberman, Eduard Papirov, and Sela Shefy, National Mastitis Reference Center, Kimron Veterinary Institute, Bet Dagan, Israel, Department of Agricultural and Resource Economics, University of California, Berkeley, California, HI-Impacts, Petach Tikva, Israel.

4:30 PM  162  Diffusion of antimicrobial resistance across management niches on dairy farms.
William M. Sischo*, Josephine A. Afema, Margaret A. Davis, and Diana S. Kinder, Washington State University, Pullman, WA.

4:45 PM  163  Antimicrobial resistance in non-aureus staphylococci isolated from milk is associated with systemic but not intramammary administration of antimicrobials in dairy cattle.
Diego B. Nobrega*, Jeroen De Buck, and Herman W. Barkema, University of Calgary, Calgary, AB, Canada.

5:00 PM  164  Antimicrobial resistance patterns of bacterial isolates from cases of mastitis in dairy cows.
Reta D. Abdi, Barbara E. Gillespie, Susan Headrick, Gina M. Pighetti, Raul. A. Almeida, Stephen P. Oliver, and Oudessa Kerro Dego, Department of Animal Science, The University of Tennessee, Knoxville, TN.
Managing population diversity through genomic optimal contribution selection.
Christian Maltecca*1, Gebreyohans Gebregiwergis1, Jeremy T. Howard1, Christine F. Baes1, and Francesco Tiezzi1, 1North Carolina State University, Raleigh, NC, 2University of Guelph, Guelph, ON, Canada, 3Norwegian University of Life Sciences, Ås, Norway, 4University of Nebraska-Lincoln, Lincoln, NE.

Characterizing runs of homozygosity in Ayrshire, Brown Swiss, and Guernsey populations using varying sample sizes.
Calista Vogelzang*1, Filippo Miglior1,2, Nina Melzer3, Mehdi Sargolzaei1,4, Christian Maltecca5, Gabriele Marras1, Bayode Makanjuola4, Allison Fleming5, Flavio Schenkel1, and Christine F. Baes1, 1CGIL, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada, 3Leibniz Institute for Farm Animal Biology, Institute of Genetics and Biometry, Dummerstorf, MVP, Germany, 4The Semex Alliance, Guelph, ON, Canada, 5Department of Animal Sciences, North Carolina State University, Raleigh, NC.

Indirect predictions based on SNP effects from single-step GBLUP in large genotyped populations.
Daniela Lourenco*1, Andres Legarra2, Shogo Tsuruta1, Dan Moser3, Stephen Miller3, and Ignacy Misztal1, 1Department of Animal and Dairy Science, University of Georgia, Athens, GA, 2Institut National de la Recherche Agronomique, UMR Castanet Tolosan, France, 3Angus Genetics Inc., St. Joseph, MO.

Potential benefits from using a new reference map in genomic prediction.
Daniel J. Null*1, Paul M. VanRaden1, Derek M. Bickhart2, John B. Cole2, Ignacy Misztal1, 1USDA Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, 2USDA Dairy Forage Research Center, Madison, WI, 3University of Maryland-Baltimore, Baltimore, MD.

Implications of limited dimensionality of genomic information on persistency of genomic predictions and GWAS.
Ignacy Misztal*, Ivan Pocrnic, and Daniela Lourenco, University of Georgia, Athens GA.

Modelling uncertain paternity to address differential pedigree accuracy.
Heather L. Bradford*2,1, Yutaka Masuda1, John B. Cole2, Ignacy Misztal1, and Paul M. VanRaden1, 1University of Georgia, Athens, GA, 2Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD.

Genomic predictability of single-step GBLUP for production traits in US Holstein.
Yutaka Masuda*1, Ignacy Misztal1, Paul VanRaden1, and Tom Lawlor1, 1University of Georgia, Athens, GA, 2USDA AGIL, Beltsville, MD, 3Holstein Association USA Inc., Brattleboro, VT.

Implementing SNP-level multiple-trait across country genomic evaluation without genotype sharing.
Breno Fragomeni*, Daniela Lourenco, Yutaka Masuda, and Ignacy Misztal, The University of Georgia, Athens, GA.

Lifetime Net Merit versus annualized net present value as measures of profitability of selection.
Michael R. Schmitt*1, Paul M. VanRaden1, and Albert De Vries1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2USDA-AGIL, Beltsville, MD.

Integrating genomic information and large-scale FTIR-based phenotyping for the genetic improvement of cheese-making traits in Brown Swiss cattle.
Francesco Tiezzi*, Christian Maltecca1, Hugo Toledo Alvarado1, Attilio Rossoni2, Enrico Santus1, Giovanni Bittante3, and Alessio Cecchinato3, 1Department of Animal Science, North Carolina State University, Raleigh, NC, 2Italian Brown Swiss Breeders’ Association, Bassolengo, Italy, 3Department of Agronomy, Food, Natural resources, Animals and Environment, Legnaro, Padova, Italy.
Dairy Foods I: Cheese
Chair: Donald McMahon, Utah State University
Room 200 DE

2:00 PM 175 Fusion of casein-based gel particles by means of extrusion.
Christian Kern* and Jörg Hinrichs, University of Hohenheim, Stuttgart, Germany.

2:15 PM 176 Influence of pH on whey expulsion from curd made from recombined concentrated milk.
Kanak Bulbul* and Donald J. McMahon, Western Dairy Center, Utah State University, Logan, UT.

2:30 PM 177 Effects of microfiltered milk with different casein:true protein ratios on the quality of Cheddar cheese.
Elizabeth M. Reale*, John A. Lucey1, Rani Govindasamy-Lucey1, Mark E. Johnson1, John Jaeggi1, Yanjie Lu1, and Mike M. Molitor2, 1University of Wisconsin-Madison, Madison, WI, 2Center for Dairy Research, Madison, WI.

2:45 PM 178 Characterization and presumptive identification of surface crystals on smear-ripened cheese by polarized light microscopy.
P. J. Polowsky, G. F. Tansman, P. S. Kindstedt*, and J. M. Hughes, University of Vermont, Burlington, VT.

3:00 PM 179 Identification and classification of crystals in cheese by powder X-ray diffractometry.
P. J. Polowsky, P. S. Kindstedt*, and J. M. Hughes, University of Vermont, Burlington, VT.

3:15 PM 180 Influence of Mozzarella and Cheddar cheese blending on quality of pizza Cheese.
Aysha Sameen*, Nabila Gulzar, Nuzhat Huma, Amna Sahar, and Muhammad Issa Khan, National Institute of Food Science and Technology, University of Agriculture Faisalabad, Faisalabad, Pakistan.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 181 Impact of high pressure and different storage temperatures on the properties of Gouda cheese.
Luis A. Jiménez-Maroto*, Selvarani Govindasamy-Lucey1, John J. Jaeggi1, Mark E. Johnson1, and John A. Lucey2, 1University of Wisconsin-Madison, Madison, WI, 2Wisconsin Center for Dairy Research, Madison, WI.

4:15 PM 182 Characterization of semi-hard and hard artisanal cheeses from small-scale producers in the Western Cape Province of South Africa.
Faith Nyamakwere**, Giulia Esposito1, Nina Muller2, Erika Moelich1, Felicia Masucci3, and Emiliano Raffrenato1, 1Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa, 2Department of Food Science, Stellenbosch, South Africa, 3Department of Agricultural Science, Università degli Studi di Napoli Federico II, Naples, Italy.

Extension Education I
Chair: Michael Schutz, Purdue University
Room 301 E

2:00 PM 183 Determining the prevalence of failure of passive transfer in heifer and bull calves on Michigan dairy farms.
Faith Cullens* and Miriam Weber Nielsen, Michigan State University, East Lansing, MI.

2:15 PM 184 Using whole-farm analysis based on Holos to reduce net greenhouse gas emissions: Examples from dairy systems.
Shannan M. Little**, Chaouki Benchaar1, H. Henry Janzen1, Roland Kröbel1, Emma J. McGeough1, Aaron McPherson1, and Karen A. Beauchemin1, 1Agriculture and Agri-Food Canada, Lethbridge Research and Development Centre, Lethbridge, AB, Canada, 2Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada.

2:30 PM 185 Producer perceptions of the National Dairy Farmers Assuring Responsible Management (FARM) Animal Care Program.
Kayla A. Rink**, Phillip J. Turk1, Shannon L. Archibeque-Engle1, Jason K. Ahola1, Joleen C. Hadrich4, and Ivette N. Román-Muñiz1, 1Department of Animal Sciences, Colorado State University, Fort Collins, CO, 2Department of Statistics, Colorado State University, Fort Collins, CO, 3Colorado State University, Fort Collins, CO, 4Department of Applied Economics, University of Minnesota, St. Paul, MN.
Forages and Pastures Symposium:  
Fiber Digestibility—From Cell Wall Composition to Forage Utilization  
Chair: Gonzalo Ferreira, Virginia Tech  
Sponsor: AB Vista  
Ballroom A

2:00 PM  186  
A holistic vision of cell wall organization and its impact on cell wall digestibility.  
Ronald Hatfield*, USDA-ARS, Madison, WI.

2:45 PM  187  
Environmental factors affecting plant cell wall structure and cell wall and forage digestibility.  
Kenneth J. Boote*1, Lynn E. Sollenberger1, and Diego N. L. Pequeno2, 1University of Florida, Gainesville, FL, 2International Maize and Wheat Improvement Center, Texcoco, Mexico.

3:30 PM  
Ice cream break in Exhibit Hall

4:00 PM  188  
Utilization of fiber analysis for ration formulation.  
Richard J. Grant*1 and David R. Mertens2, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2Mertens Innovation and Research LLC, Belleville, WI.

4:45 PM  189  
Technologies for improving fiber utilization.  
Adegbola Adesogan*, University of Florida, Gainesville, FL.

Joint MILK and Lactation Biology Symposium:  
Milk Globules, Vesicles, and Exosomes—Update, Origin, Structure, and Function  
Chair: Rafael Jimenez-Flores, The Ohio State University  
Ballroom F

2:00 PM  
Opening remarks.  
Rafael Jimenez-Flores, The Ohio State University.

2:00 PM  190  
Intravital imaging of the lactating mammary gland in live mice reveals novel aspects of milk-lipid secretion.  
Ian H. Mather*1,2, Andrius Masedunskas2,3, Yun Chen4, and Roberto Weigert2,3, 1University of Maryland, College Park, MD, 2National Cancer Institute, NIH, Bethesda, MD, 3National Institute of Craniofacial and Dental Research, NIH, Bethesda, MD, 4Johns Hopkins University, Baltimore, MD.

2:45 PM  191  
Bioavailability, distribution, and phenotypes of bovine milk exosomes in non-bovine species.  
Janos Zempleni*, University of Nebraska-Lincoln, Lincoln, NE.

3:30 PM  
Ice cream break in Exhibit Hall

4:00 PM  192  
Metabolic regulation of milk fat globule size.  
Nurit Argov-Argaman*, The Faculty of Agriculture, The Hebrew University, Jerusalem, Israel.

4:30 PM  193  
Fat globules in milk and their structural modifications during gastro-intestinal digestion.  
Harjinder Singh*, 1Riddet Institute, Palmerston North, New Zealand, 2Massey University, Palmerston North, New Zealand.

5:00 PM  194  
The relevance of phospholipid and vesicles from milk in dairy foods and human nutrition.  
R. Jimenez-Flores*, The Ohio State University, Columbus, OH.

5:30 PM  
Closing remarks.  
Rafael Jimenez-Flores, The Ohio State University.
Production, Management, and Environment II
Chair: Todd Callaway, University of Georgia
Ballroom C

2:00 PM 195 Nutritional and greenhouse gas contributions of dairy cattle to United States agriculture.
Robin R. White*1, and Mary Beth Hall2, 1Department of Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA, 2United States Dairy Forage Research Center, Madison, WI.

2:15 PM 196 Genetically modified crops and no-till systems reduce production of greenhouse gases from crops used for feeds.
J. L. Vicini*1 and G. S. McNunn2, 1Monsanto Company, St. Louis, MO, 2EFC Systems, Ames, IA.

2:30 PM 197 Manure flushing versus scraping in dairy freestall lanes reduces gaseous emissions.
Elizabeth G. Ross*, Carlyn B. Peterson, Yong J. Zhao, Yuee E. Pan, and Frank M. Mitloehner, University of California Davis, Davis, CA.

2:45 PM 198 A framework for conducting nonlinear meta-analysis in the dairy sciences.
Luis E. Moraes*, The Ohio State University, Columbus, OH.

3:00 PM 199 Effects of hormonal growth promotants on meat quality.
Ian J. Lean1,2, Helen M. Golder*, Natasha M. Lees3, Peter McGilchrist1, and Jose E. P. Santos1, 1Scibus, Camden, NSW, Australia, 2Dairy Science Group, School of Life and Environmental Sciences, Faculty of Science, The University of Sydney, Camden, NSW, Australia, 3School of Environmental and Rural Science, University of New England, Armidale, NSW, Australia, 2Department of Animal Sciences, University of Florida, Gainesville, FL.

3:15 PM 200 Estimating the dairy farm value of infectious or non-infectious lameness prevention strategies as influenced by pre-prevention hoof disease incidence rates and prevention effectiveness.
Karmella A. Dolecheck*, Michael W. Overton2, Tyler B. Mark1, and Jeffrey M. Bewley1, 1University of Kentucky, Lexington, KY, 2Elanco Animal Health, Greenfield, IN, 3CowFocused Housing, Bardstown, KY.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 201 The effects of milk consumption on predicted future body weight of heifers.
Jacquelyn P. Boerman1, Tabitha S. Steckler*, and Nicolas Lopez-Villalobos2, 1Purdue University, West Lafayette, IN, 2Massey University, Palmerston North, New Zealand.

4:15 PM 202 Influence of a lactic acid bacteria and yeast-based postbiotic product (Probisan) on the performance of pre- weaned newborn calves.
Maristela Rovai*1, Leyby Guifarro1, Goyo Sanzol2, Eduardo Huarte3, Jesús V. Díaz2, Jill L. Anderson1, and Ahmed Salama1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Pentabiol S.L, Esquiroz, Navarra, Spain, 3Incyte Corp, Wilmington, DE.

4:30 PM 203 The influence of mulberry leaf flavonoids and Candida tropicalis on antioxidant function and gastrointestinal development of pre-weaning calves challenged with Escherichia coli O141:K99.
Bing Wang*, Chuntao Yang, Qiyu Diao, and Yan Tu, Feed Research Institute, Chinese Academy of Agricultural Sciences, Beijing, China.

4:45 PM 204 Altering the ruminal microbiota in dairy calves using rumen contents dosing.
Madison S. Cox*, Paul J. Weimer1,2, Andrew J. Steinberger1, Joseph H. Skarlupka1, and Garret Suen1, 1Department of Bacteriology, University of Wisconsin-Madison, Madison, WI, 2US Dairy Forage Research Center, USDA Agricultural Research Service, Madison, WI.

5:00 PM 205 Can palmitic acid supplementation be detected by bulk tank fatty acid profile?
Debora E. Santschi* and Daniel M. Lefebvre, Valacta, Ste-Anne-de-Bellevue, QC, Canada.

5:15 PM 206 Effect of feeding fresh alfalfa or fresh oat/berseem clover on rumen characteristics and metabolic N of dairy cows.
Daniel Enriquez-Hidalgo*, Katherine Barrera, Sophia Peede, and Einar Vargas-Bello-Pérez, Departamento de Ciencias Animales, Facultad de Agronomía e Ingeniería Forestal, Pontificia, Universidad Católica de Chile, Santiago, Chile.

5:30 PM 207 Monitoring daily liveweight in grazing sheep using an automated walk-over-weighing system.
Eliel González-García*, SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), INRA, Montpellier SupAgro, CIRAD, Univ Montpellier, Montpellier, France.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>2:00 PM</td>
<td>208</td>
<td>Dynamics of volatile fatty acids, hydrogen, and methane in dairy cattle: A model of rumen metabolic pathways.</td>
<td>Henk J. van Lingen*, James G. Fadel1, Luis E. Moraes1, Ermias Kebrab2, André Bannink1, and Jan Dijkstra2, 1TI Food and Nutrition, Wageningen, the Netherlands, 2Wageningen University &amp; Research, Wageningen, the Netherlands, 3University of California, Davis, Davis, CA, 4Ohio State University, Columbus, OH.</td>
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<tr>
<td>2:15 PM</td>
<td>209</td>
<td>Effects of 3-nitrooxypropanol on rumen fermentation, lactational performance, and onset of ovarian activity in dairy cows.</td>
<td>A. Melgar*, M. T. Harper1, J. Oh1, F. Giallongo1, M. E. Fetter1, T. L. Ott1, S. Duval1, and A. N. Hristov1, 1The Pennsylvania State University, University Park, PA, 2Research Centre for Animal Nutrition and Health, DSM Nutritional Products, France.</td>
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<td>2:30 PM</td>
<td>210</td>
<td>Dose-response effect of 3-nitrooxypropanol on enteric methane emission in dairy cows.</td>
<td>A. Melgar*, K. C. Welter1, K. Nedelkov1, C. M. M. R. Martins1, M. T. Harper1, J. Oh1, S. E. Räisänen1, X. Chen1, S. F. Cueva1, S. Duval1, and A. N. Hristov1, 1The Pennsylvania State University, University Park, PA, 2University of Sao Paulo, Pirassununga, Brazil, 3Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria, 4College of Pastoral Agriculture Science and Technology, Lanzhou University, China, 5Panamerican Agricultural University, Zamorano, Francisco Morazán, Honduras, 6Research Centre for Animal Nutrition and Health, DSM Nutritional Products, France.</td>
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<tr>
<td>2:45 PM</td>
<td>211</td>
<td>Effect of limit-feeding diets with different forage to concentrate ratios on the fecal bacterial and archaeal community composition in Holstein heifers.</td>
<td>Jun Zhang*, Haitao Shi, Yajing Wang, Zhijun Cao, and Shengli Li, State Key Laboratory of Animal Nutrition, Beijing Engineering Technology Research Center of Raw Milk Quality and Safety Control, College of Animal Science and Technology, China Agricultural University, Beijing, China.</td>
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<td>3:00 PM</td>
<td>212</td>
<td>Effect of essential oil extracted from tropical and/or sub-tropical plants on in vitro dry matter digestibility, ruminal fermentation, and methane production.</td>
<td>D. H. Kim*, I. M. Ogunade1, K. G. Arriola1, D. Vyas1, and A. T. Adesogan1, 1Department of Animal Sciences, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL, 2Division of Applied Life Science (BK, Jinju, South Korea.</td>
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<td>3:15 PM</td>
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<td>Ice cream break in Exhibit Hall</td>
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<td>3:45 PM</td>
<td>214</td>
<td>Methane inhibition following fermentation and microbiota community response by different dose of chitosan in vitro.</td>
<td>Jinjin Tong*, Hua Zhang1, Linshu Jiang1, and Benhai Xiong2, 1Beijing Key Laboratory for Dairy Cow Nutrition, Beijing University of Agriculture, Beijing, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.</td>
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<td>4:00 PM</td>
<td>215</td>
<td>Relationship between residual feed intake and CH4 production in dairy heifers.</td>
<td>Holly Flay*, S. Barbara Kuhn-Sherlock1, Kevin Macdonald1, Mark Camara1, Danny Donaghy1, Nicolas Lopez-Villalobos1, and J. R. Roche1, 1DairyNZ, Hamilton, New Zealand, 2Massey University, Palmerston North, New Zealand, 3University of Auckland, Symonds St, Auckland, New Zealand.</td>
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<td>4:15 PM</td>
<td>216</td>
<td>Variation in animal performance explained by the rumen microbiome or by diet composition.</td>
<td>Claire B. Gleason* and Robin R. White, Virginia Tech, Blacksburg, VA.</td>
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<td>4:30 PM</td>
<td>217</td>
<td>Relationships between mean rumen pH and time spent under pH 5.8.</td>
<td>Douglas M. Liebe*, Jeffery L. Firkins2, and Robin R. White1, 1Virginia Tech, Blacksburg, VA, 2The Ohio State University, Columbus, OH.</td>
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<td>4:45 PM</td>
<td>218</td>
<td>Preparing and characterizing magnetic nanoparticles coated with cellulose for effective enrichment of cellulolytic microorganisms from rumen.</td>
<td>L. Xing1, S. G. Zhao*, N. Zheng1, and J. Q. Wang1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality &amp; Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.</td>
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Ruminant Nutrition Platform Session I: Rumen Function and Health
Chair: Joseph McFadden, Cornell University
Sponsor: Elanco Animal Health
Ballroom E

2:00 PM 219 Effects of prepartum dietary cation-anion difference intake on dairy cows: A meta-analysis.
Ian J. Lean*1,2, Jose E. P. Santos3, Elliot Block4, and Helen M. Golder1,2,1, Scibus, Camden, NSW, Australia, 2Dairy Science Group, School of Life and Environmental Sciences, Faculty of Science, The University of Sydney, Camden, NSW, Australia, 3Department of Animal Sciences, University of Florida, Gainesville, FL, 4Arm & Hammer Animal Nutrition, Princeton, NJ.

2:15 PM 220 Blood metabolites as indicators of susceptibility to subacute ruminal acidosis in mid-lactation Holstein cows.
S. M. Nasrollahi4, A. Zali5, G. R. Ghorbani2, and W. Z. Yang6, 4University of Tehran, Tehran, Iran, Iran, Iran, 5Isfahan University of Technology, Isfahan, Iran, Isfahan, Iran, 6Lethbridge, AB, Canada, AB, Canada.

2:30 PM 221 Timing of initiation and duration of feeding ruminally protected choline (RPC) affects performance of lactating Holstein cows.
J. M. Bollatti*2, M. G. Zenobi1, N. A. Artusso1, G. F. Alfaro5, A. M. Lopez4, B. A. Barton2, J. E. P. Santos4, and C. R. Staples1,1, Department of Animal Sciences, University of Florida, Gainesville, FL, 2Balchem Corp, New Hampton, NY.

2:45 PM 222 Uptake of a fluorescent analogue of glucose (2-NBDG) by mixed rumen bacteria and identification of glucose utilizing species.

3:00 PM 223 Effects of lipopolysaccharide dosing on ruminal fermentation in a dual-flow continuous culture system.

3:15 PM 224 Effect of Saccharomyces cerevisiae fermentation product and clay sequestering agents on rumen fermentation and bacterial community of lactating dairy cows challenged with dietary aflatoxin B1.
Yun Jiang*, Ibukun M. Ogunade, Andres A. Pech-Cervantes, Peixin Fan, Xujiao Li, Dong H. Kim1, Kathy G. Arriola2, Michael B. Poindexter1, Mariana C. M. Gonçalves3, Kwang C. Jeong3, Diwakar Vyas1, and Adegbola T. Adesogan1,1, Department of Animal Sciences, University of Florida, Gainesville, FL, 2Division of Animal Sciences, China Agricultural University, Beijing, China, 3Institute of Agriculture and Environmental Sciences, Federal University of Mato Grosso, Sinop, MT, Brazil.

3:30 PM 225 Ice cream break in Exhibit Hall

4:00 PM 225 Effect of Saccharomyces cerevisiae fermentation products on performance, diarrhea outbreaks, and plasma glucose and NEFA concentration in bottle-fed calves.
Lucia Pisoni*, Kathryn V. Whinnery, and Alejandro E. Relling, The Ohio State University, Department of Animal Sciences, Wooster, OH.

4:15 PM 226 Effect of subacute ruminal acidosis (SARA) and Saccharomyces cerevisiae fermentation products on endotoxins and interleukin-6 in blood plasma.
Lei Xu1, Junfei Guo1, Hamid Khalouei1, Ilkyu Yoon2, Ehsan Khaipour1, and Jan C. Plaizier*1, 1University of Manitoba, Winnipeg, MB, Canada, 2Diamond V, Cedar Rapids, IA.


4:45 PM 228 The importance of the ruminal epithelial barrier for a healthy and productive cow.
Jörg R. Aschenbach*, Gabriele Greco1, Gregory B. Penner2, Qendrim Zebeili, and Salah Amasheh, 1Institute of Veterinary Physiology, Freie Universität Berlin, Berlin, Germany, 2Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, 3Institute of Animal Nutrition and Functional Plant Compounds, University of Veterinary Medicine Vienna, Vienna, Austria.
2:00 PM 229  
**Plasma response of histidine and histidine metabolites to incremental amounts of abomasal infusion of histidine in lactating dairy cows.**

Bailey L. Basiel*, Yu Zhang1, Andre F. Brito1, Nancy L. Whitehouse1, and Makoto Miura2, 1University of New Hampshire, Durham, NH, 2Ajinomoto Co. Inc., Kawasaki-shi, Japan.

2:15 PM 230  
**Total-tract fatty acid digestibility responses to altering the dietary ratio of palmitic and oleic acids in dairy cows.**

Ariana N. Negreiro*, Jonas de Souza, and Adam L. Lock, Michigan State University, East Lansing, MI.

2:30 PM 231  
**Effect of plane of nutrition in pre- and post-weaning phases on feed sorting behavior of dairy calves.**

Lauren E. Engelking*, Justin P. Rosadiuk1, Tony C. Bruinje1, Trevor J. DeVries1, and Michael A. Steele1, 1University of Alberta, Edmonton, AB, Canada, 2University of Guelph, Guelph, ON, Canada.

2:45 PM 232  
**Use of tail movement to predict calving time in dairy cattle: Validation of a calving detection technology in dairy cattle.**

Sarah E. Mac*, Carissa M. Truman, and Joao H. C. Costa, University of Kentucky, Lexington, KY.

3:00 PM 233  
**Balancing diets for intestinal protein digestibility in lactating dairy cattle.**

Courtney K. Hoff*, Paul A. LaPierre, Debbie A. Ross, and Michael E. Van Amburgh, Cornell University, Ithaca, NY.

3:15 PM 234  
**Rumen gene expression in dairy calves fed one of two diets differing in form.**

Nicole R. Hardy*, Taylor T. Yohe, and Kristy M. Daniels, Virginia Tech, Blacksburg, VA.

3:30 PM  
**Ice cream break in Exhibit Hall**

4:00 PM 235  
**Effects of housing on Holstein calf well-being during hot weather.**

Heather A. Young*, Amber L. Adams Progar, and Adriana Lopez Ayala, Washington State University, Pullman, WA.

4:15 PM 236  
**Development of a scoring system to estimate fly counts on organic cows.**

Charlotte Auman*, Lydia Hardie1, Isaac Haagen1, Longfei Han2, Brad Heins2, and Chad DeChow1, 1Pennsylvania State University, University Park, PA, 2University of Minnesota, Minneapolis, MN.

4:30 PM 237  
**Effect of nightly mixing versus separation of dams and calves on behavior, production, and calf growth.**

Ashley D. Campeaux*, Amanda R. Lee1, Melissa C. Cantor2, Joao H. C. Costa2, Liesel G. Schneider1, and Peter D. Krawczel1, 1Department of Animal Science, University of Tennessee Knoxville, Knoxville, TN, 2Dairy Science Program, Department of Animal and Food Sciences, University of Kentucky, Lexington, KY.

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**ADSA-SAD Dairy Production Undergraduate Oral Competition**

Chair: Leanne M. Berning, California Polytechnic State University

Room 200 A

2:00 PM 238  
**Supplementing early lactation dairy cows with branched-chain amino acids.**

Conor John McCabe*, Francisco Leal-Yepes1, and Daryl Van Nydam2, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Cornell University College of Veterinary Medicine, Ithaca, NY.

2:15 PM 239  
**Judicious use of antibiotics in pre-weaned dairy calves: A sustainable future for producer, calf, and consumer.**

William Jenkins*, Kayla Alward, and Jillian Bohlen, University of Georgia, Athens, GA.

2:30 PM 240  
**Automated temperature reading systems to detect fever in dairy cattle.**

Megan M. Woodrum*, Gustavo Mazon, and Joao H. C. Costa, University of Kentucky, Lexington, KY.

2:45 PM 241  
**Using technologies to enhance respiratory disease detection in calves.**

Courtney L. Henderson*, Christina S. Petersson-Wolfe, David R. Winston, and Kristy M. Daniels, Virginia Tech, Blacksburg, VA.
SUSTAINING THE DAIRY INDUSTRY

STRATEGIES FOR REDUCING METHANE EMISSION BY DAIRY CATTLE
Nicholas P. Uzee* and Cathleen C. Williams, Louisiana State University, Baton Rouge, LA.

ICE CREAM BREAK IN EXHIBIT HALL

ENVIRONMENTAL ENRICHMENT IN DAIRY COWS AND CALVES
Jaime E. Uren* and Maurice L. Eastridge, The Ohio State University, Columbus, OH.

FACTORS THAT AFFECT LYING TIMES OF DAIRY CATTLE AND THE EFFECT OF INCREASED LYING TIME ON MILK PRODUCTION
Jessica Rose Sexton* and Peter Erickson, University of New Hampshire, Durham, NH.

CONTROLLING POTASSIUM FROM THE FIELD TO THE DIET
Dylan M. Dietz* and Dale R. Olver, The Pennsylvania State University, University Park, PA.

SMALL Ruminant I
Chair: Maristela Rovai, South Dakota State University
Room 301 A

UUDDER MORPHOLOGY, MILK PRODUCTION, AND COMPOSITION IN PASTURE-BASED DAIRY EWES DURING LACTATION
Vinko Batinić1, Dragica Salamon2, Stanko Ivanovkic1, Neven Antunac3, and Alen Dzidic4, 1Faculty of Agriculture and Food Technology, University of Mostar, Mostar, Bosnia and Herzegovina, 2Faculty of Agriculture, University of Zagreb, Zagreb, Croatia.

PERFORMANCE AND METABOLIC EFFECTS OF HEAT STRESS IN LACAUNE DAIRY EWES IN LATE LACTATION
Nabil Mehaba*1, Wellington N. Coloma1, Ahmed A. K. Salama1, Xavier Such1, and Gerardo Caja1, 1Universitat Autonoma de Barcelona, Bellaterra; Barcelona, Spain, 2South Dakota State University, Brookings, SD.

GENOTYPE EFFECTS ON ENERGY AND PROTEIN REQUIREMENTS FOR GAIN IN GOATS
Izabelle A. M. A. Teixeira*1, Amélia K. Almeida1, Ernias Kebreab2, and Kleber T. Resende1, 1Unesp, Jaboticabal, SP, Brazil, 2University of California, Davis, CA.

RUMEN FATTY ACID PROFILE OF DAIRY EWES FED CONTRASTING SOURCES OF ENERGY SUPPLEMENTATION
F. E. Miccoli1,2, 1,2, D. Colombatto2,3, and R. A. Palladino1,2, 1School of Agriculture Science, National University of Lomas de Zamora, Buenos Aires, Argentina, 2Department of Animal Production, University of Buenos Aires, Buenos Aires, Argentina, 3Consejo Nacional de Investigaciones Cientificas (CONICET), Buenos Aires, Argentina.

CHANGES IN BLOOD KEY METABOLITES AND INSULIN IN LATE-PREGNANT PROLIFIC AFECA-ASSAF EWES DRENCHED WITH PROPYLEN GlyCOL OR GLYCEROL
Uzi Moallem*1, Alon Tamir1, Alexander Rosov1, Lilya Lifshitz1, Hay Dvir1, and Gootwine Elisha1, 1Department of Ruminant Science, ARO, Volcani Center, Rishon LeZion, Israel, 2Department of Animal Science, University of Jerusalem, Rehovot, Israel.

EFFECTS OF EARLY PRENATAL HEAT STRESS ON THE POSTNATAL PERFORMANCE OF DAIRY GOATS
Wellington N. Coloma*1, Nabil Mehaba1, Ahmed A. K. Salama1, Xavier Such1, and Gerardo Caja1, 1Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, 2South Dakota State University, Brookings, SD.

ICE CREAM BREAK IN EXHIBIT HALL

EFFECT OF 2,4-THIAZOLIDINEDIONE TREATMENT ON MILK FAT SYNTHESIS IN LACTATING DAIRY GOATS IN OPTIMAL NUTRITIONAL STATUS
Shana Jaff1,2, Fernanda Rosa1, Misagh Moridi1,2, Johan Osorio1, Jayant Lohakare1,2, Erminio Trevisi1, Shelby Filley1, Charles Estill1, Gita Cherian1, and Massimo Bionaz1, 1Oregon State University, Corvallis, OR, 2Guilan University, Rasht, Guilan, Iran, 3Kangwon National University, Chuncheon, South Korea, 4Università Cattolica del Sacro Cuore, Piacenza, Italy.
Influence of vitamin B₂, ascorbic acid, and melatonin on reproductive performance of ewes during the summer season. 

M. M. Waheed*1,2, K. H. El-Shahat2, A. A. Sallam3, B. E. El-Saidy, and T. A. A. Khalifa4, 1King Faisal University, Alhufuf, Alahsa, Saudi Arabia, 2Cairo University, Giza, Egypt, 3Animal Production Research Institute, Sakha, Kafr Alsheikh, Egypt, 4Veterinary Research Institute, Ionia, Thessaloniki, Greece.

Teaching, Undergraduate and Graduate Education Symposium: 
Active Learning—From Theory to Practice
Chair: 
Room 301 C

2:00 PM 255 There is a difference between presenting and teaching.
Nick Fuhrman*, Department of Agricultural Leadership, Education, and Communication, University of Georgia, Athens, GA.

2:30 PM 256 Promoting active learning in teaching and assessment.
Wendy J. Warner*, North Carolina State University, Raleigh, NC.

3:00 PM 257 How active learning can develop intercultural competencies.
Mark Russell*, Purdue University, West Lafayette, IN.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 258 Integrating active learning strategies in study abroad programming.
Elizabeth L. Karcher*, Purdue University, West Lafayette, IN.

4:30 PM 259 College classrooms as active learning environments.
Michel A. Wattiaux*, University of Wisconsin-Madison, Madison, WI.

5:00 PM 260 Impacting student career path ideas and options through industry career centers.
T. S. Heady*, Elanco Animal Health, Greenfield, IL.
Tuesday, June 26

POSTER PRESENTATIONS

Animal Behavior and Well-Being II

T1
Sample size estimates for assessing lameness, leg injuries, and body condition.
Jennifer M. C. Van Os, Daniel M. Weary, Joao H. C. Costa, Maria J. Hotzel, and Marina A. G. Von Keyserlingk, Animal Welfare Program, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, Laboratório de Etiologia Aplicada e Bem-Estar Animal (LETA), Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil.

T2
Farm-level housing and management factors associated with clinical lameness in freestall-housed dairy cows in the United States.

T3
The impact of episodic heat stress on lying behavior and lameness of lactating dairy cows on northern New York farms.
Ashley R. Cate, Catherine S. Ballard, Michael D. Miller, Mary G. Green, and Richard J. Grant, William H. Miner Agricultural Research Institute, Chazy, NY.

T4
Effect of management system on the lying behavior of organic dairy cows.
Victoria L. Couture, Peter D. Krawczel, S. Ray Smith, Liesel G. Schneider, Agustin G. Rius, and Gina M. Pighetti, University of Tennessee, Knoxville, TN, University of Kentucky, Lexington, KY.

T5
Effect of outdoor space allowance on the behavior and preference of free-stall housed cows provided access to an outdoor bedded pack.
Anne-Marieke Smid, Daniel Weary, and Marina Von Keyserlingk, University of British Columbia, Vancouver, BC, Canada.

T6
Impact of freestall neck-rail position on stall and cow hygiene.
Ivelisse Robles, David F. Kelton, Herman W. Barkema, Greg P. Keefe, Jean-Philippe Roy, Marina A. G. Von Keyserlingk, and Trevor J. DeVries, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, Department of Population Medicine, University of Guelph, Guelph, ON, Canada, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI, Canada, Faculté de Médecine Vétérinaire, Université de Montréal, Montréal, QC, Canada, Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada.

T7
Improving welfare as a strategy to increase productivity and profitability in tiestall farms.
Marianne Villettaz Robichaud, Jeffrey Rushen, Anne Marie de Passillé, Elsa Vasseur, Derek Haley, and Doris Pellerin, Université Laval, Québec, QC, Canada, University of British Columbia, Vancouver, BC, Canada, McGill University, Ste-Anne-de-Bellevue, QC, Canada, University of Guelph, Guelph, ON, Canada.

T8
Lameness, injuries, and lying behavior on New York tiestall dairies.
Lindsay K. M. Ferullo and Betsy J. Hicks, Cornell University, Ithaca, NY.

T9
Assessing comfort of lactating dairy cows housed in tiestalls with recycled manure solids bedding.
Salma Oueslati, Marianne Villettaz Robichaud, Stéphane Godbout, Sébastien Fournel, Pierre Ruel, Elsa Vasseur, and Doris Pellerin, Université Laval, Québec, QC, Canada, University of British Columbia, Vancouver, BC, Canada, McGill University, Ste-Anne-de-Bellevue, QC, Canada.

T10
Would cows benefit from “king-size” beds?
Véronique Boyer, Erika Edwards, Maria Francesca Guisco, Steve Adam, Peter Krawczel, Anne-Marie de Passillé, and Elsa Vasseur, McGill University, Animal Science, Montréal, QC, Canada, University of Tennessee, Animal Science, Knoxville, TN, Università degli Studi di Sassari, Sassari, Sardinia, Italy, Valacta, Ste-Anne-de-Bellevue, QC, Canada, University of British Columbia, Dairy Research and Education Centre, Agassiz, BC, Canada.

T11
Effect of prepartum lying time on stillbirth in transition dairy heifers and cows.
B. T. Menichetti, J. M. Piñeiro, A. A. Barragan, A. Relling, A. Garcia-Guerra, and G. M. Schuenemann, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, Department of Animal Sciences, The Ohio State University, Wooster, OH.
Effect of parity, season, and group size on dairy cows and heifers’ preferences for calving location.
Erika M. Edwards*, Katy L. Proudfoot†, Heather M. Dann‡, Liesel G. Schneider‡, and Peter D. Krawczel‖, The University of Tennessee, Knoxville, TN, The Ohio State University, Columbus, OH, The William H. Miner Agricultural Research Institute, Chazy, NY.

Lying behavior as an indicator of diarrhea and navel inflammation in veal calves.
Meghan J. Studds¹, Larissa L. Deikun*², Dana E. Sorter*, and Kathryn L. Proudfoot†, The Ohio State University, Columbus, OH, Provimi, Brookville, OH.

Impacts of wild birds on pathogen dissemination and behavioral interactions in dairy cattle.
Tyler P. Caskin*, John M. Gay*, Karen M. M. Steensma†, Joseph H. Harrison‡, Brian Garries³, Aurora Sarchet†, and Amber L. Adams Progar†, Department of Animal Sciences, Washington State University, Pullman, WA, Department of Veterinary Clinical Sciences, Washington State University, Pullman, WA, Departments of Biology and Environmental Studies, Trinity Western University, Langley, BC, Canada, Departments of Animal Science and Extension, Washington State University, Puyallup, WA.

Assessing human-conditioned sorting behavior in dairy cows in farm research trials.
D. Manriquez**, L. Chen†, G. Albornoz†, J. Velez†, and P. J. Pinedo†, Department of Animal Science, Colorado State University, Fort Collins, CO, Aurora Organic Dairy, Platteville, CO.

Animal Health III

Rumen degradable starch modulates ruminal epimural bacterial community and the association with rumen fermentation and production parameters of dairy goats.
Jing Shen*, Lixin Zheng, Xiaodong Chen, Xiaoying Han, and Junhu Yao, Northwest Agriculture and Forest University, Yangling, Shaanxi, China.

Effects of 2,4-thiazolidinedione on milk fatty acid profile and vitamins in dairy goats with subclinical mastitis.
Chia-Yu Tsai*, Fernanda Rosa†, Massimo Bionaz‡, and Pedram Rezamand†, University of Idaho, Moscow, ID, Oregon State University, Corvallis, OR.

Precaleging body condition score affects leukocytes count following pegbovigrastim treatment in Simmental cows around calving.
V. Lopreiato*, D. Britti, and V. M. Morritt, Interdepartmental Services Centre of Veterinary for Human and Animal Health, Department of Health Science, Magna Græcia University, Catanzaro, Italy.

Effect of central administration of an acute phase protein, α-1-acid-glycoprotein, on feed intake in sheep.
M. K. Waller*, B. A. Gregg†, P. A. Parker†, M. Garcia‡, B. J. Bradford‡, J. A. Daniel‖, and B. K. Whitlock†, College of Veterinary Medicine, University of Tennessee, Knoxville, TN, Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS, Department of Animal Science, Berry College, Mount Berry, GA.

The effects of central administration of a leptin receptor antagonist on endotoxin-induced hypophagia and fever in sheep.
B. K. Whitlock*, B. A. Gregg†, P. A. Parker†, M. K. Waller*, M. Garcia‡, B. J. Bradford‡, and J. A. Daniel‖, College of Veterinary Medicine, University of Tennessee, Knoxville, TN, Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS, Department of Animal Science, Berry College, Mount Berry, GA.

Christian Stobler†, Ursula Hofstetter*, Johannes Faass*, Barbara Doupovec‡, and Dian Schatzmayr‡, Biomin Holding, Getzersdorf, Austria, Biomin Research Center, Tulln, Austria.

In vitro effect of cowpea polyphenols on bovine rumen microbiome.
Sarah Adjei-Fremah*, Kingsley Ekwemalor, Emmanuel Asiama, Bertha Osei, Eboghoye Eluka-Okoludoh, Keith Schimmel, and Mulumebet Worku, North Carolina Agricultural and Technical State University, Greensboro, NC.

Relationship between in vitro ceftiofur minimum inhibitory concentration and quarter somatic cell count response after the occurrence of clinical mastitis caused by Klebsiella spp.
Maria J. Fuenzalida* and Pamela L. Ruegg‡, University of Wisconsin, Madison, Wisconsin, Michigan State University, East Lansing, MI.

Effects of postpartum oral calcium supplementation on productive and reproductive outcomes in Jersey cows.
A. Valdecabres* and N. Silva-del-Rio, Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.
Establishment of an in vitro rumen model with primary rumen epithelial cells.
Nicole Reisinger*, Damian Baranski, Dominik Wendner, Veronika Nagl, and Elisabeth Mayer, Biomin Research Center, Tulln, Austria.

Effects of pegbovigrastim administration on periparturient diseases, milk production, and reproductive performance of Holstein cows.

Impacts of various milk replacer supplements on the health and performance of high-risk calves.
Emily M. Davis*, Yu Liang, Tyler A. Batchelder, and Michael A. Ballou, Texas Tech University, Lubbock, TX.

Carvacrol residues in milk after prophylactic intrauterine infusion of a natural oregano essential oils product in postpartum dairy cows.
Diego Manriquez*1, Emar Freitas1, Ana Velasquez1, Juan Velez2, and Pablo J. Pinedo3, 1Department of Animal Sciences, Colorado State University, Fort Collins, CO, 2Aurora Organic Dairy, Plateville, CO, 3Van Beek Natural Science, Orange City, IA.

A mathematical modelling approach to dynamic networks: Potassium homeostasis and glucose-insulin in dairy cows.

Effect of metritis on endometrium tissue transcriptome during puerperium in Holstein lactating cows.
Sandra Genís*1,2, Anna Arís1, Manveen Kaur2, and Ronaldo L. A. Cerri2, 1Department of Animal Sciences, College of Agricultural Sciences, Colorado State University, Fort Collins, CO, 2Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO, 3Department of Veterinary Medicine, University of Guelph, Guelph, ON, Canada.

Stabilized rice bran addition in milk of non-weaned organic Holstein calves.
Ana Velasquez1, Diego Manriquez1, Sushil Paudyal1, Han Hyungchul1, Robert Callan1, Elizabeth Ryan1, and Pablo Pinedo1, 1Department of Animal Sciences, College of Agricultural Sciences, Colorado State University, Fort Collins, CO, 2Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 3Applied Animal Biology, UBC, Vancouver, BC, Canada.

Evaluation of the incidence of health events compatible with recumbency at dry-off in Denmark.
Heidi L. Hytet1, Kaspar Krogh*2, and Ana de Prado-Taranilla2, 1Danish Cattle Association, SEGES, Skejby, Denmark, 2Ceva Sante Animale, Libourne, France.

Udder health, milk production, and longevity parameters across three OmniGen-AF feeding trials.
Stephen C. Nickerson1, Felicia M. Kautz1, Lane O. Ely1, Angela D. Rowson*1, Derek J. McLean1, and James D. Chapman2, 1University of Georgia, Athens, GA, 2Phibro Animal Health Corp, Teaneck, NJ.

Induction of leaky gut through feed restriction or abomasal infusion of resistant starch in healthy post-peak lactating cows.
Paola Piantoni*, Megan A. Abeyta1, Guillermo F. Schroeder2, Hugo A. Ramirez-Ramirez2, Heather A. Tucker1, and Lance H. Baumgard2, 1Cargill Animal Nutrition Innovation Campus, Elk River, MN, 2Iowa State University, Ames, IA, 3Novus International, St. Charles, MO.

Associations between the general condition and the selling price of culled dairy cows sold at 3 Ontario auction markets in a defined time period.
Allison Moorman*1,2, Todd F. Bufffield1,2, M. Ann Godkin1, Jeffrey Rau1, and Derek B. Haley1,2, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Campbell Centre for the Study of Animal Welfare, University of Guelph, Guelph, ON, Canada, 3Ontario Ministry of Agriculture, Food and Rural Affairs, Elora, ON, Canada, 4Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

Milk yield relative to supplement intake and rumination time differs by health status for fresh cows milked with automated systems.
Meagan T. M. King*1, Kaitlin J. Sparkman2, Stephen J. LeBlanc2, and Trevor J. DeVries2, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

Young calves that will suffer at least one episode of diarrhea in the first 30 days of life have a different fecal microbiome than those that will not incur diarrhea.
Flor Correa1, Francesc Fábrega2, Virginia Aragón1, and Álex Bach*2,3, 1IRTA, Centre de Recerca en Sanitat Animal (CReSA, IRTA-UAB), Barcelona, Spain, 2Department of Ruminant Production, IRTA, Barcelona, Spain, 3ICREA, Barcelona, Spain.
T39 On-farm selection of adult fecal microbiome for transplantation into neonatal dairy calves as an enhancer for growth and development.  
Fernanda Rosa*1, Erminio Trevisìi, and Johan S. Osorio1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, US, 2Department of Animal Sciences, Food and Nutrition, Università Cattolica del Sacro Cuore, Piacenza, Italy.

T40 Evaluation of the potential enrichment of RNA from immune cells during isolation of fecal RNA from neonatal dairy calves.  
Fernanda Rosa* and Johan S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

T41 Pre- and post-weaning performance and health of dairy calves fed milk replacers supplemented with egg antibodies, direct-fed microbials, neomycin sulfate and oxytetracycline.  
David M. Ziegler*1, Hugh Chester-Jones1, Bruce E. Ziegler2, Angie K. Manthey3, and Julian L. Olson4, 1University of Minnesota, Waseca, MN; 2Hubbard Feed, Inc., Mankato, MN; 3Milk Products, Chilton, WI.

T42 Pre- and post-weaning performance and health of dairy calves fed milk replacers supplemented with an organic direct-fed microbial or neomycin sulfate and oxytetracycline.  
David M. Ziegler*1, Hugh Chester-Jones1, Yoshihiro Marubashi2, and Rena Shimizu2, 1University of Minnesota, Waseca, MN, 2Calpis America Inc., Peachtree City, GA.

T43 Pre- and post-weaning performance and health of dairy calves fed milk replacers supplemented with direct-fed microbials or neomycin sulfate and oxytetracycline.  
David M. Ziegler*1, Hugh Chester-Jones1, Bruce E. Ziegler2, Angie K. Manthey3, and Julian L. Olson4, 1University of Minnesota, Waseca, MN, 2Hubbard Feed, Inc., Mankato, MN, 3Milk Products, Chilton, WI.

T44 Identification and characterization of calf management clusters among dairy herds from Trenque Lauquen, Argentina.  
Federico Demateis Llera4, Claudina Vissio3,1, Paula Turitello1,2, Alejandra Herrera1,2, and Alejandro Larriestra3, 1Facultad de Agronomía y Veterinaria UNRC, Río Cuarto, Córdoba, Argentina, 2Facultad de Ciencias Veterinarias, UBA, Buenos Aires, Buenos Aires, Argentina, 3CONICET, Río Cuarto, Córdoba, Argentina, 4INTA, Trenque Lauquen, Buenos Aires, Argentina.

T45 Effects of a fully acidified dietary cation-anion difference diet fed at 2 different concentrations of dietary calcium inclusion prepartum on uterine health of Holstein cows after parturition.  
Kelly T. Ryan*1, Kristen M. Glosson1, Xianfei Zhang2, Scott S. Bascom3, Angela D. Rowson3, and Felipe C. Cardoso1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chenhdu, Sichuan, China, 3Phibro Animal Health Corp., Teaneck, NJ.

T46 Effects of fully acidified dietary cation-anion difference diet fed at 2 different concentrations of dietary calcium inclusion prepartum on inflammatory related blood metabolites.  
Kelly T. Ryan*1, Kristen M. Glosson1, Xianfei Zhang2, Scott S. Bascom3, Angela D. Rowson3, and Felipe C. Cardoso1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chenhdu, Sichuan, China, 3Phibro Animal Health Corp., Teaneck, NJ.

T47 Impact of intravaginal probiotic treatment prepartum on metritis prevalence and fertility.  

T48 Investigation of antibiotic alternatives to improve health and growth of veal calves.  
Jessica A. Pempek*, Elspeth M. Holder, Katy L. Proudfoot, Margaret Masterson, and Greg G. Habing, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH.

T49 A multi-site randomized field trial to evaluate the influence of lactoferrin on health of dairy calves with diarrhea.  
Jessica A. Pempek*, Lydia R. Watkins, Clara E. Bruner, and Greg G. Habing, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH.

T50 Two variants of galectin-8 secretion and expression in bovine whole blood.  
Eboghoys Eluka-Okoludoh*, Emmanuel Asiamah, Kingsley Ekwemalor, Bharath Mulakala, Sarah Adjei-Fremah, and Mulumebet Worku, North Carolina Agricultural and Technical State University, Greensboro, NC.

T51 The effects of fatty acid supplementation and provision of a dry teat on disease in veal calves.  
Larissa L. Delkun*1,2, Greg Habing1, James D. Quigley2, and Kathryn L. Proudfoot1, 1The Ohio State University, Columbus, OH, 2Provimi, Brookville, OH.

T52 Effects of metritis on incidence of postpartum disorders and days in the hospital in Holstein dairy cows.  
Fabio S. Lima*1, A. Vieira-Neto2, and Jose E. Santos2, 1Department of Veterinary Clinical Medicine, University of Illinois, Urbana, IL, 2Department of Animal Sciences, Gainesville, FL.
Comfort or stress in the housing environment: Effects on milk quality, milk production, and immune function of dairy cattle. Matthew Borchers*, 1, Anna Bradtmueller1, and Jeffrey Bewley2, 1University of Kentucky, Lexington, KY, 2CovFocused Housing, Bardstown, KY.

Blackberry pomace—A novel feed supplement for transition dairy cows. Katherine Swanson*, Sarah Akers, Kaelyn Estenson, Randi Wilson, Mark Keller, and Gerd Bobe, Oregon State University, Corvallis, OR.

Breeding and Genetics II

Phenotypic relationship between body weight changes and milk composition in dairy cows. Allison Fleming*, 1, Filippo Miglior1,2, and Christine Baes1, 1CGIL, University of Guelph, Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada.


Inbreeding depression in a Hereford beef cattle population using the pedigree and genomic information. Pattarapol Sumreddee*, 1, Sajjad Toghiani1, El Hamidi Hay2, Samuel E. Aggrey1, and Romdhane Rekaya1, 1University of Georgia, Athens, GA, 2USDA/ARS/LARRL, Miles City, MT.

Diet digestibility measured from fecal samples and associations with phenotypic and genetic merit for milk yield and composition. Emilee K. Panunzi1,2, Kevin J. Harvatine1, Y. Ying1, and Chad D. Dechow*, 1Pennsylvania State University, University Park, PA, 2University of Pennsylvania, Philadelphia, PA.

Development of AFLP breed identification markers for Pakistani Cholistani cattle. Muhammad Moaen-ud-Din* and Ghulam Bilal, Laboratories of Animal Breeding and Genetics, Faculty of Veterinary and Animal Sciences, PMAS Arid Agriculture University, Rawalpindi, Punjab, Pakistan.

Body weight and body condition score variations in Romane ewes: Intraflock variability in their dynamics and magnitude over multiple production cycles. Tiphaine Macé1, Dominique Hazard2, Fabien Carrière2, Sébastien Douls2, Christèle Robert-Granié1, and Eliel González-García*, 1GENPHYSE UMR, Castanet-Tolosan, France, 2INRA La Fage UE, Roquefort-sur-Soulzon, France, 3INRA SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), Montpellier, France.

Genome-wide association study on health and reproductive traits in US Holstein cattle. Fernando Brito1, Guilherme Rosa1, Pablo Pinedo*, Jose Santos1, Gustavo Schuenemann4, Rodrigo Bicalho1, Klibs Galvao1, Robert Gilbert2, 3, Sandra Rodriguez-Zas2, Christopher Seabury1, John Fetrow1, and William Thatcher1, 1University of Wisconsin, Madison, WI, 2Colorado State University, Fort Collins, CO, 3University of Florida, Gainesville, FL, 4The Ohio State University, Columbus, OH, 5Cornell University, Ithaca, NY, 6University of Illinois, Urbana-Champaign, IL, 7Texas A&M University, College Station, TX, 8University of Minnesota, Saint Paul, MN, 9Ross University, Basseterre, St. Kitts and Nevis, West Indies.

Genetic and functional relationships among reproductive traits in US Holstein cows. Fernando Brito1, Guilherme Rosa1, Pablo Pinedo*, Jose Santos1, Gustavo Schuenemann1, Rodrigo Bicalho1, Ricardo Chebel1, Klibs Galvao1, Robert Gilbert2, 3, Sandra Rodriguez-Zas2, Christopher Seabury1, John Fetrow1, and William Thatcher1, 1University of Wisconsin, Madison, WI, 2Colorado State University, Fort Collins, CO, 3University of Florida, Gainesville, FL, 4The Ohio State University, Columbus, OH, 5Cornell University, Ithaca, NY, 6University of Illinois, Urbana-Champaign, IL, 7Texas A&M University, College Station, TX, 8University of Minnesota, Saint Paul, MN, 9Ross University, Basseterre, St. Kitts and Nevis, West Indies.

Dairy Foods IV: Cheese

Rheological and wear behaviors of full-fat cheese. Fariba Zad Bagher Seighalani* and Helen Jayner, School of Food Science, University of Idaho, Moscow, ID.
T63 Effects of composition, processing, and recovery of buffalo milk solids on the yield of mozzarella cheese.
D. C. Sales¹, A. H. N. Rangel²*, L. H. F. Borba¹, S. A. Urbano¹, A. F. Brito¹, J. G. B. Galvão Jr.², H. Tonhati¹, E. G. Silva¹, A. R. Freitas³, and D. M. Lima Jr.⁴, ¹Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, ²Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, ³University of New Hampshire, Durham, NH, ⁴Empresa Brasileira de Pesquisa Agropecuária, São Carlos, SP, Brazil, ⁵Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, SP, Brazil, ⁶Universidade Federal de Alagoas, Arapiraca, AL, Brazil.

T64 Sensory acceptance of Coalho cheese from Zebu cow milk.
I. L. S. Oliveira¹, A. H. N. Rangel²*, R. C. Madruga¹, M. F. Bezerra¹, Y. M. O. Silva¹, R. D. S. Gomes¹, J. S. Bezerra², E. O. Moura¹, L. F. C. Trindade¹, and J. G. B. Galvão Jr.², ¹Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, ²Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, ³Associação Brasileira dos Criadores de Zebu, Parnamirim, RN, Brazil.

T65 Sensorial acceptance of pasteurized fluid milk and Coalho cheese from milk with two levels of somatic cell counts.
J. S. Bezerra¹, A. H. N. Rangel²*, L. Murmann¹, J. G. B. Galvão Jr.², E. P. E. Silva¹, Y. M. O. Silva¹, C. S. Macedo¹, A. L. Vasconcelos¹, R. D. S. Gomes¹, and L. H. F. Borba¹, ¹Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, ²Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil.

T66 Sodium analysis equivalency of dry ashing and microwave assisted digestion of mozzarella cheese.
Dustin Grossbier* and Tonya Schoenfuss, University of Minnesota, Minneapolis, MN.

T67 Influence of using different proportions of cow and goat milk on the properties of Chanco cheese.
Rodrigo A. Ibáñez¹*, Stefanie Wyhmeister¹, Carolina Geldsetzer-Mendoza¹, Marcela Medel-Marabolí², María A. Fellenberg¹, and Einar Vargas-Bello-Pérez³, Pontificia Universidad Católica de Chile, Santiago, Chile, ²University of Chile, Santiago, Chile, ³University of Copenhagen, Copenhagen, Denmark.

T68 Textural characteristics of caprine milk Cheddar cheeses supplemented with microencapsulated and regular ferrous sulfate.
Aftab Siddique*, Roshan Paswan, and Young W. Park, Fort Valley State University, Fort Valley, GA.

T69 Volume of whey expelled and whey composition as influence by salting, wet and dry season.
Olusegun D. Oshibanjo*, K. L. Kazeem, and David Ojo Akintola, University of Ibadan, Ibadan, Oyo Nigeria.

T70 The effect of high hydrostatic pressure on the texture, appearance, and shelf life of Camembert type cheese.
Danton Batty*, Danica Berry, Lisbeth Muenier-Goddik, and Joy Waite-Cusic, Oregon State University, Corvallis, OR.

Dairy Foods V: Microbiology

T71 Identification of bacteria responsible for off-odor development in non-fat chocolate milk.
Danton Batty*, Lisbeth Muenier-Goddik, and Joy Waite-Cusic, Oregon State University, Corvallis, OR.

T72 Lactose oxidase: An enzymatic preservative of raw milk.
Sofía Lara* and Samuel D. Alcaine, Cornell University, Ithaca, NY.

T73 Lactobacillus wasatchensis does not survive pasteurization of milk prior to cheesemaking.
Isaac Bowen**, Donald McMahon¹, and Craig Oberg², ¹Utah State University, Logan, UT, ²Weber State University, Ogden, UT.

T74 Isolation of a Lactobacillus wasatchensis-like isolate from an aged European Cheddar cheese showing late gas defects.
Isaac Martineau*¹, Michele Cumber¹, Craig Oberg¹, and Donald McMahon², ¹Weber State University, Ogden, UT, ²Utah State University, Logan, UT.

T75 Suppressing growth of Lactobacillus wasatchensis WDC04 using organic acids.
Ireland Green**, Craig Oberg¹, Matthew Domek¹, and Donald McMahon², ¹Weber State University, Ogden, UT, ²Utah State University, Logan, UT.

T76 Inhibition of Lactobacillus wasatchensis by bio-protective lactic acid bacteria.
Sophie Overbeck*, Craig Oberg¹,², Michele Cumber¹, and Donald McMahon², ¹Weber State University, Ogden, UT, ²Utah State University, Logan, UT.
T77 Potential protective effect of bifidobacteria isolated from Egyptian yogurt against carbapenem-resistant Acinetobacter baumannii.
Mahmoud Motawee*, Sherin M. A. Sharaf, and Neveen M. Saleh, 1Nutritional Evaluation and Food Science Department, National Organization for Drug Control and Research, Giza, Egypt, 2Microbiology Department, National Organization for Drug Control and Research, Giza, Egypt.

T78 A selective medium for the enumeration and differentiation of Lactobacillus delbrueckii ssp. bulgaricus.
Nwadiuto Nwamaioha*, Rabin Gyawali, Tahl Zimmerman, and Salam A. Ibrahim, North Carolina A&T State University, Greensboro, NC.

T79 A survey of live microorganisms in fermented foods.
Shannon D. Rezac*, Melanie Heermann, Car Reen Kok, and Robert Hutkins, 1University of Nebraska-Lincoln, Lincoln, NE, 2University of Illinois Urbana-Champaign, Urbana, IL.

T80 Fermented carbonated dairy beverage: Microbial and physicochemical characteristics.
Katherine Miley* and Kayanush Aryana*, 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University Agricultural Center, Baton Rouge, LA.

T81 High concentrations of cinnamon are needed to lower the counts of Lactococcus lactis R 604.
Madison Hannan* and Kayanush Aryana*, 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University Agricultural Center, Baton Rouge, LA.

T82 A yogurt-based activity designed to improve understanding of biochemistry concepts.
Tahl Zimmerman and Salam Ibrahim*, North Carolina A&T State University, Greensboro, NC.

T83 Raw milk microbiome of naturalized Brazilian breeds Curraleiro Pé-Duro and Pantaneiro.
Nayana R. Soares, Marília C. Sola, Clarice Gebara*, Giovana V. Barancelli, Ozana F. Zaccaroni, Maria Clorinda S. Fioravanti, Edmar S. Nicolau, and Cíntia S. Minafra-Rezende, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2Unified Higher Education Institute, Objetivo Faculty, Goiânia, Goiás, Brazil, 3Department of Agro-Industry, Food and Nutrition, “Luiz de Queiroz” College of Agriculture, University of São Paulo, Piracicaba, São Paulo, Brazil, 4School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

Dairy Foods VI

T84 Sensory evaluation of whey fermented beverages with buttermilk and Brazilian Cerrado fruit.
Renata T. Pfrimer, Lohanne Damasceno, Cláudio F. Cardoso, Thamara V. de Almeida, Juc A. R. S. More, Emmanuel Arnhold, Edmar S. Nicolau, and Clarice Gebara*, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil, 3School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

T85 Development and characterization of whey fermented beverages with buttermilk and Cagaita pulp (Eugenia dysenterica).
Lohanne Damasceno*, Renata T. Pfrimer, Cláudio F. Cardoso, Ruthiele M. do Carmo, Cíntia S. Minafra-Rezende, Emmanuel Arnhold, Cristiano S. Prado, Edmar S. Nicolau, and Clarice Gebara, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil, 3School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

T86 Bronopol-based preservatives evaluation on somatic cell count and chemical composition of raw milk samples.
Sílvia Dámaso, Thamara V. de Almeida, Tatiana L. Battistoti, Jean R. de Sousa, Renata T. Pfrimer, Lohanne Damasceno, Emmanuel Arnhold, Iolanda A. Nunes, Edmar S. Nicolau, and Clarice Gebara, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

T87 Proteomic analysis on whey proteins of Guanzhong goat milk.
Yuxue Sun*, Cuina Wang, Xiaomeng Sun, and Mingruo Guo, 1Department of Food Science, College of Food Science and Engineering, Jilin University, Changchun, Jilin, China, 2Department of Nutrition and Food Sciences, College of Agriculture and Life Sciences, University of Vermont, Burlington, VT.

T88 Preservation of lactase activity in a gastric environment.
John F. Flanagan*, Josh Simmons, J. Ronnie Boone, Cooper Elkins, and Kent Clinger, David Lipscomb University, Nashville, TN.
Changes in structure and antioxidant activity of β-lactoglobulin by ultrasound and enzymatic treatment.
Shuang Ma1, Cuina Wang1, and Mingrui Guo*2, 1Department of Food Science, College of Food Science and Engineering, Jilin University, Changchun, Jilin, China, 2Department of Nutrition and Food Sciences, College of Agricultural and Life Sciences, University of Vermont, Burlington, VT.

Evaluation of the potential of bovine immunoglobulins and glycomacropeptide to serve as sources of peptides with dipeptide- peptide IV inhibitory activity.
Isabelle M. E. Lacroix*1, Brian Anderson2, Don E. Otter1, and Robert D. Bremel1, 1Wageningen University & Research, Wageningen, the Netherlands, 2ioGenetics LLC, Madison, WI, 3Centre for Dairy Research, University of Wisconsin-Madison, Madison, WI.

Physicochemical modifications of MFGM proteins during temperature processing of milk.
Feiran Yu*, Joana Ortega-Anaya, and Rafael Jimenez-Flores, The Ohio State University, Columbus, OH.

Localization of milk gangliosides in emulsion monolayers that resemble the milk fat globule membrane outer leaflet.
Luis M. Real Hernandez*1,2, Tadesse Worako1, and Berhanu Shano1, 1Wolaita Sodo University, Sodo, Ethiopia, 2Addis Ababa University, Addis Ababa, Ethiopia.

Acid-induced gel properties of dry-heated low-heat nonfat dry milk.
Karolina Sanchez Alan* and Karen Schmidt, Kansas State University, Manhattan, KS.

Power ultrasound as a tool to modify texture properties of protein enriched acid milk gels.
Adrian Orlando Körzendörfer*, Jörg Hinrichs, and Stefan Nöbel, University of Hohenheim, Institute of Food Science and Biotechnology, Stuttgart, BW, Germany.

Physical chemical and sensory evaluation of yogurt enriched with tamarind pulp.
Márcio Ramatiz Lima Santos*, João Victor Moreira Oliveira, Maurilio Antônio Damacena Silva, Juliano Silva Queiro, and Manoel Rodrigues Fraga Neto, Instituto Federal Goiano Campus Ceres, Ceres, Goiás, Brazil.

Quality of yogurt formulated with radiofrequency dielectric treated nonfat dry milk.
Stephanie Brooks* and Karen Schmidt, Kansas State University, Manhattan, KS.

Pectin and whey protein concentrate reduces acid whey generation in Greek style yogurt.
Rabin Gyawali*, Tahl Zimmerman, and Salam A. Ibrahim, North Carolina A&T State University, Greensboro, NC.

Effect of hydrocolloids on the water-holding capacity of Greek style yogurt.
Salam A. Ibrahim*, Rabin Gyawali, and Tahl Zimmerman, North Carolina A&T State University, Greensboro, NC.

Comparison of natural sweeteners in low carbohydrate whey protein bars.
Heather McCain Keefer* and MaryAnne Drake, North Carolina State University, Raleigh, NC.

Contamination and spatial distribution of Pb, As, and Cd contents in Chinese cow raw milk.
Xuewei Zhou1,2, Xueyin Qu1, Nan Zheng1, Chuanyou Su1, Jiaqi Wang*1, and Helene Soyeurt1, 1Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Statistics, Informatics and Applied Modeling lab, Agrobiochem Department, Gembloux Agro-Bio Tech, University of Liège, Liège, Belgium.

Aptamer-based fluorescence-quenching assay for detection of aflatoxin M₁ in milk samples.
Qinqin Qiao1,2, Fang Wen1,2, Lu Chen1,3, Jianbo Cheng2, Hao Zhang1,3, Songli Li1,3, Nan Zheng1,3, and Jiaqi Wang*1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Agricultural University, Hefei, China, 3Milk and Milk Product Inspection Center of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Modulation of intestinal epithelial permeability in differentiated Caco-2 cells exposed to aflatoxin M₁ and ochratoxin A individually or collectively.
Y. N. Gao1,2, J. Q. Wang*1,2, C. C. Luo1,2, and N. Zheng1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.
T104 Quantitative PCR coupled with sodium dodecyl sulfate and propidium monoazide for detection of viable Staphylococcus aureus in milk.
Lei Dong1−2, Huimin Liu1−2, Lu Meng1−2, Nan Zheng1−2, and JiaQi Wang∗1,2, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

T105 Occurrence of tetracyclines, quinolones, lincomycin and streptomycin in milk in China’s market.
Bingyao Du1,2, Fang Wen1, Yangdong Zhang1, Nan Zheng1, Songli Li1, Fadi Li1, and Jiaqi Wang∗1, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China; 2College of Pastoral Agriculture Science and Technology, Lanzhou University, Lanzhou, China.

T106 Development of a rapid detection method of lactoperoxidase in milk.
Weijing Du1,2, Yangdong Zhang1,2, Nan Zheng1,2, Fadi Li1, and Jiaqi Wang∗1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China; 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China; 3Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

T107 Identification and proteolytic activity quantification of Pseudomonas spp. isolated from different raw milks at storage temperatures.
Lu Meng1,2, Huimin Liu1,2, Lei Dong1,2, Nan Zheng1,2, and Jiaqi Wang∗1,2, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China; 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Forages and Pastures II

T108 Application of a handheld infrared meter for determining silage moisture.
Jarrod J. Blackburn∗1, Richard G. Bonner2, John P. Goeser3, Christopher L. Vahl4, and Micheal J. Brouk5, 1Kansas State University, Manhattan, KS; 2Topcon Agriculture Americas, Fort Atkinson, WI; 3Rock-River Laboratories, Watertown, WI.

Ralph Ward∗1, D. Ye2, Arkady Buman2, D. Pecard3, and David R. Mertens2, 1Cumberland Valley Analytical Services, Waynesboro, PA; 2Bruker AXS Inc., Madison, WI; 3Mertens Innovation & Research LLC, Belleville, WI.

T110 Effect of corn planting population on phosphorus concentration and extraction in the forage (study 1).
Gonzalo Ferreira∗1 and Christy Teets, Department of Dairy Science, Virginia Tech, Blacksburg, VA.

T111 Effect of corn planting population on phosphorus concentration and extraction in the forage (study 2).
Gonzalo Ferreira and Christy L. Teets∗1, Department of Dairy Science, Virginia Tech, Blacksburg, VA.

T112 Effect of bacterial inoculants containing Lactobacillus buchneri and/or Lactobacillus hilgardii on the fermentation and quality of corn silage.
Kathy G. Arriola∗1, Diwakar Vyas, Donghyeon Kim, Mariele C. Agarussi, Vanessa P. Silva, Juan M. Flores, Yun Jiang, Andres A. Pech-Cervantes, and Adégbola T. Adesogan, Department of Animal Sciences, University of Florida, Gainesville, FL.

T113 Meta-analysis of the effect of Lactobacillus buchneri inoculation on dry matter recovery and aerobic stability of silages.
Kathy G. Arriola∗1, Andre S. Oliveira1, Yun Jiang2, Ibukun M. Ogunade1, Donghyeon Kim1, Henrique M. Silva2, Felipe X. Amaro1, Andres A. Pech-Cervantes2, Sam C. Kim3, Halima Sultana4, Diwakar Vyas1, Luiz F. Ferraretto1, and Adégbola T. Adesogan1, 1Department of Animal Sciences, University of Florida, Gainesville, FL; 2Institute of Agriculture and Environmental Sciences, Universidade Federal de Maio Grosso, Sinop, Brazil; 3Division of Applied Life Science, Gyeongsang National University, Jinju, South Korea.

T114 Impacts of silage bacterial additives on forage fiber.
Pascal Drouin∗1, Salvador Ordaz2, and Pattathil Sivakumar3, 1Lallemand Specialities Inc., Milwaukee, WI; 2University of Vermont, Burlington, VT; 3Lallemand Inc., Lebanon, NH.
T115 Pasture base dairy farm intensification: the role of growth strategy (stocking rate vs. individual milk production) and availability of infrastructure.
Martin Aguerre*1, María N. Méndez1, Santiago Torterolo1, and Pablo Chilibroste2, 1Red Tecnológica Sectorial de Lecheria, Montevideo, Uruguay, 2Departamento de Producción Animal y Pasturas, Facultad de Agronomía, UdelaR, Paysandú, Uruguay.

T116 Effects of forage allowance on production and pasture use efficiency in Uruguay.
Anderson de Moura Zanine1, Gianni Paolo Motta Rebuffo2, Grazielle Silva Oliveira**, Danielle de Jesus Ferreira1, Ricardo Martins Araujo Pinho1, Michelle de Oliveira Maia Parente1, and Henrique Nunes Parente1, 1Universidade Federal do Maranhão, Chapadinha, Maranhão, Brazil, 2Universidade Federal do Mato Grosso, Cuiabá, Mato Grosso, Brazil.

T117 Milk production and composition of dairy cows in response to pasture allowance.
Anderson de Moura Zanine1, Gianni Paolo Motta Rebuffo2, Grazielle Silva Oliveira**, Danielle de Jesus Ferreira1, Ricardo Martins Araujo Pinho1, Michelle de Oliveira Maia Parente1, and Henrique Nunes Parente1, 1Universidade Federal do Maranhão, Chapadinha, Maranhão, Brazil, 2Universidade Federal do Mato Grosso, Cuiabá, Mato Grosso, Brazil.

T118 Pasture dry matter intake in intensive dairy production systems: effects of grazing and feeding management.
Maria N. Méndez*1, Pablo Chilibroste2, and Martin Aguerre, 1Red Tecnológica Sectorial de Lecheria, Montevideo, Uruguay, 2Departamento de Producción Animal y Pasturas, Facultad de Agronomía, UdelaR, Paysandú, Uruguay.

T119 Effect of stocking rate on pasture production and utilization on a grazing dairy system during winter and spring.
Gastón Ortega*1, Tatiana Nuñez2, Diego Custodio1, Ricardo Mello2, Yselsa Lopez2, and Pablo Chilibroste2, 1Agronomy Faculty, Animal Science Department, Progreso, Canelones, Uruguay, 2Agronomy Faculty, Animal Science Department, Grass Production and Utilization on Grazing Systems, Paysandú, Paysandú, Uruguay.

T120 Silage feeding programs on intensive dairy farms.
Thiago Bernardes*, Marcus Cardoso, and Luciana Lima, Department of Animal Science, University of Lavras, Lavras, Minas Gerais, Brazil.

T121 New approach to properly characterize molasses composition.
Alberto Palmonari1, Ludovica Mammi1, Damiano Cavallini1,*, Charles J. Sniffen1, Luiza Fernandes1, Phil Holder3, and Andrea Formigoni1, 1DIMETV, Università di Bologna, Bologna, Italy, 2Encrest LLC, Holderness, NH, 3ED&F Man Liquid Products/ Westway Feeds, London, United Kingdom.

T122 Effects of microbial inoculant and molasses on whole-plant soybean silage harvested in different reproductive growth stages.

T123 Growth rate and biomass accumulation in forage maize (Zea mays), forage millet (Echinochloa utilis), elephant grass (Pennisetum purpureum) and gamba grass (Andropogon gayanus).

T124 Effect of nitrogen dose and harvesting age on Tithonia diversifolia yield and quality.
Jorge A. Elizondo-Salazar** and María Gabriela Mora-Mora2, 1Universidad de Costa Rica, San Jose, Costa Rica, 2Ministerio de Agricultura y Ganadería, San Jose, Costa Rica.

T125 Aerobic stability and ruminal degradation of savoy grass silage (Megathyrsus maximus) with increasing levels of passion fruit (Passiflora edulis) peel.

T126 Effect of cellulase and fermentation period on the nutritive value of Panicum maximum (cv. Mombasa) silage.

**Growth and Development I**

T127 Effects of overstocking at the feedbunk on the growth performance of replacement Holstein dairy heifers.
Wayne K. Coblentz*1, Matthew S. Akins2, Nancy M. Esser2, Robin K. Ogden1, and Sonia L. Gelsinger2, 1US Dairy Forage Research Center, Marshfield, WI, 2University of Wisconsin, Madison, WI.
Estimation of starter intake in young dairy calves during the preweaning phase.
V. L. Daley*, J. K. Drackley, C. M. M. Bittar, L. O. Tedeschi, S. Y. Morison, P. A. LaPierre, and M. D. Hanigan, National Animal Nutrition Program (NANP), Lexington, KY, University of Illinois, Urbana, IL, University of São Paulo (ESALQ/USP), Piracicaba, São Paulo, Brazil, Texas A&M University, College Station, TX, Virginia Tech, Blacksburg, VA.

Effect of type of gradual weaning program on intakes and growth of dairy calves fed a high level of milk.
Sarah D. Parsons*, Ken E. Leslie, Michael A. Steele, and Trevor J. DeVries, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, Department of Population Medicine, University of Guelph, Guelph, ON, Canada, Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Effect of maternal supplementation with essential fatty acids and conjugated linoleic acid on fatty acid status in neonatal calves.
Harald M. Hammon*, Katrin L. Uken, Laura Vogel, Martina Gnott, Armin Tuchscherer, Arnulf Tröschler, and Dirk Dannenberg, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, BASF SE, Lampertheim, Germany.

Effect of maternal supplementation with essential fatty acids and conjugated linoleic acid on postnatal glucose metabolism in calves.
Harald M. Hammon*, Katrin L. Uken, Laura Vogel, Martina Gnott, Solvig Görs, Joachim M. Weitzel, Armin Tuchscherer, and Arnulf Tröschler, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, BASF SE, Lampertheim, Germany.

Effects of corn processing and bypass soybean meal in calf starter on growth and digestibility in young dairy calves.
T. S. Dennis*, F. X. Suarez-Mena, T. M. Hill, J. D. Quigley, W. Hu, and R. L. Schlotterbeck, Proviimi, Brookville, OH.

Effects of corn processing and bypass soybean meal in calf starter on growth and digestibility in dairy calves from 2 to 4 mo of age.
T. S. Dennis*, F. X. Suarez-Mena, T. M. Hill, J. D. Quigley, W. Hu, and R. L. Schlotterbeck, Proviimi, Brookville, OH.

Supplementing pasteurized colostrum from primiparous cows with colostrum replacer improves colostrum quality and serum IgG levels in Holstein neonate calves.
Sonia Vázquez-Flores*, Adam J. Geiger, Andrea E. Olamendi-Uresti, Dulce M. Aguilar-López, Luz E. Díaz, and Cecilia Lucio Rodríguez, Department of Bio-engineering, Tecnológico de Monterrey campus, Querétaro, Mexico, Zinpro Corp., Eden Prairie, MN.

Dietary effects on rumen epithelial proliferation dynamics in preweaned calves.
Taylor T. Yohe*, Catherine L. M. Parsons, Hannah L. M. Tucker, Benjamin D. Enger, Nicole R. Hardy, and Kristy M. Daniels, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Ruminal and whole-tract diet digestion in calves before, during and after weaning.
Sonja L. Gelsinger*, Wayne K. Coblenz, Geoffrey I. Zanton, and Robin K. Ogden, University of Wisconsin, Madison, WI, United States Department of Agriculture Dairy Forage Research Center, Madison, WI.

Phenotypic evaluation of body weight at first calving.
L. Han*, A. J. Heinrichs, A. DeVries, and C. D. Dechow, Department of Dairy and Animal Science, The Pennsylvania State University, University Park, PA, Department of Animal Sciences, University of Florida, Gainesville, FL.

Performance effects of feeding Holstein calves a whole milk formulated milk replacer.
Aaron J. Keunen* and David L. Renaud, Mapleview Agri Ltd, Palmerston, ON, Canada, Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

Prediction of metabolizable energy in calf starters.
James D. Quigley*, Thelton M. Hill, Joanne R. Knapp, Wenping Hu, Tana S. Dennis, Francisco X. Suarez-Mena, and Rick L. Schlotterbeck, Proviimi, Brookville, OH.

Weaning based on starter intake: Effects on weight gain and behavior.

Effects of feeding different amounts of milk replacer on nutrient digestibility in Holstein calves to 2 months of age using different weaning transition strategies.
Effects of feeding different amounts of milk replacer on nutrient digestibility in 2- to 4-month-old Holstein calves using different weaning transition strategies.
R. N. Klopp1,², T. M. Hill1, F. X. Suarez-Mena2, R. L. Schlotterbeck2, and G. J. Lascano1, ³Clemson University, Clemson, SC, ²Nurture Research Center, Provimi, Brookville, OH.

Effect of milk replacer feeding program on calf performance and digestion.
F. X. Suarez-Mena1, T. S. Dennis1, T. M. Hill1, W. Hu1, J. D. Quigley1, R. L. Schlotterbeck1, R. N. Klopp2, G. J. Lascano2, and L. E. Hulbert1, ¹Provimi, Brookville, OH, ²Clemson University, Clemson, SC, ³Kansas State University, Manhattan, KS.

Effect of previous milk replacer feeding program on calf performance and digestion from 2 to 4 mo of age.
F. X. Suarez-Mena1, T. S. Dennis1, T. M. Hill1, W. Hu1, J. D. Quigley1, R. L. Schlotterbeck1, R. N. Klopp2, G. J. Lascano2, and L. E. Hulbert1, ¹Provimi, Brookville, OH, ²Clemson University, Clemson, SC, ³Kansas State University, Manhattan, KS.

The effects of fatty acid supplementation and provision of a dry teat on the growth of veal calves.
Larissa L. Deikun1,², Greg G. Habing1, James D. Quigley1, and Kathryn L. Proudfoot1, ¹The Ohio State University, Columbus, OH, ²Provimi, Brookville, OH.

Lactation Biology II

Varying the ratio of Lys:Met while maintaining the ratios of Thr:Phe, Lys:Thr, Lys:His, and Lys:Val alters bovine mammary cell transcriptome profiles measured by RNA-sequencing.
Xianwen Dong1,², Zheng Zhou3,⁴, Ariane Helmbrecht⁴, Claudia Parrys⁴, Z. Wang⁴, and Juan J. Loor1, ¹University of Illinois, Urbana, IL, ²Sichuan Agricultural University, Ya’an, Sichuan Province, China, ³Clemson University, Clemson, SC, ⁴Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

Methionine and valine activate the mTORC1 pathway through heterodimeric amino acid taste receptor (TAS1R1/TAS1R3) and intracellular Ca²⁺ in primary bovine mammary epithelial cells.
Yuanfei Zhou1,³, Zheng Zhou3,⁴, and Juan J. Loor1, ¹University of Illinois, Urbana-Champaign, Urbana, IL, ²Clemson University, Clemson, SC, ³Huazhong Agricultural University, Wuhan, Hubei, China.

Increasing the availability of Thr, Ile, Val, and Leu relative to Lys while maintaining an ideal ratio of Lys:Met alters bovine mammary cell transcriptome profiles measured by RNA-sequencing.
Xianwen Dong1,², Zheng Zhou3,⁴, Ariane Helmbrecht⁴, Claudia Parrys⁴, Z. Wang⁴, and Juan J. Loor1, ¹University of Illinois, Urbana, IL, ²Sichuan Agricultural University, Ya’an, Sichuan Province, China, ³Clemson University, Clemson, SC, ⁴Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

Milk composition of Holstein cows through two lactations.
Alex Pape1,², Heather M. Dann1, David M. Barbano2, and Richard J. Grant1, ¹William H. Miner Agricultural Research Institute, Chazy, NY, ²Department of Food Science, Northeast Dairy Food Research Center, Cornell University, Ithaca, NY.

Method for calibrating parlor milk meters and adjusting milk weights for stall effects.
Danielle M. Andreen*, Isaac J. Salfer, Yun Ying, and Kevin J. Harvatine, Pennsylvania State University, University Park, PA.

Intramammary 25-hydroxyvitamin D₃ and 1,25-dihydroxyvitamin D₃ treatments differentially modulate serum calcium and mammary immune responses.

Effects of in vivo estradiol administration on abundance and localization of yes-associated protein, an evolutionarily conserved molecule implicated in organism size regulation, in prepubertal bovine mammary tissue.
Paulnisha D. Granger*, Adam J. Geiger1,², Catherine L. M. Parsons1, Kristy M. Daniels1, Robert M. Akers1, and Benjamin A. Corl1, ¹Virginia Polytechnic Institute and State University, Blacksburg, VA, ²Zinpro Corp., Eden Prairie, MN.

Regulation of lipogenic genes by AMPK in bovine mammary epithelial cells.
Jianhui Huang* and Marc-Antoine Guesthier, McGill University, Sainte-Anne-de-Bellevue, QC, Canada.

Stearic acid increased milk fat content in lactating dairy ewes at late lactation.
Rafaella Horstmann, Georgia C. De Aguiar, Lais P. Batalha, and Dimas E. Oliveira*, Santa Catarina State University, Lages, Santa Catarina, Brazil.
Physiology and Endocrinology II

T155  Relationships of metabolites and hormones in follicular fluid and blood serum in transition dairy cows supplemented with a \textit{Saccharomyces cerevisiae} fermentation product.
Julie A. Sauls*, Katie E. Olagaray, Sarah E. Sivinski, Barry J. Bradford, and Jeffrey S. Stevenson, Kansas State University, Manhattan, KS.

T156  Hyperketonemia does not affect proportional uptake of fatty acids by the mammary gland.
Kristina A. Weld*, Rafael C. Oliveira, Kayla J. Sailer, Henry T. Holdorf, Sandy J. Bertics, and Heather M. White, University of Wisconsin-Madison, Madison, WI.

T157  The relationship between plasma and liver fatty acid profiles in transition dairy cows.
Kristina A. Weld*, Rafael C. Oliveira, Kayla J. Sailer, Henry T. Holdorf, Sandy J. Bertics, and Heather M. White, University of Wisconsin-Madison, Madison, WI.

T158  Fatty acid profiles in plasma and liver lipids are influenced by hyperketonemia in dairy cows.
Kristina A. Weld*, Rafael C. Oliveira, Kayla J. Sailer, Henry T. Holdorf, Sandy J. Bertics, and Heather M. White, University of Wisconsin-Madison, Madison, WI.

T159  Effects of dietary zinc on energetic requirements of an activated immune system following lipopolysaccharide challenge in lactating cows.
E. A. Horst*1, E. J. Mayorga; S. L. Portner1, M. Al-Qaisi1, C. S. McCarthy1, M. A. Abeyta1, B. M. Goetz1, H. A. Ramirez-Ramirez1, D. H. Kleinschmit2, and L. H. Baumgard3, 1Iowa State University, Ames, IA, 2Zinpro Corp., Eden Prairie, MN.

T160  Effects of heat stress and nutritional plane on neutrophil function.

T161  Thermoregulatory response of lactating Holsteins to an acute heat stress after a pharmacologically induced LH surge.
Chelsea R. Abbott*, Arnold M. Saxton, Tate Walker, Roger Long, Louisa A. Rispoli, Rebecca R. Payton, Ramiro Oliviera Filho, Felipe G. Dantas, Kelly A. Campen, Rafael Carvalho, Ky G. Pohler, Neal Schnick, and Lannett Edwards, University of Tennessee, Knoxville, TN.

T162  Sweat gland cross-sectional cut areas comparisons between slick and wild type-haired Holstein and Senepol cows in Puerto Rico.
J. M. Muñiz-Cruz*, N. Peña-Alvarado1, W. Torres-Ruiz2, J. R. Almodóvar-Rivera1, K. I. Domenech-Pérez2, Z. E. Contreras-Correa3, G. C. Muñiz-Colón1, A. C. Cortés-Arocho1, J. M. Santiago-Rodríguez1, S. Ruiz-Rios1, G. A. Soriano-Varela1, N. N. Cortés-Viruet1, A. L. Jiménez-Arroyo1, G. M. Jiménez-Arroyo1, H. L. Sánchez-Rodríguez2, 1Department of Animal Science, University of Puerto Rico at Mayagüez Campus, Mayagüez, Puerto Rico, 2Laboratorio de Investigaciones Pesqueras, Departamento de Recursos Naturales y Ambientales, Cabo Rojo, Puerto Rico, 3Department of Biology, University of Puerto Rico at Mayagüez Campus, Mayagüez, Puerto Rico.

T164  Effect of lactation stage on transfer of n-3 fatty acids to milk fat in dairy cows.
Natalie L. Urrutia*, Rebecca Bomberger1, Michel Baldwin1, and Kevin J. Harvatine1, 1The Pennsylvania State University, University Park, PA, 2Instituto de Investigaciones Agropecuarias, Osorno, Region de Los Lagos, Chile.

T165  Level of estrogen in mammary parenchyma explants from weaned Holstein heifer calves increases growth and proliferation through transcriptional mechanisms as evaluated via RNA-sequencing.
M. Vaiati Riboni*1, V. Palombo1, A. J. Geiger1, R. M. Akers1, and J. J. Loor2, 1University of Illinois at Urbana-Champaign, Urbana, IL, 2Universidad de las Playas de Rosarito, Tijuana, Mexico.

T166  Plasma metabolomics profiling of cattle with divergent residual feed intake.
Ahmed Ellolimy*1,2, Zheng Zhou1, Daniel Shike2, and Juan Loor1,2, 1Mammalian NutriPhysioGenomics, Department of Animal Sciences, University of Illinois, Urbana, IL, 2Department of Animal Sciences, University of Illinois, Urbana, IL, 3Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC.

T167  Anti-inflammatory treatment in early lactation alters global mammary DNA methylation.
C. M. Ylioja*1, A. J. Carpenter2, M. Garcia1, L. K. Mamedova1, and B. J. Bradford3, 1Kansas State University, Manhattan, KS, 2University of Guelph, Ridgetown, ON, Canada.

T168  Does post-absorptive propionate clearance influence insulin sensitivity in dairy heifers?
Effect of glucose infusion dose on glucose tolerance test kinetics in lactating dairy cows.
Erika N. Smith*, MaryGrace Erickson, Fabiana F. Cardoso, Brooklyn P. Biese, Juliana G. Laguna, Jessica Bydalek, and Shawn S. Donkin, Purdue University, West Lafayette, IN.

Effect of serial corpus luteum biopsy collection during early pregnancy on corpus luteum function, size, blood flow, and gene expression.
Robert Wijma, Emily M. Sitko*, Martin M. Perez, and Julio O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY.

Expression of interferon-stimulated gene 15 (ISG15) mRNA is partially predictive of pregnancy-associated glycoprotein (PAG) concentrations during early pregnancy in dairy cows and heifers.

Embryo and cow factors affecting pregnancy rate after embryo transfer to multiple-service dairy cows.
Eliab Estrada-Cortes*, William G. Ortiz, Ricardo C. Chebel12, Elizabeth A. Jannaman1, James I. Moss1, Fernanda C. de Castro2, Adriana M. Zolini2, Charles R. Staples1, and Peter J. Hansen1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 1Large Animal Clinical Sciences, University of Florida, Gainesville, FL, 1Departamento de Medicina Veterinária, Universidade de São Paulo, Pirassununga, São Paulo, Brazil.

Effect of dose of cloprostenol on luteal blood flow measurements in mature and immature corpora lutea.
Thaina Minela*, Emily L. Middleton, Michael R. Herman, Shianne N. Berthume, and J. Richard Pursley, Michigan State University, East Lansing, MI.

Production, Management, and Environment II

Effects of different heating time of high, medium, and low quality colostrum on IgG absorption in dairy calves.
D. J. Saldaña*1, S. L. Gelsinger2, C. M. Jones1, and A. J. Heinrichs1, 1Department of Animal Science, The Pennsylvania State University, University Park, PA, 2Department of Dairy Science, The University of Wisconsin, Madison, WI.

Factors influencing the electrical resistance of various pathways through the dairy cow.
Richard J. Norell*1, Jennifer A. Spencer1, Saulo Menegatti Zoca2, and Amin Ahmadzadeh2, 1University of Idaho, Idaho Falls, ID, 2University of Idaho, Moscow, ID.

Partitioning the resistance of electrical pathways through the cow into component segments.
Richard J. Norell*1, Jennifer A. Spencer1, Saulo Menegatti Zoca2, and Amin Ahmadzadeh2, 1University of Idaho, Idaho Falls, ID, 2University of Idaho, Moscow, ID.

Effect of virginiamycin on milk yield and composition under commercial conditions in Mexico.
Milton A. Gorocica*, Guillermo Velasco1, and Alejandro Relling2, 1Phibro Animal Health Corp., Teaneck, NJ, 2The Ohio State University, Wooster, OH.

Milk production, intake and ingestive behavior of Holstein cow fed total mixed ration or partial mixed ration in early lactation.
Mateo Ceriani*, Alejandra Jasinsky, Mariana Carriquiry, and Diego A. Mattiauda, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay.

Relationship between feed bunk refusals and feed conversion efficiency in Argentine dairy farms.
J. L. Monge*1, F. Bargo2, E. Giugge1, C. Chiavassa1, A. Barrenechea1, G. Coschica1, M. V. Barrenechea1, and M. P. Turiello1, 1Universidad Nacional Villa María, Villa María, Córdoba, Argentina, 1Universidad de Buenos Aires, Buenos Aires, Argentina, 1Grupo Chiavassa, Carlos Pellegrini, Santa Fe, Argentina, 1Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.

The effect of compost bedded pack or sand bedded freestall barns on milk thermoduric microorganism content.
Matthew Borchers*, Melissa Morgan1, and Jeffrey Bewley1, 1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

Evaluation of a topical spray-on product for body temperature control in lactating Holstein cows.
Caio S. Takiya*, Benjamin E. Voelz1, Sarah E. Schuling2, Dan E. Schimek2, Luis G. Mendonça1, and Barry J. Bradford1, 1Kansas State University, Manhattan, KS, 2NutriQuest, Mason City, IA.
Milk fatty acid profile and gene expression related to metabolism in mammary gland from cows fed two dietary zinc sources under heat stress.
Thiago N. Marins1, Ruth M. Orellana1, Xisha Weng1, Ana P. A. Monteiro1, Jingru Guo1, John K. Bernard1, Dana J. Tomlinson1, Jeffrey M. DeFrain2, and Sha Tao1;1University of Georgia, Tifton, GA, 2Zinpro Corp., Eden Prairie, MN.

Evaluating the effects of Vista Pre-T on feed efficiency in heat-stressed dairy cattle.
Amanda E. Stone*, Kenneth B. Graves, and Scott Hardin, Mississippi State University, Starkville, MS.

The choice of dry off procedure (abrupt/gradual) is not linked to milk production level.
Kaspar Krogh*, Nathalie Menudier, Laurianne Meppiel, Jean-Francois Collin, Ana de Prado-Taranilla, Camille Mansanet, Gaelle Pagny, Bastian Cuminal, and Naomi Isaka, Ceva Sante Animale, Libourne, France.

Milk production before dry off in dairy cows in France and Denmark.
Kaspar Krogh*, Ana de Prado-Taranilla, Laurianne Meppiel, Jean-Francois Collin, Camille Mansanet, Gaelle Pagny, Nathalie Menudier, Bastian Cuminal, and Naomi Isaka, Ceva Sante Animale, Libourne, France.

Milk replacer addition to whole milk in dairy calves: Effect on growth and starter intake.
Agostina Bogni1,2, Claudina Vissio1, Natalia Marchetto1, and Paula Turiello1,1Facultad de Agronomía y Veterinaria UNRC, Río Cuarto, Córdoba, Argentina, 2Departamento Técnico Teknal SA, Río Cuarto, Córdoba, Argentina, 3Consultor privado, Río Cuarto, Córdoba, Argentina.

Effects of rehydration therapy on body temperature indices in heat-stressed lactating cows.

Human-edible nutrient conversion and performance of cows fed a “zero land use” diet.
Caio S. Takiya*, Amanda Bennett, Melissa Davidson, Caroline M. Ylioja, and Barry J. Bradford, Kansas State University, Manhattan, KS.

Comparison of six handheld glucose meters used in dairy cows.
Rúbia Lopes*, Ainhoa Valdecabres, and Noelia Silva-del-Rio, Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.

Forage in close-up rations: Type, inclusion rate, and dry matter adjustments.
Rúbia Lopes* and Noelia Silva-del-Rio, Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.

The effect of hygiene score on somatic cell count of cows reared in a compost bedded pack dairy barn.
Fazli Alpay1, Cihan Ünal1,*, Enver Çavuşoğlu1, Ibrahim Mahamane Abdouahmane1, Merve Eflı2, Deniz Dinçel1, Mustafa Ogan1, and Serdal Dikmen1,1Department of Animal Science, Uludag University, Faculty of Veterinary Medicine, Bursa, Turkey, 2Department of Animal Nutrition, Uludag University, Faculty of Veterinary Medicine, Bursa, Turkey.

Automated body condition scoring: Evaluation of the effects of BCS around calving on metabolic disease.
Carissa M. Truman1, Israel L. Mullins2, Morgan L. Falk3, Jeffrey M. Bewley2, and Joao HC Costa1,1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

Effects of feeding OmniGen-AF on energy metabolism, fecal cortisol metabolites, and markers of immunity in overcrowded lactating Holstein dairy cows.
Juliana M. Huzzey1,*, Derek J. McLean2, Shelby A. Armstrong2, and Jamie P. Jarrett1,1California Polytechnic State University, San Luis Obispo, CA, 2Phibro Animal Health Corp., Teaneck, NJ, 3Alpha Dairy Consulting, Visalia, CA.

Does the training of nulliparous cows to use a robotic milking system influence their milk yield and milking frequency?
Mateus Peiter1,*, Maximiliano H. O. Pasetti2, Jim A. Saifer3, and Marcia I. Endres1,1University of Minnesota, St. Paul, MN, 2University of São Paulo-ESALQ, Piracicaba, SP, Brazil, 3University of Minnesota Extension, St. Cloud, MN.

A comparison of milk yield and milking frequency of primiparous versus multiparous cows in robotic milking systems.
Mateus Peiter1,*, Maximiliano H. O. Pasetti2, Jim A. Saifer3, and Marcia I. Endres1,1University of Minnesota, St. Paul, MN, 2University of São Paulo-ESALQ, Piracicaba, SP, Brazil, 3University of Minnesota Extension, St. Cloud, MN.

Claw measures of Jersey cows: An anatomy study.
Lorena Teixeira Passos1,2,*, Vivian Fischer2, Jonh Adaska3, and Noelia Silva Del-Rio1,1Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA, 2Federal University of Rio Grande do Sul, Postgraduate Animal Science Program, Porto Alegre, RS, Brazil, 3California Animal Health & Food Safety Lab, Tulare, CA.
T198  Effects of a conventional diet or total mixed ration diet offered to Korean female cattle on blood metabolites.
Byongwon Kim1, Minji Kim1, Sarah Andrian Fenila1, Gihwal Son1, Byungki Park2, and Jongsuh Shin1, 1Kangwon National Univ, Chuncheon, Kangwondo, South Korea, 2Nonghyup Feed Research Institute, Seoul, South Korea.

T199  Characterization of the rumen microbiome resilience throughout lactation and its association with gross feed efficiency in Holstein dairy cows.
Ziyao Zhou1, Phillip M. Peixoto1, Marilia S. Gomes1, Erika R. Bonsaglia1, Igor F. Canisso1, Jamie L. Stewart1, Felipe C. Cardoso2, and Fabio S. Lima*, 1Department of Veterinary Clinical Medicine, University of Illinois, Urbana, IL, 2Department of Animal Sciences, Urbana, IL.

T200  Effects of recombinant bovine somatotropin supplementation on periparturient dairy cows.
Mario S. F. Zoni1, Luis F. Moroz2, Alex F. Sica1, Ricardo L. Araujo1, Ricardo C. Chebel4, and Rodrigo de Almeida*, 1Universidade Federal do Paraná, Curitiba, PR, Brazil, 2Frank’Anna Farm, Carambei, PR, Brazil, 3Colorado Farm, Araras, SP, Brazil, 4University of Florida, Gainesville, FL.

T201  Microorganisms isolated from subclinical intramammary infections present in dairy cattle from the southeast United States.
Kellie Enger*, Christina Petersson-Wolfe, Raul A. Almeida1, Derek T. Nolan, Peter D. Krawczel1, Jeffrey Bewley*, Amanda E. Stone*, Stephanie H. Ward, Stephen R. Oliver, and Gina M. Pighetti, 1University of Tennessee, Knoxville, TN, 2Virginia Polytechnic Institute and State University, Blacksburg, VA, 3University of Kentucky, Lexington, KY, 4Mississippi State University, Starkville, MS, 5North Carolina State University, Raleigh, NC.

T202  Microorganisms isolated from subclinical intramammary infections present in cattle managed on organic dairy farms in the southeast United States.
Gina M. Pighetti*, Victoria L. Couture, Hannah R. Bailey, Agustin Rius, Peter D. Krawczel, and S. Ray Smith, 1University of Tennessee, Knoxville, TN, 2University of Kentucky, Lexington, KY.

Reproduction II

T203  Active placental Proteobacteria in healthy dairy cows is strongly associated with dairy calf birth weight.
Connor E. Owens*, Haley G. Huffard, Haylee H. Hanling, Kristy M. Daniels, Katherine F. Knowlton, and Rebecca R. Cockrum, Virginia Polytechnic Institute and State University, Blacksburg, VA.

T204  Effect of feeding rumen-protected methionine pre- and postpartum on reproductive performance of lactating dairy cows.
Matias L. Stangafarro*, Mateus Z. Toledo, Martin M. Pérez, Caio A. Gamarra, Pedro LJ Monteiro, Alexandre B. Prata, Daniel Luchini*, Michael E. Van Amburgh1, Randy D. Shaver, Milo C. Wittbank2, and Julio O. Giordano, 1Cornell University, Ithaca, NY, 2University of Wisconsin-Madison, Madison, WI, 3Adisseo USA Inc., Alpharetta, GA.

T205  Estrous expression improves the success of embryo collection and transfer.
Tracy A. Burnett1, Augusto M. L. Madureira1, Thiago G. Guida1, José L. M. Vasconcelos2, and Ronaldo L. A. Cerri, 1University of British Columbia, Vancouver, BC, Canada, 2São Paulo State University, Botucatu, São Paulo, Brazil.

T206  Validation of an in-house bovine serum enzyme immune assay for progesterone measurement.
Audrey Nadalin1, Augusto Madureira*, Tracy Burnett2, Janet Bauer1, Ky Pohler2, and Ronaldo Cerri3, 1University of British Columbia, Vancouver, BC, Canada, 2University of Tennessee, Knoxville, TN.

T207  Effects of polymorphisms in GHR, IGFI and TNFA genes on fertility in lactating dairy cows.
W. R. Butler*, A. Schneider1, P. A. S. Silveira1, D. H. Townson3, P. C. W. Tsang1, R. A. Dailey1, T. L. Ott1, and J. L. Pate5, 1Cornell University, Ithaca, NY, 2Universidade Federal de Pelotas, Pelotas, RS, Brazil, 3University of New Hampshire, Durham, NH, 4West Virginia University, Morgantown, WV, 5Pennsylvania State University, University Park, PA.

T208  One injection of high-concentration prostaglandin F2α is as effective as two injections of conventional prostaglandin F2α in causing luteolysis for dairy cows subjected to a 5-d CIDR-Cosynch protocol.
J. A. Spencer*, K. Carnahan, W. J. Price, B. Shafi, and A. Ahmadzadeh, 1Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Statistical Program, University of Idaho, Moscow, ID.

T209  The phenotype of caruncle macrophages is associated with retained placenta in dairy cows.
Rahul K. Nelli*, Jenne De Koster1, Jennifer N. Roberts, Jonas de Souza2, Adam L. Lock1, William Raphael3, and Andres G. Contreras1, 1Large Animal Clinical Sciences, Michigan State University, East Lansing, MI, 2Animal Science, Michigan State University, East Lansing, MI, 3Waverly Animal Hospital, Lansing, MI.
T210  Effect of time to resumption of ovarian cyclicity postpartum on fertility and survival of Holstein Cows.
Pablo Pinedo*¹, Jose Santos², Gustavo Schuenemann³, Rodrigo Bicalho⁴, Ricardo Chebel⁵, Klibs Galvao⁶, Robert Gilbert⁷⁸, Sandra Rodriguez-Zas⁹, Guilherme Rosa⁶, Christopher Seabury⁷, and William Thatcher², ¹Colorado State University, Fort Collins, CO, ²University of Florida, Gainesville, FL, ³The Ohio State University, Columbus, OH, ⁴Cornell University, Ithaca, NY, ⁵University of Illinois, Urbana-Champaign, IL, ⁶University of Wisconsin, Madison, WI, ⁷Texas A&M University, College Station, TX, ⁸University of Minnesota, Saint Paul, MN, ⁹Ross University, Basseterre, St. Kitts and Nevis, West Indies.

T211  Feeding an amino acid formulated milk replacer.
Bai Yan*¹, Liu Ting¹, Kayla Multiquist¹, Jianping Wu², and David Casper³, ¹Gansu Agricultural University, Lanzhou, Gansu, China, ²Gansu Academy Agricultural Sciences, Lanzhou, Gansu, China, ³Furst-McNeck Company, Freeport, IL.

T212  Production performance and nitrogen utilization in dairy cows fed low or high crude protein diets containing corn dried distillers grains with solubles and supplemented with Lactivate or ProLak.
Allison V. Stevens*¹, Anne H. Laarman¹, Pedram Rezamand², and Kip Karges³, ¹Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, ²H.J. Baker & Bro. LLC, Shelton, CT.

T213  Impact of converting weaned dairy calves from a component-fed to a total mixed ration on growth and nutrient digestibility.
Lucas K. Mitchell* and A. Jud Heinrichs, The Pennsylvania State University, University Park, PA.

T214  Concentrations of the flavonoids baicalin, baicalein, and wogonin in milk from cows supplemented or not with Scutellaria baicalensis extract during early lactation.
Katie E. Olagaray*¹, Sarah E. Sivinski², Haixia Liu¹, Fabrice Robert², Emilien Dupuis², and Barry J. Bradford³, ¹Kansas State University, Manhattan, KS, ²CCPA Group, Janze, France.

T215  Injectable trace minerals (selenium, copper, zinc, and manganese) neither hinder nor improve performance during an aflatoxin challenge in lactating multiparous Holstein cows.
Russell T. Pate* and Felipe C. Cardoso, Department of Animal Sciences, University of Illinois, Urbana, IL.

T216  A comparison of mathematical approaches for determining the rate of starch digestion across grains and particle sizes.
Maria N. T. Shipandeni*¹,² and Emiliano Raffrenato³, ¹Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa, ²Department of Animal Science, University of Namibia, Windhoek, Namibia.

T217  Effects of lysophospholipids on nitrogen utilization, nutrient digestibility, and production in dairy cows.
Chanhee Lee*¹, Dennis L. Morris², Seon-Ho Kim¹, Jacob E. Copelin¹, Phyllis A. Dieter³, and Inhyuk Kwon², ¹Department of Animal Sciences, OARD, The Ohio State University, Wooster, OH, ²Easy Bio Inc., Seoul, South Korea.

T218  The effect of supplementation type on quality and processability parameters of milk from grazing dairy cows in late lactation.
Z. C. McKay*¹, M. O’Sullivan¹, M. B. Lynch³, F. J. Mulligan¹, R. Mahon¹, and K. M. Pierce¹, ¹Lyons Research Farm, Lyons Estate, University College Dublin, Celbridge, Co. Kildare, Ireland, ²School of Agriculture and Food Science, University College Dublin, Dublin, Ireland.

T219  The effect of two new formulas of dietary buffer with a high buffering capacity contained Na or K on performance and metabolism of dairy cows.
S. M. Nasrollahi*², A. Zali², and W. Z. Yang², ¹University of Tehran, Tehran, Iran, ²Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

T220  Upgrading of yellow wine lees through solid-state fermentation with Candida utilis and Bacillus subtilis.
K. Y. Yao*, H. F. Wang, and J. X. Liu, Institute of Dairy Institute, Zhejiang University, Hangzhou, China.

T221  Effect of grain- or by-product-based concentrate fed with early or late harvested first cut grass silage on dairy cow performance.
Degong Pang*¹, Tianhai Yan¹, Erminio Trevisi², and Sophie Kriza², ¹Swedish University of Agricultural Sciences, Umeå, Sweden, ²Agri-Food and Biosciences Institute, Hillsborough, United Kingdom, ³Catholic University of the Sacred Heart, Piacenza, Italy.

T222  Regression analysis of the relationship between milk de novo synthesized fatty acids, trans-10 C18:1, and milk fat percent using treatment means from the literature.
Cesar I. Matamoros*, R. Klopp, AR Clarke, and Kevin J. Harvatine, The Pennsylvania State University, University Park, PA.
Impact of various forages and live yeast culture on weaned dairy calf growth and nutrient digestibility.
Lucas K. Mitchell* and A. Jud Heinrichs, The Pennsylvania State University, University Park, PA.

Evaluation of batch culture incubation methods, NDF degradation, and bacterial FA detection.
Yairanex Roman-Garcia*1, Chanhee Lee12, Bethany Denton2, and Jeffrey Firkins2, †The Ohio State University, Columbus, OH,
2Ohio Agricultural Research and Development Center, Wooster, OH.

Crosslinking of protein capsules containing fish oil reduces their disintegration rate in ruminal contents but allows rapid fatty acid release in intestinal proteases.
T. C. Jenkins*1, K. Murphy3, S. J. Saunier4, G. J. Lascano2, and N. M. Long1, †Clemson University, Clemson, SC, 2Virtus Nutrition LLC, Corcoran, CA.

Non-linear essential amino acid use efficiency equations for milk amino acid synthesis.
Robin R. White*1, Helene Lapierre2, Jeffrey L. Firkins1, and Luis E. Moraes3, †Department of Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA, 2Agriculture and AgriFood Canada, Quebec, Canada, 3The Ohio State University, Columbus, OH.

Estimation of total fatty acid content and composition of feedstuffs for dairy cattle.
V. L. Daley*1, L. E. Armentano2, P. J. Kononoff3, J. M. Prestegaard4, and M. D. Hanigan3, †National Animal Nutrition Program (NANP), University of Kentucky, Lexington, KY, 2University of Wisconsin, Madison, WI, 3University of Nebraska-Lincoln, Lincoln, NE, 4Virginia Tech, Blacksburg, VA.

Effects of crude protein level and rumen degradable:undegradable protein ratios on nitrogen balance and milk production in dairy cows.
Omar I. Santana*1, Alfonso Peña-Ramos1, and Kassandra M. De la Cruz-Espino1,2, 1INIFAP, Pabellon, Aguascalientes, Mexico, 2Universidad Autonoma de Aguascalientes, Aguascalientes, Mexico.

Evaluation of a limit feeding strategy with canola or soybean meals on dairy cow performance.
Spencer A. E. Moore*1 and Kenneth F. Kalscheur2, †University of Wisconsin, Madison, WI, 2U.S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

Case study: Comparison of sorghum versus corn distillers’ grains and its effect in dairy production.
Lauren M. Baker12, Barbara W. Jones2, William B. Smith, and Kimberly C. McCuistion1, 2Department of Animal Science and Veterinary Technology, Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX, 3Texas A&M University-Kingsville, Kingsville, TX, 4United Sorghum Checkoff Program, Lubbock, TX.

Effects of branched-chain amino acid supplementation in lactating dairy cows: A meta-analysis.
Anthony J. Kramer*, Hugo A. Ramirez-Ramirez, and J. A. D. R.N. Appuhamy, National Animal Nutrition Program (NANP), University of Kentucky, Lexington, KY, 2University of Wisconsin, Madison, WI, 34, 1The Ohio State University, Columbus, OH.

Establishment of an ileal cannulation technique in preweaning Holstein calves: Effects on growth, health, feed intake and characterization of ileal digesta sampling.
Ivan Ansia1, Sarah Y. Morrison1, Hans-Henrik Stein1, Christine Brøkner2, and James K. Drackley1, †University of Illinois at Urbana-Champaign, Urbana, IL, 2Hamlet Protein A/S, Horsens, Denmark.

Ankom F57 filter bags limit in vitro undigested NDF and gas production for some materials.
Nicole Schlau1, David R. Mertens2, Kyle Taysom3, and Dave Taysom3, †Dairyland Laboratories Inc., Arcadia, WI, 2Mertens Innovation and Research LLC, Belleville, WI.

Low-density lipoprotein ceramide accrual develops with steatosis, hyperlipidemia, and insulin antagonism during the transition from gestation to lactation.
Amanda N. Davis12, J. Eduardo Rico12, William A. Myers12, and Joseph W. McFadden12, †Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

Replacing cereal grains starch with non-forage fiber in diets of dairy cows: A meta-analysis.
Juan I. Sanchez-Duarte12, and Kenneth F. Kalscheur, †Dairy Science Department, South Dakota State University, Brookings, SD, 2INIFAP, Matamoros, Coahuila, Mexico, 3USDA-ARS, U.S. Dairy Forage Research Center, Madison, WI.

A new system of calcium and phosphorus requirements for lactating dairy cows.
Effects of partial replacement of corn silage with whole-plant soybean silage on performance of dairy cows.

Predicting the concentration and yield of milk fatty acids from diet nutrient composition in dairy cows.
Jonas de Souza*, Normand St-Pierre, and Adam L. Lock, 1Department of Animal Science, Michigan State University, East Lansing, MI, 2Perdue Agribusiness, Salisbury, MD.

Fatty liver develops with nonuniform changes in hepatic choline-containing sphingomyelins and phosphatidylcholines.
Sina Saed Samii, Yu Zhang, William A. Myers, Esther Grilli, and Joseph W. McFadden, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV, 3University of Bologna, Bologna, Italy.

Methodological and feed factors affecting measurement of protein A, B, and C fractions, degradation rate, and intestinal digestibility of rumen-undegraded protein.
Douglas M. Liebe*, Jeffrey L. Finkins, Huyen Tran, Paul J. Kononoff, and Robin R. White, 1Virginia Tech, Blacksburg, VA, 2The Ohio State University, Columbus, OH, 3University of Nebraska, Lincoln, NE.

Effect of betaine supplementation on rumen fermentation measures in Holstein dairy cows.
Hao-Che Hung*, Chi-Yu Tsai, Gwynav Chibisa, Mireille Chahine, Mark McGuire, and Pedram Rezamand, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Twin Falls Research and Extension Center, University of Idaho, Twin Falls, Twin Falls, ID.

In situ ruminal dry matter and fiber degradability of distillers dried grains with solubles with varying fat content by lactating dairy cows.
K. C. Krogstad, J. L. Anderson, J. S. Osorio, and K. J. Herrick, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2POET Nutrition, Sioux Fall, SD.

In vitro comparison of Silphium perfoliatum varieties and corn silage.
S. W. Gee, L. McNea, B. Gilroy, and A. J. Carpenter, 1Department of Animal Biosciences, University of Guelph, Ridgetown, ON, Canada, 2School of Environmental Sciences, University of Guelph, Ridgetown, ON, Canada.

In vitro evaluation of rumen-protected methionine sources.
Hector L. Diaz*, Jacob Albrecht, Jim Linn, Charles Soderholm, Mike Van Amburgh, and Debbie Ross, 1Milk Specialties Global, Eden Prairie, MN, 2Cornell University, Ithaca, NY.

Effect of crude glycerin on milk yield and composition in early lactation Gyr × Holstein dairy cows.
Alfredo Suarez-Ariza, Jairo Pardo-Guzman, Tatiana Garcia-Diaz, Clemente Fandino De Rubio, Camilo Ortiz-Riobo, Diego Paez-Bernal, and Roman Castaneda-Serrano*, 1Universidad del Tolima, Ibagué, Tolima, Colombia, 2Universidade Estado de Maringá, Maringá, Paraná, Brazil.

An evaluation of the Molly cow model predictions of ruminal metabolism and nutrient digestion for dairy and beef diets.
M. Li, R. R. White, and M. D. Hanigan, Department of Dairy Science, Virginia Tech, Blacksburg, VA.

Lactation performance and feed efficiency of dairy cows fed freshly ensiled corn silage-based diets with exogenous amylase and protease.
L. K. Shearer, J. L. Anderson, J. S. Osorio, and K. Mjoun, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Alltech Inc., Brookings, SD.

Effect of a prebiotic and essential oil based feed additive on the health and performance of dairy calves housed on Central Texas calf ranches.

Effects of amino acids on ruminal gas production and fermentation in in vitro batch culture.
Xianjiang Chen, Susanna E. Räisänen, Cristian M. M. R. Martins, Krum Nedelkov, and Alexander N. Hristov, 1Lanzhou University, Lanzhou, Gansu, China, 2The Pennsylvania State University, University Park, PA, 3University of São Paulo, Pirassununga, Brazil, 4Trakia University, Stara Zagora, Bulgaria.

Hepatic metabolism of propionate relative to meals for cows in the postpartum period.
Katherine M. Kennedy and Michael S. Allen, Michigan State University, East Lansing, MI.
Fatty acid digestion in dairy cows fed different fat sources: A meta-analytic approach.
V. L. Daley*, l. E. Armentano1, P. J. Kononoff1, J. M. Prestegaard4, and M. D. Hanigan4, 1National Animal Nutrition Program (NANP), University of Kentucky, Lexington, KY, 2University of Wisconsin, Madison, WI, 3University of Nebraska-Lincoln, Lincoln, NE, 4Virginia Tech, Blacksburg, VA.

Palmitic fatty acid supplementation decreases neutral detergent fiber digestibility in continuous culture fermentors.
Benjamin A. Wenner* and Normand R. St-Pierre, Perdue Agribusiness, Salisbury, MD.

Supplementation of sodium butyrate to post-weaned heifer diets: Effects on growth performance, nutrient digestibility, and health.
Emily M. Rice*, Kayla M. Aragona, and Peter S. Erickson, University of New Hampshire, Durham, NH.

Impact of active dry yeast on production parameters in Friesian × Holstein cows during early lactation.
Ousama AlZahal*, Erica Febery*, and Jenny Dunne*, 1AB Vista, Marlborough, United Kingdom, 2Drayton Animal Health Ltd, Stratford-on-Avon, United Kingdom.

Comparison between diarrheic and palmitoleic fatty acid effects on milk performance and gene expression of granulosa cells in early lactation cows.
Marguerite Plante-Dube*, Isabelle Gilbert*, Rachel Gervais*, Claude Robert*, Bruno Vlaeminck*, Veerle Fievez*, and Paul Y. Chouinard*, 1Laval University, Quebec, QC, Canada, 2Ghent University, Ghent, East Flanders, Belgium.

Milk and components response of dairy cows when supplemented with a rumen protected B vitamins blend during heat stress.

Preparum fatty acid blend alters subsequent reproductive performance.
A. Van De Kerckhove*, A. De-laquis*, F. Mueller*, T. Steen*, J. Guyader*, and Aaron Park**, 1Federated Co-operatives Limited, Saskatoon, SK, Canada, 2La Coop Fédérée, Montréal, QC, Canada, 3Kalmbach Feeds, Upper Sandusky, OH, 4Tennessee Farmers, La Vergne, TN, 5Neovia, Château-Thierry, France, 6Cooperative Research Farms, Richmond, VA.

Effects of lipopolysaccharide dosing on ruminal bacterial community compositions in a dual-flow continuous culture system.

Saccharomyces cerevisiae fermentation products increase volatile fatty acid production in an in vitro rumen model on forage samples from five European countries.
Cole Reedy*, T. Kwan, T. Werner, J. Butler, and I. Yoon, Diamond V, Cedar Rapids, IA.

Impact of Saccharomyces cerevisiae fermentation product (SCFP) on feed intake parameters and lactation performance of transition dairy cattle.
Katie E. Olagaray*, Sarah E. Sivinski1, Benjamin A. Saylor1, Julie A. Sauls1, Ilkyu Yoon2, and Barry J. Bradford1, 1Kansas State University, Manhattan, KS, 2Diamond V, Cedar Rapids, IA.

Rumen-protected linseed oil supplementation: Energy status.
Jessica Daniela lorio*, Eloy Eduardo Salado1, Rafael Alejandro Palladino1,2, Martin Guillermo Maciel1, Yaliska Milena González Moreno1, Maria Florencia Olmeda1, and Dino Curletto1, 1University of Buenos Aires, School of Agriculture, Buenos Aires, Argentina, 2National Institute of Agricultural Technology, Santa Fe, Argentina, 3Faculty of Agricultural Sciences-UNLZ, Buenos Aires, Argentina.

Effect of Clostridium butyricum sp. nov. and Pichia kudriavzevii sp. nov. on Holstein milk composition and yield.
Grant Gogul*, Miranda Striluk1, Cameron Martin1, Alfonso Lago2, and Mallory Embree1, 1Ascus Biosciences, San Diego, CA, 2Dairy Experts Inc., Tulare, CA.

Evaluation of different fiber contents in solid diets of pre-weaning dairy calves.
Milaine Poczynek1, Gercino F. Virginio Jr1, Ana P. Silva1, Ariany F. Toledo1, Marina G. Coelho1, Marcos D. Silva1, Graziela B. Oliveira1, and Carla M. M. Bittar**, 1Dept. Of Animal Sciences, Colle of Agriculture Luiz de Queiroz (ESALQ), University of Sao Paulo, Piracicaba, Sao Paulo, Brazil, 2Dept. Animal Production, FMVZ, UNESP/Botucatu, Botucatu, Sao Paulo, Brazil.

Crambe meal can completely replace soybean meal in diets for dairy cows.
Dietary strategies to optimize milk production and composition of dairy goats fed a high-concentrate diet.
Stephanie Dion*, Marie-Eve Brassard1, Janie Levesque2, Daniel E. Rico2, Rachel Gervais3, and Paul Y. Chouinard4, Université Laval, Québec, QC, Canada, 2Centre de recherche en sciences animales de Deschambault, Québec, QC, Canada.

M. I. Rivelli*, M. J. Cecava2, P. H. Doane2, and F. C. Cardoso2, 1University of Illinois, Urbana, IL, 2ADMI Research Division, Decatur, IL.

Effects of source and level of forage neutral detergent fiber on feeding behavior of Holstein and Jersey cows.
Omar I. Santana*1, M. E. Uddin1, and Michel A. Wattiaux1, Department of Dairy Science. University of Wisconsin-Madison, Madison, WI, 3INIFAP, Pabellon, Aguascalientes, Mexico.

Monensin modifies fermentation profile and affects the innate immune response in the rumen.
Erminio Trevisi*, Federica Riva2, Andrea Minuti1, Matteo Mezzetti1, Joelle Fernando Soares Filipe1, Paolo Bani1, and Massimo Amadori1, 1Department of Animal Sciences, Food and Nutrition, Università Cattolica del Sacro Cuore, Piacenza, Italy, 2Department of Veterinary Medicine, Università degli Studi di Milano, Milan, Italy, 3Cellular Immunology Laboratory, IZSLEI, Brescia, Italy.

Effects of microbial inoculum composition on rumen microbial ecology of dairy calves.
Laura M. Cersosimo*, Wendy Radloff, and Geoffrey I. Zanton, US Dairy Forage Research Center, Madison, WI.

Determination of optimal inclusion level of bioactive Olea europaea extract in promoting secretion of GLP-1 and its effects on growth and health in dairy calves.
Sarah Y. Morrison*, Ignacio R. Ipharragueurre2, Rizaldy C. Zapata1, Prasant K. Chelikani1, Fernanda Rosa1, Johan S. Osorio1, Jose J. Pastor2, Fernando Bargo3, Marta Blanch2, and James K. Drackley3, 1University of Illinois, Urbana, IL, 2University of Kiel, Kiel, Germany, 3University of Calgary, Calgary, AB, Canada, 4University of Wisconsin-Madison, Madison, WI, 5University of Idaho, Moscow, ID.

Relationship between near-infrared reflectance spectroscopy and in situ fiber-related analyses of corn silage hybrids.
M. T. Harper*, G. Roth1, C. Canale1, and A. N. Hristov1, The Pennsylvania State University, University Park, PA, 2Cargill Animal Nutrition, Shippensburg, PA.

Relationships of TMR factors with sorting of prefresh dry period rations and postpartum subclinical ketosis in dairy herds fed anionic diets prepartum.
Allison L. Kerwin*, Charlene M. Ryan, Andrew Richards, and Thomas R. Overton, Department of Animal Science, Cornell University, Ithaca, NY.

Effects of lysophospholipids on rumen fermentation and bacterial population in dairy cows: In vitro and in vivo.
Chanhee Lee1, Dennis L. Morris2, Jade M. Hetlick1, Seon-Ho Kim1, Jacob E. Copelin1, and Inhyuk Kwon*, 1Department of Animal Sciences, OARDC, The Otto State University, Wooster, OH, 2Easy Bio Inc., Seoul, South Korea.

Feed, nitrogen and energy conversion efficiencies of lactating Holstein and Jersey cows fed 2 levels and 2 sources of forage neutral detergent fiber.

Effects of Saccharomyces cerevisiae fermentation product supplementation during the periparturient period on rumen pH of dairy cows fed postpartum diets differing in starch content.
Weina Shi1, Caroline E. Knoblock1, Ilkyu Yoon2, and Masahito Oba1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Diamond V, Cedar Rapids, IA.

Ruminal protein degradation of faba bean (Vicia faba L. major): Effect of variety and pelleting temperature.
Fadi Hassanat*, Régis Pilot*, Stéphanie Claveau1, and Chaouki Benchaar1, 1Sherbrooke Research and Development Center-Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 2Agrinova, Alma, QC, Canada.

In vitro assessment of oil releasing extent from calcium salt of fat supplements in different sites of gastrointestinal tract.
Peyman Peraviani1, Mehdi Dehghan Banadaky2, Hamidreza Mirzai2, Pedram Rezamand4, and Hamed Khalilvandi2, 1University of Tehran, Tehran, Iran, 2College of Agriculture and Natural Science, University of Tehran, Alborz, Karaj, Iran, 3Zanjan University, Zanjan, Zanjan, Iran, 4Animal and Veterinary Science Department, University of Idaho, Moscow, ID, 5University of Urmia, Urmia, Urmia, Iran.
Supplementation of rumen-protected lysine (AjiPro-L) during the close-up dry period affect prepartum feed intake and lactation performance in dairy cows.
Saki Ishimaru*1, Hidetada Funo2, Maki Nakamura2, Izuru Shinzato3, Yasuhiro Ohta3, Kazuki Nakagawa3, Atsushi Haruno4, Taketo Obitsu1, and Toshihisa Sugino4, 1The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashihiroshima, Japan, 2Shimane Prefectural Livestock Technology Center, Izumo, Japan, 3Ajinomoto Co, Tokyo, Japan.

Effects of feeding reduced-fat distillers grains with and without monensin on nitrogen, phosphorus, and sulfur utilization and excretion in dairy cows.
Dennis L. Morris*, Seon-Ho Kim, and Chanhee Lee, Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH.

In vitro screening of technical lignins for their antifungal activity against fungi isolated from spoiled hay.
Diana C. Reyes*, Seanna L. Annis1, Santiago A. Rivera2, Dimitris S. Argyropoulos3, Jennifer J. Perry4, Changqing Wu5, Suleyman Alparslan1, Diana Gomez1, Dominique DePippo2, Miguel S. Castillo3, and Juan J. Romero1, 1Animal and Veterinary Sciences, University of Maine, Orono, ME, 2School of Biology and Ecology, University of Maine, Orono, ME, 3Department of Forest Biomaterials, North Carolina State University, Raleigh, NC, 4Food Science and Human Nutrition, University of Maine, Orono, ME, 5Department of Crop and Soil Science, North Carolina State University, Raleigh, NC.

Effects of dietary cation-anion difference (DCAD) on acid-base status and DMI in primigravid cows.
Roney Zimpel*1, Michael B. Pondexter1, Achilles Vieira-Neto2, Eliot Block2, Charles R. Staples1, and Jose E. P. Santos1, 1University of Florida, Gainesville, FL, 2Gamba and Hammer Animal Nutrition, Princeton, NJ.

d-Lactate metabolism in dairy cows under risk for subacute ruminal acidosis.
Lorenzo E. Hernández-Castellano*, Adam C. Storm, Torben Larsen, and Mogens Larsen, Department of Animal Science, Aarhus University-Foulum, Tjele, Denmark.

Effects of close-up dietary energy level and supplementing rumen protected lysine on blood β-hydroxybutyrate concentration and milk production in transition cows.
Girma Debele Delelesse1, Luan Ma1,2, Fang Wang1, Qingrong Jiang1, and Dengpan Bu*1,3, 1Institute of Animal Science, State key Laboratory of Animal Nutrition, Chinese Academy of Agricultural Sciences, Beijing, China, 2CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 3Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China.

Effects of supplementing active dry yeast, a blend of probiotic bacteria, or the combination on the performance and total-tract digestion of growing steers.
Tyler A. Batchelder*, Yu Liang, Emily Davis, and Micheal A. Ballou, Texas Tech University, Lubbock, TX.

Rumen disappearance of carvacrol and anethole in lactating dairy cows.
Jokio Ishimaru*1, Hidetada Funo2, Maki Nakamura2, Izuru Shinzato3, Yasuhiro Ohta3, Kazuki Nakagawa3, Atsushi Haruno4, Taketo Obitsu1, and Toshihisa Sugino4, 1The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashihiroshima, Japan, 2Shimane Prefectural Livestock Technology Center, Izumo, Japan, 3Ajinomoto Co, Tokyo, Japan.

A meta-analysis on intestinal digestibility of long-chain fatty acids in lactating dairy cows.
Jonas de Souza*1, Heidi Leskinen1, Kevin J. Shingfield2*, Pekka Huhtanen3, and Adam L. Lock1, 1Department of Animal Science, Michigan State University, East Lansing, MI, 2Animal Genomics, Green Technology, Natural Resources Institute Finland (Luke), Jokioinen, Finland, 3Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden, 4Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, UK.

Effect of rumen-protected B vitamins and choline supplementation on feed intake, milk production and liver health of transition dairy cows.
Emma I. Morrison*1, Heather Reinhardt1, Juan J. Loor2, Helene Leclerc2, and Stephen J. LeBlanc1, 1University of Guelph, Guelph, ON, Canada, 2University of Illinois, Urbana, IL, 3Jefo, St. Hyacinthe, QC, Canada.

Production performance in lactating dairy cows fed treated corn stover pelleted with soybean meal or distillers grains.
Kendra L. Ostendorf*1 and Kenneth F. Kalscheur2, 1University of Wisconsin, Madison, WI, 2US Dairy Forage Research Center, USDA-ARS, Madison, WI.
Conjugated linoleic acid, but not α-linolenic acid, improved energy balance in dairy cows fed a diet with reduced n-3 fatty acid content during the late lactation and transition period.

Harald M. Hammon*1, Laura Vogel1, Martina Gnot1, Claudia Kröger-Koch1, Joachim M. Weitzel1, Arnulf Tröschel2, and Alexander Starke3, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2BASF SE, Lampertshiem, Germany, 3Clinic for Ruminants and Swine, Faculty of Veterinary Medicine University of Leipzig, Leipzig, Germany.

Effect of zearalenone hydrolyase ZenA on zearalenone kinetics in the rumen.

Markus Aleschko1, Manuela Killinger1, Andreas Höbartner2, Barbara Doupovec1, Johannes Faas*1, Nicole Reisinger2, Dian Schatzmayr2, Iris Kröger2, Viktoria Neubauer2, Qendrim Zebeli2, and Wulf-Dieter Moll2, 1Biomin Research Center/Biomin Holding GmbH, Tulln, Austria, 2Institute of Animal Nutrition and Functional Plant Compounds, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Vienna, Austria.

Impact of feeding a highly available source of calcium and magnesium on serum concentrations and urinary and excretion in prefresh dairy cattle.

B. N. Ellison1, S. J. Taylor2, A. T. Byrd*3, and J. K. Bernard4, 1Applied Biotechnologies Inc., Evansville, WI, 2Celtic Sea Minerals Ltd, Carrigaline, Cork, Ireland, 3Feedworks, Cincinnati, OH, 4University of Georgia, Tifton, GA.

Replacing dietary starch with a combination of sugar and soluble fiber in combination with soybean oil alters fermentation in continuous culture.

Louisa E. Koch1, Brandon M. Koch1, Rebecca N. Klopp1, Maria J. Oconitrillo2,1, Rickie Hughes1, Meghan Courey1, Ansley Sackett1, Thomas C. Jenkins1, and Gustavo J. Lascano*1, 1Clemson University, Clemson, SC, 2Earth University, Limon, Mercedes, Costa Rica.

Dietary supplementation of Scutellaria baicalensis extract during early lactation decreases milk somatic cells and increases whole lactation milk yield in dairy cattle.

Katie E. Olagaray*1, Micheal J. Brouk1, Laman K. Mamedova1, Fabrice Robert2, Emilien Dupuis2, Maya Zachut1, and Barry J. Bradford2, 1Kansas State University, Manhattan, KS, 2CCPA Group, Janze, France, 3Agriculture Research Organization, Volcani Center, Rishon Lezion, Israel.

Energy partitioning in primiparous Holstein cows with or without grazing pastures in early lactation.

Alejandra Jasinsky*, Diego A. Mattiauda, Mateo Ceriani, Alberto Casal, and Mariana Carriquiry, Facultad de Agronomia, Universidad de la República, Paysandu, Paysandu, Uruguay.

In situ ruminal starch disappearance kinetics of hull-less barley, hulled barley, and corn grains.

Gonzalo Ferreira*, Yang Yang, Christy Teets1, and Carl Griffey, Virginia Tech, Blacksburg, VA.

Evaluating polyhalite as an anionic source to reduce dietary cation-anion difference and urine pH of prepartum dairy cows.

Gonzalo Ferreira*2, Christy L. Teets1, and Robert J. Meakin1, 1Virginia Tech, Blacksburg, VA, 2Sirius Minerals Plc,Scarborough, United Kingdom.

Rumen fermentation characteristics, microbial ecology and haematological parameters of yearling calves fed Enterolobium cyclocarpum (Jacq.) Griseb. leaf meal-based diets.


Ruminal escape and duodenal appearance of N-acetyl-l-methionine in lactating dairy cows.

S. Sharp1, M. A. Fagundes1, J. S. Eun*2,3, J. O. Hall1, J. S. Park2, and J. O. Moon2, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT, 2Biotechnology Research Institute, CJ CheilJedang, Suwon, South Korea.

Effects of replacing canola meal with solvent extracted camelina meal on ruminal fermentation in a dual-flow continuous culture system.


Replacing dietary starch with a combination of sugar and soluble fiber in combination with soybean oil alters lactating performance in Holstein dairy cows.

Louisa E. Koch1, Brandon M. Koch1, Rebecca N. Klopp1, Saad M. Hussein1, Maria J. Oconitrillo2,3, Rickie Hughes1, Meghan Courey1, Ansley Sackett1, Thomas C. Jenkins1, and Gustavo J. Lascano*1, 1Clemson University, Clemson, SC, 2Earth University, Limon, Mercedes, Costa Rica.
T301 Energy utilization of lactating Jersey cows consuming diets containing hydrolyzed feathermeal. Jared V. Judy and Paul J. Kononoff*, University of Nebraska-Lincoln, Lincoln, NE.

T302 Effects of supplemental β-carotene to lactating Holstein cows on production and rumen fermentation. Kayla M. Aragona* and Peter S. Erickson, University of New Hampshire, Durham, NH.

T303 Variability in urine pH and macro-mineral concentrations in dairy herds from northern Italy. P. Colturato¹ and A. N. Hristov*, ¹Team Paragon, Crema, Italy, ²Department of Animal Science, The Pennsylvania State University, University Park, PA.
SYMPOSIA AND ORAL SESSIONS

ADSA Foundation Scholar Lecture
Chair: Bob Roberts, Pennsylvania State University
Room 301 E

9:30 AM  ADSA Foundation Scholar Presentation: Regulation of milk fat synthesis: Milk fat depression and beyond. Kevin Harvatine, The Pennsylvania State University, University Park, PA.

ADSA Southern Branch Graduate Student Oral Competition
Chair: Jillian Bohlen, University of Georgia
Room 301 A

9:30 AM  261 Effects of a Megasphaera elsdenii oral drench on rumen pH, feed intake, and milk yield in lactating dairy cows. Gustavo Mazon*, Cerina Holcomb, Jeffrey M. Bewley, and Joao H. C. Costa, University of Kentucky, Lexington, KY, 1CowFocused Housing, Bardstown, KY.

9:45 AM  262 Dietary effects on rumen VFA transporter abundance in preweaned dairy calves. Taylor T. Yohe*, Robin R. White, Mark D. Hanigan, Hollie Schramm, Hannah L. M. Tucker, Catherine L. M. Parsons, Benjamin D. Enger, Nicole R. Hardy, and Kristy M. Daniels, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Animal Health III
Chair: Andres Contreras, Michigan State University
Room 300 CD


9:45 AM  266 Educating dairy producers to systematically evaluate the cows they cull. Allison Moore*, Todd F. Duffield, M. Ann Godkin, Jeffrey Rau, and Derek B. Haley, Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 1Campbell Centre for the Study of Animal Welfare, University of Guelph, Guelph, ON, Canada, 2Ontario Ministry of Agriculture, Food and Rural Affairs, Elora, ON, Canada, 3Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

10:00 AM  268 Effect of selenium-enriched hay on Se concentration in blood and milk, immune function, and performance in dairy cows during the transition period. Shana Jaaf*, Matteo Mezzetti, Angela Krueger, Brandon Batty, Jennifer Belveal, Michele Premi, Jenelle Foster, Erminio Trevisi, Gerd Bode, Charles Estill, and Massimo Bionaz, Oregon State University, Corvallis, OR, 2Università Cattolica del Sacro Cuore, Piacenza, Italy.


10:30 AM  270 Factors associated with veal calf morbidity on an Ontario grain-fed (red) veal operation. Kayla J. Scott*, David L. Renaud, Todd F. Duffield, and David F. Kelton, University of Guelph, Guelph, ON, Canada.
10:45 AM  271  Effects of prebiotic supplementation on gut health, cellular immune function and performance of dairy calves. Rodrigo Gardinal¹, Carlos Alberto Ferreira Oliveira¹, João Fernando Albers Koch¹, Bruno Mazzer*¹, Fernando de Oliveira Roberti¹, Alessandro Morais Rocha¹, and Vaclav Vetticka¹, ¹Department of Research and Development, Biorigin Company, Lençóis Paulista, SP, Brazil, 2Department of Pathology, University of Louisville, Louisville, KY.

11:00 AM  272  Evaluating the relationship between hoof lesions and culling of dairy cows. Bobwealth O. Omontese*,¹, Roger Bellet-Elias¹, Almudena Molinero¹, Giovaná Catandi¹, Renan Casagrande¹, Zelmar Rodriguez⁲, Rafael S. Bisinotto², and Gerard Cramer², ¹Department of Veterinary Population Medicine, University of Minnesota, St. Paul, MN, ²Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL.


**Breeding and Genetics Symposium:**
**Fertility—Filling the Gaps**
Chair: Christian Maltecca, North Carolina State University
Ballroom A

9:30 AM  273  Translating the physiology of fertility into improved phenotypes for genetic selection. Matthew Lucy*, University of Missouri, Columbia, MO.

10:00 AM  274  The choice and collection of new relevant phenotypes for fertility selection. Allison Fleming¹, Christine F. Baes¹, Francesca Malchiodi¹, Luiz F. Brito¹, and Filippo Miglior*¹,², ¹CGIL - University of Guelph, Guelph, ON, Canada, ²Canadian Dairy Network, Guelph, ON, Canada.

10:30 AM  275  Embryonic survival: The other side of fertility—A genomic perspective. Hasan Khatib*, Department of Animal Sciences, University of Wisconsin, Madison, WI.

11:00 AM  276  Identification of loci associated with pregnancy in Holstein heifers and primiparous cows. H. L. Neibergs*,¹, J. N. Kiser¹, E. Clancy¹, E. M. Keuter¹, J. Dalton², J. G. N. Moraes³, C. M. Seabury⁴, and T. E. Spencer⁴, ¹Department of Animal Sciences, Washington State University, Pullman, WA, ²Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, ³Division of Animal Sciences, University of Missouri, Columbia, MO, ⁴Department of Veterinary Pathobiology, Texas A&M University, College Station, TX.

11:30 AM  277  Big data genomic investigation of dairy fertility and related traits with imputed sequences of 27K Holstein bulls. Jicai Jiang¹, Paul VanRaden¹, John Cole¹, Yang Da¹, and Li Ma*,¹, ¹University of Maryland, College Park, MD, ²Animal Genomics and Improvement Laboratory, Beltsville, MD, ³University of Minnesota, St Paul, MN.

12:00 PM  278  Genetic cues from fertilization to pregnancy establishment. M. Sofia Ortega*,¹, John B. Cole¹, Thomas E. Spencer¹, and Peter J. Hansen³, ¹University of Missouri, Columbia, MO, ²Animal Genomics and Improvement Laboratory, ARS, USDA, Beltsville, MD, ³University of Florida, Gainesville, FL.
Dairy Foods II: Proteins and Dairy Products
Chair: Milena Corredig, University of Guelph
Room 301 B

9:30 AM 279
ADSA*-EEAP PhD Student Travel Award Presentation: Bioactivities of milk proteins evaluated after in vitro digestion and peptidomic/proteomic profile.
Carlotta Giromini*, 1 Ian D. Givens2, Julie A. Lovegrove3, 4, Raffaella Rebucci2, Elisa Maffioli1, Gabriella Tedeschi1, and Antonella Baldi4, 1Department of Health, Animal Science and Food Safety, University of Milan, Milan, Italy, 2Institute for Food, Nutrition and Health, University of Reading, Reading, United Kingdom, 3Hugh Sinclair Unit of Human Nutrition Department of Food and Nutritional Sciences, University of Reading, Reading, United Kingdom, 4Institute for Cardiovascular and Metabolic Research, University of Reading, Reading, United Kingdom.

10:00 AM 280
Quantitative difference in proteomic profiles of milk whey protein in Murrah, Nili-Ravi, and Mediterranean water buffalo.
Shanshan Li1, Ling Li2, Jianxin Liu2, Yongxin Yang3, and Daxi Ren1, 1Institute of Dairy Science, College of Animal Science, Zhejiang University, Hangzhou, Zhejiang, China, 2Water Buffalo Institute, Chinese Academy of Agricultural Science, Nanning, Guangxi, China, 3Institute of Animal Science and Veterinary Medicine, Anhui Academy of Agricultural Sciences, Hefei, Anhui, China.

10:15 AM 281
Testing functional boundaries of dairy ingredients in protein-fortified dairy gel systems.
Haotian Zheng*, 1 Wanqi Wang2, Jiaying Lin2, and Thiago Mendes Borges2, 1Dairy Innovation Institute, Animal Science Department, California Polytechnic State University, San Luis Obispo, CA, 2Department of Wine, Food and Molecular Biosciences, Lincoln University, Christchurch, New Zealand.

10:30 AM 282
Micellar casein concentrate: Purity, serum protein removal, and sensory properties.
David M. Barban0* and MaryAnne Drake2, 1Cornell University, Ithaca, NY, 2North Carolina State University, Raleigh, NC.

10:45 AM
Break

11:00 AM 283
Effects of microfluidization on the enzyme coagulation properties of milk.
Anthony J. Bucci2, Diane L. van Hekken*, 1 Michael H. Tunick1, 2, and Peggy M. Tomasula1, 1USDA, ARS, Wyndmoor, PA, 2Drexel University, Philadelphia, PA.

11:15 AM 284
Effect of milk protein solution viscosities on electrospun fiber formation.
Serife Akkurt1, 2, Laetitia M. Bonnaillie2, 2, and Peggy M. Tomasula1, 1Food Science Department, Rutgers, The State University of New Jersey, New Brunswick, NJ, 2Dairy & Functional Foods Research Unit, United States Department of Agriculture, Agricultural Research Unit Service, Eastern Regional Research Center, Wyndmoor, PA.

11:30 AM 285
Comparison of yogurt gels made from various types of milk proteins.
Nelson Trusler*, 1 John Lucey1, 2, and Mike Molitor1, 2, 1University of Wisconsin-Madison, Madison, WI, 2Center for Dairy Research, Madison, WI.

11:45 AM 286
Performance of dairy and plant proteins in a model high-acid beverage system.
Hong Jiang* and Kimberlee Burrington, Wisconsin Center for Dairy Research, Madison, WI.

12:00 PM 287
Opportunities for novel dairy ingredients—End-user perspective.
Praveen Upreti*, Nestle R&D Center Inc., Solon, OH.
Dairy Foods Microbiology Symposium:
Whole-Genome Sequencing for Dairy Microbiology

Chairs: Michael Miller, University of Illinois, and Sam Alcaine, Cornell University
Sponsor: Chr. Hansen
Room 200 DE

9:30 AM Opening remarks.
Michael Miller, University of Illinois.

9:45 AM Whole-genome sequencing investigations of flavor formation by dairy microbiota.
Olivia McAuliffe*, Teagasc Food Research Centre, Fermoy, Cork, Ireland.

10:15 AM Applying whole-genome sequencing to illuminate dairy sporeformers.
Jasna Kovac*, Rachel Miller, Laura Carroll, Sarah Beno, and Martin Wiedmann, Penn State, University Park, PA, Cornell University, Ithaca, NY, The University of Alabama at Birmingham, Birmingham, AL.

10:45 AM Whole-genome sequencing: Applications in dairy veterinary medicine.
Laura B. Goodman*, College of Veterinary Medicine, Cornell University, Ithaca, NY.

11:15 AM Whole-genome sequencing for pathogen environmental monitoring: Focus on Listeria.
Matthew J. Stasiewicz*, University of Illinois, Urbana, IL.

11:45 AM Understanding polysaccharide biosynthesis in lactic acid bacteria: Lessons from whole-genome sequencing and systemic approaches.
Ana Rute Neves*, Chr. Hansen A/S, Horsholm, Denmark.

12:15 PM Closing remarks.
Sam Alcaine, Cornell University.

Growth and Development 1
Chair: Ballroom C

9:30 AM PBMC mitochondrial enzyme activity in dairy heifers from birth to pre-breeding.
Ashley Niesen* and Heidi Rossow, University of California-Davis, Davis, CA.

9:45 AM Prenatal choline supplementation improved health and growth of neonatal Holstein calves.

10:00 AM Alteration in oocyte gene expression due to lactation and progression in milk production in dairy cows.
Sameer Alhojaily*, Rusty Stott, S. Clay Isom, and John R. Stevens, Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT, Department of Mathematics and Statistics, Utah State University, Logan, UT.

10:15 AM Effects of feeding different amounts of milk replacer on growth performance in Holstein calves to 2 months of age using different weaning transition strategies.
R. N. Klopp*, T. M. Hill, F. X. Suarez-Mena, R. L. Schlotterbeck, and G. J. Lascano, Clemson University, Clemson, SC, Nurture Research Center, Provimi, Brookville, OH.

10:30 AM Effects of feeding different amounts of milk replacer on growth performance in 2- to 4-month-old Holstein calves using different weaning transition strategies.
R. N. Klopp*, T. M. Hill, F. X. Suarez-Mena, R. L. Schlotterbeck, and G. J. Lascano, Clemson University, Clemson, SC, Nurture Research Center, Provimi, Brookville, OH.

10:45 AM Break
11:00 AM  298  Physiological effects of low rumen pH in calves before, during and after weaning.
Sonia L. Gelsinger*1, and Geoffrey I. Zanton2, 1University of Wisconsin, Madison, WI, 2United States Department of Agriculture Dairy Forage Research Center, Madison, WI.

11:15 AM  299  Can processing corn influence growth performance, nutrient digestibility and ruminal and hindgut fermentation in calves fed low or high plane of milk replacer?
Jolet K. van Niekerk*1, Amanda J. Fischer1, Larissa L. Deikun1, James D. Quigley1, T. Mark Hill2, Rick L. Schlotterbeck2, and Michael A. Steele1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Provimi, Brookville, OH.

11:30 AM  300  Effect of solid feed location on feed consumption and growth of dairy calves.
Sarah D. Parsons*1, Ken E. Leslie2, Michael A. Steele2, and Trevor J. DeVries3, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada. 3Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

11:45 AM  301  The effects of different feeding practices on heifer growth and reproduction at five California dairies using single-time-point measurements.
David D. Myers* and Heidi A. Rossow, University of California, Davis, Davis, CA.

12:00 PM  302  Effects of supplemental butyrate during the weaning transition on rumen pH in Holstein calves.
Dana E. McCurdy1, Rebecca L. Hiltz1, Katie K. Wilkins1, Steve Moreland2, Keith Klanderman2, and Anne H. Laarman*1, 1University of Idaho, Moscow, ID, 2Nutriad Inc., Hampshire, IL.

Lactation Biology: Joint ADSA and NMC Session:
Advances in Mammary Health and Immunology
Chair: Rafael Jimenez-Flores, The Ohio State University
Ballroom F

9:30 AM  303  Immunogenetic control of bovine mammary gland health.
Heba Atalla, Lauri Wagter-Lesperance, and Bonnie Mallard*, University of Guelph, Guelph, ON, Canada.

10:00 AM  304  Established approaches and new directions to support innate immunity of the udder.
Corwin D. Nelson*, University of Florida, Gainesville, FL.

10:30 AM  305  Development of vaccines and antibiotics against Staphylococcus aureus based on bacterial gene expression during bovine mastitis.
Francois Malouin*, Universite de Sherbrooke, Sherbrooke, QC, Canada.

11:00 AM  Break

11:15 AM  306  Staphylococcus aureus lineage influences the bovine immune response to intramammary infection.
Orla M. Keane1, Dagmara A. Niedziela1, Mark P. Murphy1, and Nola Leonard2, 1Teagasc, Grange, Dunsany, Co. Meath, Ireland, 2University College Dublin, Belfield, Dublin, Ireland.

11:45 AM  307  Omics in animal science: Promise, potential, and pitfalls.
John D. Lippolis*, USDA Agriculture Research Service National Animal Disease Center, Ames, IA.
Physiology and Endocrinology II
Chair: Massimo Bionaz, Oregon State University
Lecture Hall

9:30 AM 308 Methionine supply during late-gestation triggers offspring sex-specific divergent changes in metabolic and epigenetic signatures in bovine placenta.
Fernanda Batistel*, Rainie R. C. Yambao1, Abdulrahman S. M. Alharthi1, Yuan-Xiang Pan1, Claudia Parys2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

9:45 AM 309 Maternal supply of methionine during late-pregnancy affects hepatic one-carbon metabolism enzyme activity and plasma amino acids during the preweaning period in Holstein calves.
Abdulrahman S. M. Alharthi**, Fernanda Batistel1, Cesar I. M. Garces1, Claudia Parys2, Yuan-Xiang Pan1, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

10:00 AM 310 RNasequencing reveals that methionine supply during late-gestation alters neonatal Holstein heifer calf liver transcriptome profiles.
Abdulrahman S. M. Alharthi*, Fernanda Batistel1, Valentino Palombo2, Cesar I. M. Garces1, Claudia Parys2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

10:15 AM 311 Maternal supply of methionine during late-pregnancy alters the fecal microbiome in neonatal Holstein heifer calves during the preweaning period.
Ahmed Elolimy*, Mohamed Zeineldin2, Abdulrahman Alharthi1, Fernanda Batistel1, Ariane Helmbrecht4, Claudia Parys2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany, 4Division of Nutritional Sciences, Illinois Informatics Institute, University of Illinois, Urbana, IL.

10:30 AM 312 Maternal late-gestation metabolic stress is associated with changes in immune and metabolic responses of dairy calves.
Tahlia Ling1, Marta Hernandez-Jover1,2, Lorraine M. Sordillo1, and Angel Abuelo*1,3, 1Michigan State University, Department of Large Animal Clinical Sciences, East Lansing, MI, 2Charles Sturt University, School of Animal and Veterinary Sciences, Wagga Wagga, NSW, Australia, 3Graham Centre for Agricultural Innovation (Charles Sturt University and NSW Department of Primary Industries), Wagga Wagga, NSW, Australia.

10:45 AM 313 Evaluation of the biochemical and hematological profile of Holstein calves submitted to LPS challenge and pegvircastim injection.
Fernanda Kegles, Otávio Madruga, Lucí Fernandes Bragança, Uriel Secco Londero, Haffen Jessica, Marcio Nunes Corrêa, Francisco Augusto Burcklet Del Pino, Eduardo Schmitt, and Rodrigo Chaves Barcellos Grazziotin*, Federal University of Pelotas (UFPEL), RS, Brazil; Center of Research, Teaching and Extension in Animal Science (NUPEEC), Pelotas, Rio Grande do Sul, Brazil.

11:00 AM 314 microRNA involvement during the onset of ketosis and fatty liver in periparturient Holstein dairy cows.
Ryan E. Bucktrout1,2, Valentino Palombo2, Mario Vailati Riboni1, and Juan J. Loor1, 1University of Illinois at Urbana-Champaign, Urbana, IL, 2Università degli Studi del Molise, Campobasso, Italy.

11:15 AM 315 Embryonic development, luteal size and blood flow area, and metabolite of PGF2α concentrations in dairy cows fed palm or sunflower oil supplement.
Chainarong Navanukraw1,2, Aree Kraisoon1,3, Jaruwan Kaokejon1, Wiroon Inthamonee1, and Sathaporn Navanukraw1, 1Department of Animal Science, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand, 2Agricultural Biotechnology Research Center for Sustainable Economy (ABRCE), Khon Kaen University, Khon Kaen, Thailand, 3Center of Excellence on Agricultural Biotechnology, Bangkok, Thailand.

11:30 AM 316 Resynchronization treatments in dairy cows at non-pregnancy diagnosis based on corpus luteum status.
Julie A. Sauls1,2, Benjamin E. Voelz2, Kevin C. Dhuyvetter3, and Jeffrey S. Stevenson1, 1Kansas State University, Manhattan, KS, 2Elanco, Greenfield, IN.

11:45 AM 318 Hypothalamic metabolomics profiling in cattle with divergent residual feed intake.
Ahmed Elolimy*, Zheng Zhou3, Daniel Shike1, and Juan Loor1, 1Mammalian NutriPhysioGenomics, Department of Animal Sciences, University of Illinois, Urbana, IL, 2Department of Animal Sciences, University of Illinois, Urbana, IL, 3Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC.
The potential role of choline to alter histone methylation status revealed through a fluorescent protein system in bovine mammary epithelial cells.
Fernanda Rosa* and Johan S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Production, Management, and Environment III
Chair: Victor Cabrera, University of Wisconsin-Madison
Room 301 D

9:30 AM 320 Development of an integrated dairy farm decision support system to facilitate dairy management–I. Data integration and warehousing.
Steven R. Wangen**, Hector Delgado Rodriguez‡, Di Liang§, Adam Christensen¶, Micheal Ferris¶, and Victor E. Cabrera‡, †The Wisconsin Institution for Discovery, University of Wisconsin-Madison, Madison, WI, ‡Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

9:45 AM 321 Development of an integrated dairy farm decision support system to facilitate dairy management–II. Analysis from integrated data.
Adam Christensen**, Di Liang§, Hector Delgado Rodriguez‡, Steven R. Wangen**, Micheal Ferris¶, and Victor E. Cabrera‡, †The Wisconsin Institution for Discovery, University of Wisconsin-Madison, Madison, WI, ‡Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

10:00 AM 322 Association between measures of seasonality in milk yield, somatic cell count, and herd size across the United States.

10:15 AM 323 Effect of calving pattern on seasonality of milk yield and somatic cell count across the US.

10:30 AM 324 Culling to achieve reduced somatic cell counts: An economic analysis.
Derek T. Nolan**1, Tyler B. Mark2, and Roberta M. Dwyer1, 1Department of Animal Science, University of Kentucky, Lexington, KY, 2Department of Agriculture Economics, University of Kentucky, Lexington, KY.

10:45 AM 325 Evaluation of differential SCC as a rapid and affordable tool to improve detection of subclinical mastitis in regular DHI samples.
Debora E. Santschi**1, Denis Haine2, Anne-Marie Christen1, Daniel Schwarz1, Jean Durocher1, Simon Dufour2, and Daniel M. Lefebvre1, 1Valacta, Ste-Anne-de-Bellevue, QC, Canada, 2Université de Montréal, St-Hyacinthe, QC, Canada, 3Foss Analyticals, Hillerød, Denmark.

11:00 AM Break

11:15 AM 326 The lifetime impact of a clinical mastitis case during the first 100 lactation days in first lactation.
Hector Delgado*, Di Liang, and Victor Cabrera, University of Wisconsin-Madison, Madison, WI.

11:30 AM 327 Predicting clinical mastitis at 30 to 60 DIM using an integrated real-time data warehouse.
Di Liang**, Anuja Golechha3, Victor Cabrera, and Jignesh Patel3, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Computer Science, University of Wisconsin-Madison, Madison, WI.

11:45 AM 328 Thermal and electrical energy and water consumption in a Midwest dairy parlor.
Kirsten T. Sharpe*, Bradley J. Heins, Eric S. Buchanan, Michael H. Reese, Joel E. Tallaksen, and Lee J. Johnston, University of Minnesota West Central Research and Outreach Center, Morris, MN.

12:00 PM 329 Using inductive learning methods as a tool to facilitate culling decisions in first lactation dairy cows.
Montserrat Lopez-Suarez**, Lorena Castillejos1, Eva Armengol1, and Sergio Calsamiglia1, 1Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, 2IIIA-Artificial Intelligence Research Institute, CSIC-Spanish Council for Scientific Research, Bellaterra, Barcelona, Spain.
12:15 PM 330 Predicting pregnancy status from mid-infrared spectroscopy in dairy cow milk using deep learning.
W. Brand*, A. T. Moran, and M. Coffey, SRUC, Edinburgh, United Kingdom.

Reproduction I
Chair:
Room 300 AB

9:30 AM 331 Knockdown of transcripts for prostate androgen-regulated mucin-like protein 1 (PARM1) decreases trophoectoderm formation and alters gene expression in the pre-implantation bovine embryo.
Adriana Zolini*, Veronica Negron, and Peter Hansen, University of Florida, Gainesville, FL.

9:45 AM 332 Generation of an animal model of clinical endometritis to study infertility in dairy cows.
R. L. Piersanti*, R. Zimpel1, Z. Ma1, K. C. Jeong1, J. E. P. Santos3, I. M. Sheldon2, and J. J. Bromfield1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Swansea University Medical School, Swansea, United Kingdom.

10:00 AM 333 Automated system is better than visual observation for detection of estrus in Holstein Friesian cows.
Melad Ahmed1, Ali Husnain2, Aijaz Ali Channa1, Muhammad Zahid Tahir1, Hizul Rahman1, and Nasim Ahmad2, 1Department of Theriogenology, Faculty of Veterinary Science University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan, 2Dairy Animal Training and Research Center, Ravi Campus, University of Veterinary and Animal Sciences, Pattoki, Punjab, Pakistan.

10:15 AM 334 Economics of replacement dairy heifers managed with reproductive management programs that favor insemination at detected estrus or timed AI.
Magdalena Masello*, Martin M. Perez1, German E. Granados1, Matias L. Stangaferro1, Bob Ceglowski2, Mark J. Thomas2, and Julio O. Giordano1, 1Cornell University, Ithaca, NY, 2Dairy Health and Management Services, Lowville, NY.

10:30 AM 335 Luteal blood flow measured by Doppler ultrasonography during the first three weeks after artificial insemination in pregnant and non-pregnant Bos indicus dairy cows.
Nasim Ahmad1, Mubbashar Hassan1, Usman Arshad1, Muhammad Bilal1, Muhammad Avais1, Abdul Sattar1, and Heinrich Bollwein1, 1University of Veterinary and Animal Sciences, Lahore, Pakistan, 2University of Zurich, Zurich, Switzerland.

Ruminant Nutrition III: Forages, Fiber, and Grains
Chair: Luiz Ferraretto, University of Florida
Ballroom E

9:30 AM 336 Effects of dietary undigested and physically effective neutral detergent fiber on dry matter intake, milk yield and composition, and chewing behavior of lactating dairy cows.
Wyatt A. Smith*, Kyohei Ishida2, Jeffrey W. Darrah1, Heather M. Dann1, Catherine S. Ballard1, Michael D. Miller1, and Rick J. Grant1, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2ZEN-NOH National Federation of Agricultural Cooperative Associations, Tokyo, Japan.

9:45 AM 337 Estimating lactation residual energy intake in Holstein cows: When and how long?
Amélie Fischer*1,2 and Philippe Favardini1, Institut de l’élevage, Paris, France, 1PEGASE, Institut National de la Recherche Agronomique, Agrocampus-Ouest, Rennes, France.

10:00 AM 338 Nutrient allocation between the pellet and PMR can affect eating behavior of mid-lactation dairy cows.
Jennifer L. Haisan* and Masahito Oba, University of Alberta, Edmonton, AB, Canada.

Virgilio Ambriz-Vilchis*, Merryl Webster1, Jennifer Flockhart1, and John Rooke1, 1SRUC Future Farming Systems Group, Edinburgh, United Kingdom, 2BioSimetrics Ltd, Edinburgh, United Kingdom.
10:30 AM 340  Modeling feed intake and dairy performance with different grass ley harvesting strategies.
Degong Pang*1, Sophie Julie Krizsan1, Auvo Sairanen1, and Pekka Huhtanen1, 1Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden, 2LUKE-Agrifood Research Finland, Animal Production Research, Jokioinen, Finland.

10:45 AM 341  Grass silage chop length when fed alone, or with corn silage, affects performance and milk quality of dairy cows.
Usama Tayyab*1, Robert G. Wilkinson1, Christopher K. Reynolds2, and Liam A. Sinclair1, 1Harper Adams University, Newport, United Kingdom, 2University of Reading, Reading, United Kingdom.

11:00 AM 342  ×Using carbon emissions and oxygen consumption to estimate energetics parameters of cattle consuming forages.
S. A. Gunter*1, C. Burrus2, C. A. Moffet1, and P. Gregorini2, 1USDA, Agricultural Research Service, Woodward, OK, 2Southern Arkansas, Magnolia, AR, 3Lincoln University, Christchurch, New Zealand.

11:15 AM 343  Effect of grass silage chop length when fed alone or with corn silage, on eating behaviour and diet selection in dairy cows.
Usama Tayyab*1, Ella L. Forrest1, Gemma L. Charlton1, Robert G. Wilkinson1, Christopher K. Reynolds2, and Liam A. Sinclair1, 1Harper Adams University, Newport, United Kingdom, 2University of Reading, Reading, United Kingdom.

11:30 AM 344  Development of a wet sieving method for measuring corn silage processing score (CSPS).
Ralph Ward*1 and David R. Mertens2, 1Cumberland Valley Analytical Services Inc., Waynesboro, PA, 2Mertens Innovation & Research LLC, Belleville, WI.

11:45 AM 345  Effects of starch source and particle size on ruminal fermentation, starch digestibility, and milk production of dairy cows.
Maria N. T. Shipandeni*1,2, Eduardo M. Paula3, Antonio P. Faciola3, and Emiliano Raffrenato1, 1Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa, 2Department of Animal Science, University of Namibia, Windhoek, Namibia, 3Department of Animal Sciences, Gainesville, FL.

Ruminant Nutrition IV: Additives
Chair: Andre Brito, University of New Hampshire
Ballroom F

9:30 AM 346  Antioxidant capacity of dairy cows after supplementation with dietary probiotic Bacillus subtilis during the transition period.
W. Choonkham*1 and W. Suriyasathaporn2, 1Graduate/PhD Degree Program in Veterinary Science, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand, 2Department of Food Animal Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand.

9:45 AM 347  Effects of a recombinant bacterial expansin and an exogenous fibrolytic enzyme on preingestive fiber hydrolysis, fermentation and digestibility of corn silage.
Andres Alfredo Pech-Cervantes*1, Yun Jiang1, Felipe Xavier Amaro1, Donghyeon Kim1, Kathy Arriola1, Milton Flores-Tensos1, Claudio Fabricio Gonzalez2, Luiz Felipe Ferraretto1, Nicolas Dillorenzo1, Diwakar Vyas1, and Adegbola Adesogan1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Microbiology and Cell Science, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL, 3Department of Animal Sciences, University of Florida, Gainesville, FL.

10:00 AM 348  Synergistic effects of a recombinant bacterial expansin and a fibrolytic enzyme on digestibility, gas production and sugar release from bermudagrass silage.
Andres Alfredo Pech-Cervantes*1, Yun Jiang1, Felipe Xavier Amaro1, Donghyeon Kim1, Kathy Arriola1, Milton Flores-Tensos1, Claudio Fabricio Gonzalez2, Luiz Felipe Ferraretto1, Nicolas Dillorenzo1, Diwakar Vyas1, and Adegbola Adesogan1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Microbiology and Cell Science, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL, 3Department of Animal Sciences, University of Florida, North Florida Education Center, Marianna, FL.
The effect of fibrolytic enzymes on lactation performance, feeding behavior, and digestibility in high-producing dairy cows fed a barley silage-based diet.
Basim Refat*, David A. Christensen1, John J. McKinnon1, Aaron D. Beattie2, Tim McAllister3, Wenzhu Yang1, Ousama AlZahal1, and Peiqiang Yu1, 1Department of Animal and Poultry Science, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Crop Development Center, Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 3Lethbridge Research and Development Centre, Lethbridge, AB, Canada, 4AB Vista, Marlborough, United Kingdom.

Feeding a Saccharomyces cerevisiae fermentation product during the periparturient period may decrease inflammation of dairy cows.
Caroline E. Knoblock*, Weina Shi1, Ilkyu Yoon2, and Masahito Oba1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Diamond V, Cedar Rapids, IA.

The effect of supplementation type and vitamin E level on milk production, milk composition and rumen health parameters of grazing dairy cows in late lactation.

The effects of supplementation type and vitamin E level on milk production, milk composition and rumen health parameters of grazing dairy cows in late lactation.

Effects of Saccharomyces cerevisiae fermentation product (SCFP) on liver and plasma biomarkers of metabolic function in transition dairy cattle.
Katie E. Olagaray*, Sarah E. Sivinski1, Laman K. Mamedova1, Benjamin A. Saylor2, Chadron Koehn2, Julie A. Sauls1, Ilkyu Yoon1, and Barry J. Bradford2, 1Kansas State University, Manhattan, KS, 2Diamond V, Cedar Rapids, IA.

The effects of adding exogenous amylases and proteases on ruminal in vitro dry matter and starch digestibility of dent corn grain.

Effects of administering an oral probiotic drench containing Megasphaera elsdenii NCIMB 41125 to dairy cows fed a high starch diet in early lactation.
Matt R. O’Neil*, Emily H. Branstad1, Carrie S. McCarthy1, Brooke C. Dooley1, Donald C. Beitz1, Aaron J. Hund1, and Gary A. Ducharme1, 1Iowa State University, Ames, IA, 2MS Biotec, Wamego, KS.

Ruminant Nutrition:
Interface of Environment and Nutrition—Targeted Nutrition to Overcome Heat Stress
Chair: Stephanie Ward, North Carolina State University
 Ballroom G

Heat stress: Hypophagia and hypogalactia.
Yao Xiao and Benjamin J. Renquist*, School of Animal and Comparative Biomedical Sciences, University of Arizona, Tucson, AZ.

Nutritional strategies to overcome physiological adaptations to heat stress.
A. G. Rius*, University of Tennessee, Knoxville, TN.

The effects of progressive heat stress on muscle dysfunction.
Joshua T. Selsby*, Shanthi Ganesan1, Alexandra J. Brownstein1, Olga Volodina1, Sarah Pearce1, Nicholas K. Gabler1, Robert P. Rhoads2, and Lance H. Baumgard1, 1Iowa State University, Ames, IA, 2Virginia Polytechnic Institute and State University, Blacksburg, VA.

Practical considerations for feeding cows under heat stress.
Duarte Diaz*, University of Arizona, Tucson, AZ.

Nutritional and metabolic strategies to improve reproductive performance during heat stress.
M. L. Rhoads*, Virginia Polytechnic Institute and State University, Blacksburg, VA.
ADSA Southern Branch Symposium:
Sustaining the Southern Dairy Industry—University Research, Teaching, and Extension Outlook
Chair: Stephanie Ward, North Carolina State University
Ballroom B

2:00 PM Southern Branch Business Meeting

3:00 PM 361 Dairy extension programs in the southern region: Finding novel ways to meet the needs of our producers.
J. K. Bernard*, University of Georgia, Tifton, GA.

3:35 PM Ice cream break in Exhibit Hall

4:05 PM 362 Dairy teaching programs in the southern region: Keeping dairy science students relevant for tomorrow’s industry.
Cathleen C. Williams*, Louisiana State University, Baton Rouge, LA.

4:40 PM 363 Dairy research programs in the southern region: Importance of multi-institution and industry collaboration in moving the dairy industry forward.
Michael A. Ballou*, Texas Tech University, Lubbock, TX.

5:15 PM Speaker Panel/Discussion

5:45 PM Southern Branch Reception and Awards Ceremony

Animal Behavior and Well-Being II
Chair: Peter D. Krawczel, University of Tennessee
Room 300 AB

2:00 PM 364 Understanding the association between hock and knee injuries on lameness in dairy cattle.
A. M. Armstrong*, T. F. Duffield, D. B. Haley, and D. F. Kelton, Department of Population Medicine, Guelph, ON, Canada.

2:15 PM 365 Automatic classification of dairy cattle skin injury type and severity using machine-learning techniques.
Amanda A. Boatswain Jacques1, Ryan S. Knight1, Maxime Leduc2,3, Viacheslav I. Adamchuk1, and Elsa Vasseur1, 1Bio-resource Engineering Department, McGill University, Montreal, PQ, Canada, 2Animal Science Department, McGill University, Montreal, PQ, Canada, 3Valacta, Sainte-Anne-de-Bellevue, PQ, Canada.

2:30 PM 366 The impact of tie-stall facilities on dairy welfare and the broader dairy industry.
Kimberley M. Morrill*1, Emily Yeiser-Stepp1, Jamie Jonker1, Nigel B. Cook2, Albert De Vries2, Jason E. Lombard4, K. Fred Gingrich1, and Steven Nolt4, 1Cornell University, Ithaca, NY, 2University of Florida, Gainesville, FL, 3University of Wisconsin-Madison, Madison, WI, 4APHIS-USDA, Fort Collins, CO, 5National Milk Producers Federation, Arlington, VA, 6Elizabethtown College, Elizabethtown, PA, 7American Association of Bovine Practitioners, Ashland, OH.

2:45 PM 367 The effect of tie-rail placements on neck injuries and lying and rising ability of tie-stall-housed dairy cows.
Jessica St John*1, Jeffrey Rushen2, Steve Adam3, and Elsa Vasseur1, 1McGill University, Animal Science, Montréal, QC, Canada, 2University of British Columbia, Dairy Research and Education Center, Agassiz, BC, Canada, 3Valacta, Sainte-Anne-de-Bellevue, QC, Canada.

3:00 PM 368 Impact of hoof health on Holstein cow behavior.
Amber L. Adams Progar*, Lindsey R. Dearmin, and Amy R. Allen, Washington State University, Pullman, WA.

3:15 PM 369 Effect of prepartum exercise on calving behavior and cortisol concentrations.
Randi A. Black*1,2 and Peter D. Krawczel1, 1University of California, Cooperative Extension, Santa Rosa, CA, 2University of Tennessee, Knoxville, TN.

3:30 PM Ice cream break in Exhibit Hall
4:00 PM 370 Effects of oral administration of acetylsalicylic acid on physiological parameters and biomarkers of inflammation, pain and stress in organic dairy cows that experienced vulvar lesion at calving.
A. A. Barragan*1, S. Bas2, L. M. Bauman2, J. Lakritz3, J. Velez4, J. D. Rozo Gonzalez4, G. M. Schuenemann2, and R. J. Van Saun1, 1Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, 2Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, 3Department of Veterinary Clinical Sciences, The Ohio State University, Columbus, OH, 4Aurora Organic Farms, Boulder, CO.

4:15 PM 371 Physiological and behavior response of dairy calves disbudded with oral administration of an herbal tincture as a method to reduce pain and stress.
Hannah N. Phillips* and Brad J. Heins, University of Minnesota West Central Research and Outreach Center, Morris, MN.

4:30 PM 372 Outcome-based welfare measures of high-producing Holstein freestall-housed dairy cattle across regional benchmarks in the United States.

4:45 PM 373 Remote assessment of herd-level welfare status based on indicators from routinely collected milking records.
Daniel Warner1,2, Elsa Vasseur*, Steve Adam1, Marianne Villettaz Robichaud3, Doris Pellerin1, Daniel Lefebvre1, and René Lacroix1, Valacta, Dairy Production Centre of Expertise Québec-Atlantic, Sainte-Anne-de-Bellevue, QC, Canada, 2McGill University, Department of Animal Science, Sainte-Anne-de-Bellevue, QC, Canada, 3Université Laval, Département des sciences animales, Québec, QC, Canada.

Animal Health IV
Chair: Barry Bradford, Kansas State University
Room 300 CD

2:00 PM 374 Statistical validation of a clinical assessment scoring chart for neonatal calves with diarrhoea (acidosis).
Patrick Dillane*, Gearoid Sayers1, Lea Krump1, Riona Sayers2, and Emer Kennedy2, 1Department of Biological and Pharmaceutical Sciences, Institute of Technology Tralee, Tralee, Co. Kerry, Ireland, 2Animal & Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.

2:15 PM 375 Spatial heterogeneity and interactions of microbiota in raw milk and teat skin of dairy cows.
Hui Yan1, Shoukun Ji1, Chunyan Guo1,2, Jiang Mao1, Yun Du1, Feiran Wang*, Yajing Wang1, Zhijun Cao1, Wen Du1, and Shengli Li1, 1State Key Laboratory of Animal Nutrition, Beijing Engineering Technology Research Center of Raw Milk Quality and Safety Control, College of Animal Science and Technology, China Agricultural University, Beijing, China, 2College of Animal Science and Technology, Shihzhi University, Shihezi, Xinjiang, China.

2:30 PM 376 High-concentrate feeding and supplementation of a clay-mineral based mix modifies plasma metabolome in dairy cows.
Nicole Reisinger*, Elke Humer1, Iris Kröger2, Viktoria Neubauer2, and Qendrim Zebeli2, 1Biomin Research Center, Tulln, Austria, 2Institute of Animal Nutrition and Functional Plant Compounds, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Vienna, Austria.

2:45 PM 377 Observational longitudinal study of feed additives as risk factors for herd diarrhea incidents on US dairy farms.
Gerald Poppy*1,2 and Paul Morley1, 1Colorado State University, Fort Collins, CO, 2Fermented Nutrition, Luxemburg, WI.

3:00 PM 378 Metabolic changes in Simmental and Holstein cows after pegbovigrastim injections during the periparturient period.
Vincenzo Lopreiato*, Erminio Trevisi2, Domenico Britti2, Valeria M. Morittu1, Juan J. Loor3, and Andrea Minuti2, 1Interdepartmental Services Centre of Veterinary for Human and Animal Health, Department of Health Science, Magna Græcia University, Catanzaro, Italy, 2Department of Animal Sciences, Food and Nutrition, Università Cattolica del Sacro Cuore, Piacenza, Italy, 3Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.

3:15 PM 379 Dynamics of rumination, activity, and milk yield around hoof trimming.
Sushil Paudyal*, Fiona Maunsell2, and Pablo Pinedo1, 1Colorado State University, Fort Collins, CO, 2University of Florida, Gainesville, FL.
Ice cream break in Exhibit Hall

3:30 PM

3:00 PM 380 

**Efficacy of novel treatment options for digital dermatitis in organic dairy systems.**

Sushil Paudyal1, Diego Manriquez2, Ana Velasquez3, Jan Shearer3, Paul Plummer4, Hans Bothe5, Juan Velez2, and Pablo Pinedo5, 1Colorado State University, Fort Collins, CO, 2Aurora Organic Dairy, Boulder, CO, 3Iowa State University, Ames, IA.

4:00 PM 381 

**Impact of inhibitors of choline product synthesis and signaling on the inflammatory response of innate and adaptive immune cells.**

Miriam Garcia1, Melissa Riley1, Laman K. Mamedova2, Barbara Barton2, and Barry J. Bradford1, 1Kansas State University, Manhattan, KS, 2Balchem Corp., New Hampton, NY.

4:15 PM 382 

**Long-term effects of clinical diseases postpartum on culling, production, and reproduction of dairy cows.**

Murilo R. Carvalho1, Trevor J. DeVries, Brian McBride, and Eduardo S. Ribeiro, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

4:45 PM 384 

**The effects of stocking density, heat stress, and combination on variations in cell-mediated and humoral immunity.**

Amanda R. Lee1, Peter D. Krawczel2, Rick J. Grant2, and Gina M. Pighetti3, 1University of Tennessee Knoxville, Knoxville, TN, 2William H. Miner Agricultural Research Institute, Chazy, NY.

5:00 PM 385 

**Molecular epidemiology of bovine anaplasmosis in Khyber Pakhtunkhwa Province of Pakistan.**

Muhammad Ijaz1, Shahid Hussain Farooqi, Amjad Islam Aqib, Kashif Hussain, and Amjad Khan, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan.

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**Breeding and Genetics III:**

**Feed Efficiency, Crossbreeding, and Production**

Chair: Filippo Miglior, Canadian Dairy Network

Room 301 A

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2:00 PM 386 

**Exploring the genetic relationships between various measures of feed efficiency based on multiple-trait mixed-model theory.**

Robert J. Tempelman1,2 and Yongfang Lu3, 1Michigan State University, East Lansing, MI, 2Axio Research, Seattle, WA.

2:15 PM 387 

**Progeny testing results in accurate genomic breeding values for feed efficiency in Holstein dairy sires.**

Claas Heuer1, Nader Deeb, Chuanyu Sun, David Kendall, Juan Moreno, and R. Vishwanath, STgenetics, Navasota, TX.

2:30 PM 388 

**Dry matter intake, production, body condition score, body weight, and frame size of ProCROSS crossbred versus Holstein cows.**

B. N. Shonka-Martin1, B. J. Heins2, and L. B. Hansen1, 1University of Minnesota, St. Paul, MN, 2West Central Research and Outreach Center, Morris, MN.

2:45 PM 389 

**Feed efficiency and residual feed intake of ProCROSS crossbred versus Holstein cows.**

B. N. Shonka-Martin1, B. J. Heins2, and L. B. Hansen1, 1University of Minnesota, St. Paul, MN, 2West Central Research and Outreach Center, Morris, MN.

3:00 PM 390 

**Activity and rumination of Holstein versus crossbred cows in an organic grazing and low-input conventional herd.**

Glenda M. Pereira1 and Bradley J. Heins, University of Minnesota West Central Research and Outreach Center, Morris, MN.

3:15 PM 391 

**Incorporation of feed efficiency into a selection index for Holstein cattle.**

Kerry Houllahan1, Filippo Miglior2,3, Morten Kargo3, Zhiquan Wang4, Christian Maltecca3, Birgit Gredler5, Allison Fleming1, and Christine F. Baes1, 1Centre for Genetic Improvement of Livestock, Department of Animal Bioscience, University of Guelph, Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada, 3Center for Quantitative Genetics and Genomics, Department of Molecular Biology and Genetics, Aarhus University, Tjele, Denmark, 4Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 5Department of Animal Science and Genetics, North Carolina State University, Raleigh, NC, 6Qualitas AG, Zug, Switzerland.

3:30 PM

Ice cream break in Exhibit Hall
Methods to compute reliabilities for genomic predictions of feed intake.
Paul M. VanRaden and Jana L. Hutchison*, USDA Animal Genomics and Improvement Lab, Beltsville, MD.

Indicator traits to predict dry matter intake in Holstein cattle.
Shannon C. Beard*, Filippo Miglior1,2, Flavio Schenkel1, Birgit Gredler1, Zhiquan Wang1, Allison Fleming1, and Christine F. Baes1, 1Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada.

Dairy Wellness Traits from genomic testing with a control Holstein cow population compared to contemporary Holstein cows in a pasture production system.
Bradley J. Heins*, Glenda M. Pereira*, Lydia C. Hardie2, and Chad D. Dechow2, 1University of Minnesota, Morris, MN, 2Penn State University, State College, PA.

Heritability and genetic correlations of shape and size of lactation curves in Israeli Holsteins using geometric morphometrics.
Angel A. Duron-Benitez1, Joel I. Weller*, and Ephraim Ezra1, 1ARO, The Volcani Center, Rishon LeZion, Israel, 2Israel Cattle Breeders Association, Caesaria Industrial Park, Israel.

Montebeliarde- and Viking Red-sired crossbred cows compared with Holstein cows for health treatment cost in high-performance dairies in Minnesota.
A. R. Hazel*, B. J. Heins1, and L. B. Hansen1, 1University of Minnesota, St. Paul, MN, 2West Central Research and Outreach Center, Morris, MN.

Dairy Foods III: Microbiology and Health
Chair: Olivia McAuliffe, Teagasc Food Research Centre
Room 301 B

Elucidating the contribution of Listeria monocytogenes plasmids to survival in dairy foods and production facilities.
Anna L. Naditz*, Debarpan Dhar, and Stephan Schmitz-Esser, Iowa State University, Ames, IA.

Transcriptomic analysis of high exopolysaccharide-producing dairy starter bacterium Streptococcus thermophilus ASCC 1275 in milk.
Qinglong Wu and Nagendra P. Shah*, The University of Hong Kong, Pokfula Road, Hong Kong.

Impact of farm management on microflora of raw bovine milk: A Swedish farm-based study.
Li Sun*, Gun Bernes2, Johan Dicksved2, Annika Höjer1, Karin Hallin Saedén2, Monika Johansson1, Mårten Hetta4, and Åse Lundn1, 1Department of Molecular Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden, 2Department of Animal Nutrition and Management, Swedish University of Agricultural Sciences, Uppsala, Sweden, 3Norrmejerier Ek. Förening, Mejerivägen, Umeå, Sweden, 4Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden.

Time for change—Indicators of public health concern for raw milk and processed dairy products.
Steven Murphy*, EAS Consulting Group LLC, Alexandria, VA.

Physical removal of bacteria from raw milk by centrifugation: effect of force and temperature.
Emily R. Griep* and Carmen I. Moraru, Cornell University, Ithaca, NY.

Interaction of lactic acid bacteria with MFGM phospholipids – Surface adherence.
Joana Ortega-Anaya*, Israel Garcia-Cano, Diana Rocha-Mendoza, and Rafael Jiménez-Flores, The Ohio State University, Columbus, OH.

Ice cream break in Exhibit Hall

The effect of bovine milk consumption on in vivo porcine adipose stem cells.
Katherine Swanson*, David Hendrix, Duo Jiang, and Massimo Bionaz, Oregon State University, Corvallis, OR.
Effect of milk supplementation on bone growth in pre-pubertal pigs.
Brandon Batty*, Michelle Kutzler1, Scott Campbell1, Angel Torres1, Nina Enos1, Katherine Swanson1, Sebastiano Busato1, Nicolas Aguilera1,2, Efren Plancarte1, and Massimo Bionaz1, 1Oregon State University, Corvallis, OR, 2Universidad Zamorano, Francisco Morazan, Honduras.

Milk consumption and childhood obesity: Does milk really deserve the bad rap?
Katherine Swanson*, Sarah Akers1, Cassie Penix1, Nicolas Aguilera1, Sebastiano Busato1, Brandon Batty2, Michelle Kutzler1, and Massimo Bionaz1, 1Oregon State University, Corvallis, OR, 2Universidad Zamorano, Tegucigalpa, Honduras.

Dairy Foods Processing Symposium:
Emerging Processing Technologies to Improve Quality and Functionality of Dairy Ingredients
Chair: Rohit Kapoor, National Dairy Council
Sponsor: National Dairy Council
Room 200 DE

2:00 PM Opening remarks.
Rohit Kapoor, National Dairy Council, Rosemont, IL.

2:00 PM Use of dairy ingredients.
Rohit Kapoor*, National Dairy Council, Rosemont, IL.

2:30 PM High-pressure-jet spray-drying to create novel dairy products.
Federico Harte*, Department of Food Science, Pennsylvania State University, University College, PA.

3:00 PM Use of forward osmosis as a non-thermal method of concentration for the manufacture of high quality milk concentrates and powders.
Carmen I. Moraru*, Cornell University, Ithaca, NY.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM Innovations in micro- and nano-bubble technology to improve dairy powder functionality.
Jayendra Amamcharla*, Food Science Institute/Animal Sciences and Industry, Kansas State University, Manhattan, KS.

4:30 PM Single droplet drying—A new technology for optimization of drying conditions for dairy ingredients.
Lloyd E. Metzger* and Hiral N. Vora, South Dakota State University, Brookings, SD.

5:00 PM Closing remarks.
Rohit Kapoor, National Dairy Council, Rosemont, IL.

Growth and Development Symposium (joint with Ruminant Nutrition):
Post-Weaning and Beyond
Chair:
Sponsor: Pancosma
Ballroom A

2:00 PM Integration of post-weaning nutrient requirements and supply with growth and mammary development in modern dairy heifers.
Michael E. Van Amburgh*, Cornell University, Ithaca, NY.

2:45 PM Macronutrient metabolism in the growing calf.
W. J. J. Gerrits*, Animal Nutrition Group, Wageningen University & Research, Wageningen, the Netherlands.
Ice cream break in Exhibit Hall

Re-evaluation of NRC energy estimates in calf feeds.
James D. Quigley*, T. Mark Hill, Joanne R. Knapp, Xavier Suarez-Mena, Tana S. Dennis, and Wenping Hu, Provi

Growing and developing dairy heifers from birth to weaning.
Arlyn J. Heinrichs*, The Pennsylvania State University, University Park, PA.

Lactation Biology I
Chair: Jimena Laporta, University of Florida
Ballroom B

Period2 gene silencing impacts on the proliferation, apoptosis and cell cycle progression of bovine mammary epithelial cells.
Liangyu Hu*, Mengzhi Wang1, Liangpeng Wei1, Yujia Jing1, Qiaoyun Xu1, and Juan J. Loor2, 4College of Animal Science and Technology, Yangzhou University, Yangzhou, China, 3Mammalian NutriPhysioGenomics, Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.

Temporal effect of dry period heat stress on mammary gland gene expression and structure.

The impact of pre-weaning plane of nutrition on the myoepithelial cell population within the immature bovine mammary parenchyma.
Adam J. Geiger*1, Catherine L. M. Parsons2, and Mike R. Akers2, 1Zinpro Corp., Eden Prairie, MN, 2Virginia Tech, Blacksburg, VA.

Heat stress negatively affects the transcriptome related to overall metabolism and milk synthesis in mammary tissue of mid-lactating dairy cows.
Dengpan Bu*1,3, Lu Ma1, Shengtao Gao1, Zhengkui Zhou1, Lance H. Baumgard4, Jiang Duo5, and Massimo Bionaz6, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 3Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China, 4Department of Animal Science, Iowa State University, Ames, IA, 5Animal and Rangeland Sciences, Oregon State University, Corvallis, OR.

Comprehensive analysis of fatty acid biohydrogenation intermediates involved in milk fat depression over time in dairy cows.
Heidi M. Leskinen*, Laura Ventto, Piaa Kaireniius, Tomasz Stefanski, Kevin Shingfield, and Johanna Vilki, Natural Resources Institute Finland (Luke), Jokioinen, Finland.

Photoperiod affects mammary clock gene expression during late pregnancy and lactation in dairy goats.
Sameer J. Mabjeesh*, Muggaga Kayesubula1, Chris Sabastian1, Naama Reicher1, Avi Shamay1, Yosi Wein1, Enav Bar-Shira1, Karen Piant1, and Theresa M. Casey1, 1The Hebrew University of Jerusalem, Rehovot, Israel, 2The Volcani Center, Rehovot, Israel, 3Purdue University, West Lafayette, IN.
Physiology and Endocrinology III
Chair: Zheng Zhou, Clemson University
Lecture Hall

2:00 PM 420 Effects of dietary zinc source on inflammatory biomarkers and PMN function following lipopolysaccharide challenge in lactating cows.

2:15 PM 421 Effects of maintaining eucalcemia following immunoactivation in lactating cows.

2:30 PM 422 Nutrient-sensing kinase signaling and energy storage in bovine immune cells during the transition period.
Sabine Mann*, Anja Sipka, Francisco Leal-Yepes, Daryl Nydam, Thomas Overton, and Joseph Wakshlag, Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY; 1Department of Animal Science, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY; 2Department of Clinical Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY.

2:45 PM 423 Hormone-sensitive lipase activity modulates the biosynthesis of oxidized linoleic acid metabolites in adipose tissue of periparturient dairy cows.
G. Andres Contreras*, Clarissa Strieder Barboza, Jonas De Souza, Jeff Gandy, Rahul Nelli, Jenne De Koster, Adam L. Lock, and Lorraine M. Sordillo, Michigan State University, East Lansing, MI.

3:00 PM 424 Short-chain fatty acids regulate the inflammatory response and peripheral blood mononuclear cells recruitment via G protein-coupled receptor 41 in bovine rumen epithelial cells.
Maoceng Jiang*, Kang Zhan, Xiaoxiao Gong, Guoqi Zhao, and Miao Lin, Institute of Animal Culture Collection and Application, College of Animal Science and Technology, Yangzhou University, Yangzhou, JiangSu, China.

3:15 PM 425 Beta-hydroxybutyrate enhances kisspeptin-stimulated expression of gonadotropin releasing hormone in GT1-7 cells.
L. L. Amelse*, J. T. Mulliniks, J. A. Daniel, and B. K. Whitlock, College of Veterinary Medicine, University of Tennessee, Knoxville, TN; 1West Central Research and Extension Center, University of Nebraska, North Platte, NE; 2Department of Animal Science, Berry College, Mount Berry, GA.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 426 Assessing tissue-specific metabolic rate to predict production.
Yao Xiao* and Benjamin J. Renquist, University of Arizona, School of Animal and Comparative Biomedical Sciences, Tucson, AZ.

4:15 PM 427 Identification of immune cells migrated into the jejunum of heat-stressed dairy cows using RNAseq.
Franziska Koch*, Ulrike Thom, Elke Albrecht, Rosemarie Weikard, Björn Kuhl, and Christa Kühl, Institute of Nutritional Physiology “Oskar Kellner,” Leibniz Institute for Farm Animal Biology, Dummerstorf, MV, Germany; 1Institute of Muscle Biology and Growth, Leibniz Institute for Farm Animal Biology, Dummerstorf, MV, Germany; 2Institute for Genome Biology, Genome Physiology Unit, Leibniz Institute for Farm Animal Biology, Dummerstorf, MV, Germany.

4:30 PM 428 “Feeding” the transcriptome: Nutrigenomic effect of NEFA on peroxisome proliferator-activated receptor activity.
Sebastiano Busato* and Massimo Bionaz, Oregon State University, Corvallis, OR.

4:45 PM 429 What’s the norm in normalization? A note on the use of RTqPCR in livestock-related studies.
Sebastiano Busato*, Nicolas Aguilera, Matteo Mezzetti, and Massimo Bionaz, Oregon State University, Corvallis, OR; 1Universidad Zamorano, Tegucigalpa, Honduras; 2Università Cattolica del Sacro Cuore, Piacenza, Italy.
Reproduction Symposium: Recent Innovations in Reproductive Management
Chair: Stephen Butler, Teagasc, Moorepark, Ireland
Ballroom G

2:00 PM 430 Focusing on bull management and puberty attainment in the genomic era.
Bo Harstine*, Select Sires Inc., Plain City, OH.

2:30 PM 431 Impact of early life nutrition on the molecular and physiological regulation of puberty onset in the bull.

3:00 PM 432 Effects of the adoption of automated monitoring systems for monitoring transition cows and reproduction on performance.
Ricardo Chebel*1,2, 1Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL, 2Department of Animal Sciences, University of Florida, Gainesville, FL.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 433 Detection and management of pregnancy loss in a cow herd.
Ky G. Pohler*1, Michael F. Smith2, Jon A. Green2, and Jose L. M. Vasconcelos3, 1Department of Animal Science, University of Tennessee, Knoxville, TN, 2Division of Animal Sciences, University of Missouri, Columbia, MO, 3Departamento de Produção Animal, Faculdade de Medicina Veterinária e Zootecnia, UNESP, Botucatu, São Paulo, Brazil.

Ruminant Nutrition V: Calves and Heifers
Chair: Ballroom C

2:00 PM 435 Relationships between birth season and protein and energy consumed from milk replacer and starter on calf growth and first lactation production performance of Holstein dairy cows.
Jessica J. Rauba*1, Bradley J. Heins2, Hugh Chester-Jones3, Hector L. Diaz1, David Ziegler3, James Linn1, and Neil Broadwater4, 1Milk Specialties Global, Eden Prairie, MN, 2University of Minnesota West Central Research and Outreach Center, Morris, MN, 3University of Minnesota Southern Research and Outreach Center, Waseca, MN, 4University of Minnesota Extension, Rochester, MN.

2:15 PM 436 Growth performance of dairy heifers fed carinata meal compared with canola meal and a control diet.
Karla Rodriguez-Hernandez*1,2 and Jill L. Anderson1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Matamoros, Coahuila, México.

2:30 PM 437 Evaluation of carinata meal included in a total mixed ration fed ad libitum to dairy heifers.
R. D. Lawrence* and J. L. Anderson, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

2:45 PM 438 Comparative analysis of host tissue transcriptomics and rumen wall microbial metatranscriptomics in neonatal calves treated with artificial dosing of rumen content from adult donor cow.
Wenli Li*1, Andrea Edwards1, Madison Cox2, Sarah Raabiss1, Joseph Skarupka2, Andrew Steinberger2, and Garret Suen2, 1US Dairy Forage Research Center, Madison, WI, 2Department of Microbiology, University of Wisconsin, Madison, WI, 3School of Veterinary Medicine, University of Wisconsin, Madison, WI.

3:00 PM 439 Growth performance, nutrient utilization, and health of calves supplemented with condensed whey solubles.
N. D. Seneviratne*1, J. L. Anderson1, J. S. Osorio1, L. Metzger1, and B. St Pierre1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Department of Animal Science, South Dakota State University, Brookings, SD.
3:15 PM  440  Dietary transition from hay to silage-based TMR in weaned dairy calves: Effect on sorting behavior, intake, growth performance, and blood metabolites.
Muhammad Afzal Rashid*, Zaib Ali Qamar1, Habib Ur Rehman1, Muhammad Shahbaz Yousa2, and Mohsin Raza2,
1Department of Animal Nutrition, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan, 2Department of Physiology, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan.

3:30 PM

Ice cream break in Exhibit Hall

4:00 PM  442  Growth performance and health of dairy calves supplemented with flax and soy oil.
C. R. Schossow*, J. L. Anderson, and J. S. Osorio, Dairy and Food Science Dept., South Dakota State University, Brookings, SD.

4:15 PM  443  Amino acid supplementation in calf milk replacer.
Marta Terré*, Maria Font-i-Furnols2, Anna Bassols1, Maria Vidal1, Albert Brun2, and Alex Bach1, 1Institut de Recerca i Tecnologia Agroalimentàries, Caldes de Montbui, Spain, 2Institut de Recerca i Tecnologia Agroalimentàries, Monells, Spain, 3Universitat Autònoma de Barcelona, Bellaterra, Spain, 4Institución Catalana de Recerca i Estudis Avançats, Barcelona, Spain.

4:30 PM  444  Offering drinking water at birth could improve growth performance and fiber digestibility in Holstein heifer calves.
Animal Health Symposium:
Bovine Tuberculosis—An Ongoing Animal Health Challenge
Chair: Ken Olson, KEO Consulting
Room 300 AB

9:30 AM Opening remarks. Ken Olson.

9:45 AM 445 Ferret transmission model for tuberculosis.
Tuhina Gupta, Shelly Helms, Kaori Sakamoto, Steve Harvey, Ted Ross, Christopher Whalen, Russell Karls, and Frederick Quinn*, University of Georgia, Athens, GA.

10:15 AM 446 The current status of bovine tuberculosis in the world.
A. Perera*, USDA APHIS VS/IS Mexico, Mexico City, Mexico.

10:45 AM Break

11:00 AM 447 Development of a subunit vaccine for bovine tuberculosis.
N. Guy1, N. Rawlyk1, M. Bains2, O. Ihedioha1, Z. Lim1, K. Bock1, S. Walker1, C. Wheler1, V. Gerdt1, J. Chen2, R. E. Hancock2, and A. A. Potter1, 1Vaccine and Infectious Disease Organization-InterVac, Saskatoon, SK, Canada, 2Centre for Microbial Disease and Immunity Research, Vancouver, BC, Canada.

11:30 AM 448 Bovine tuberculosis—An ongoing animal health challenge.
V. Kapur*, Pennsylvania State University, University Park, PA.

12:00 PM Closing remarks. Ken Olson.

Breeding and Genetics: Joint ADSA and Interbull Session:
Phenotyping and Genetics in the New Era of Sensor Data from Automation
Chair: Marj Faust, Data Driven Genetics
Sponsor: GrowSafe
Ballroom E

9:30 AM Introductory comments. Marj Faust.

9:30 AM 449 The value of precision technologies in the genetic evaluation of dairy cows.
M. van der Voort*1, C. Kamphuis2, and H. Hogewe1n1, 1Wageningen University, Business Economics Group, Wageningen, the Netherlands, 2Wageningen Livestock & Research, Animal Breeding and Genetics Centre, Wageningen, the Netherlands.

10:00 AM 450 Early prediction of lactational milk, fat and protein yields using daily milk data.
O. Nir (Markusfeld), G. Katz*, and L. Reuveni, Afimilk, Kibbutz Afikim, Israel.

10:30 AM 451 Comparison of milk composition and somatic cell count estimates from automatic milking systems sensors and milk recording laboratory analyses.
L. Fadul-Pacheco1,2, R. Lacroix1, M. Séguin1, M. Grisé1, E. Vasseur1, and D. Lefebvre*, 1Valacta, Ste-Anne-de-Bellevue, QC, Canada, 2McGill University, Ste-Anne-de-Bellevue, QC, Canada.
10:45 AM  Break

11:00 AM  452  Challenges and opportunities for evaluating and using the genetic potential of dairy cattle in the new era of sensor data from automation.
N. Gengler*, ULiege-GxABT, Gembloux, Belgium.

11:30 AM  453  High-throughput computing in support of dairy science.
M. Livny*, University of Wisconsin, Madison, WI.

12:00 PM  454  Image-based phenotyping: Examples from plant breeding.
N. Miller*, University of Wisconsin, Madison, WI.

CSAS Symposium: Genomic Alterations and Implications on Health: Gut and Beyond
Chair: Michael Steele, University of Alberta
Ballroom A

9:30 AM  455  Application of omics to understand host-microbial interactions in dairy cows.
Nilusha Malmuthuge1 and Le Luo Guan**1, 1Vaccine and Infectious Disease Organization, University of Saskatchewan, Saskatoon, SK, Canada, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

10:00 AM  456  Genetics of gut health robustness in dairy cows.
Jan C. Plaizier*1, Ehsan Khafipour1, Greg B. Penner1, and Michael A. Steele3, 1University of Manitoba, Winnipeg, MB, Canada, 2Department of Agriculture, Food and Nutritional Science, University of Saskatchewan, Saskatoon SK, Canada, 3University of Alberta, Edmonton, AB, Canada.

10:30 AM  457  Characterization of the bovine milk protein profile using proteomic techniques.
Sabrina L. Greenwood*, The University of Vermont, Burlington, VT.

11:00 AM  458  Using high-throughput molecular biology techniques to study early conceptus development in dairy cows.
Eduardo S. Ribeiro*1, José E. P. Santos2, Francisco Peñagaricano2, Elvis Ticiani1, Murilo R. Carvalho1, and José F. W. Sprício1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Animal Sciences, University of Florida, Gainesville, FL.

11:30 AM  459  Metabolomics in dairy research: characterization of metabotype in healthy and disease states.
John Doelman**1, Leonel N. Leal1, Michael A. Steele1, and Javier Martin-Tereso1, 1Trouw Nutrition B.V, Amersfoort, the Netherlands, 2University of Alberta, Edmonton, AB, Canada.

12:00 PM  460  The genomic architecture of inbreeding: How homozygosity affects health and performance in dairy cattle.
Christine F. Baes**1, Filippo Miglior*1,2, Bayode Makanjuola1, Calista Vogelzang1, Flavio Schenkel1, Jeremy T. Howard3, Christian Maltecca4, and Gabriele Marras1, 1Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada, 3Department of Animal Science, University of Nebraska, Lincoln, NE, 4Department of Animal Science, North Carolina State University, Raleigh, NC.

Dairy Foods IV: Chemistry
Chair: Tonya Schoenfuss, University of Minnesota
Room 301 B

9:30 AM  461  Survey of relationship between bulk tank milk fat and true protein and de novo fatty acid content in Holstein dairy herds in the United States.
David M. Barbano**1, Melissa E. Carabeau1, Heather M. Dann2, and Rick J. Grant3, 1Cornell University, Ithaca, NY, 2W. H. Miner Agricultural Research Institute, Chazy, NY, 3Poulin Grain Inc., Newport, VT.
Simultaneous analysis of of three adulterants in raw milk using Fourier-transform infrared spectroscopy. Daniela C. S. Z. Ribeiro1, Wanessa L. F. Tavares1, Juliana S. Lima2, Mônica O. Leite3, Mônica M. O. P. Cerqueira1, Leticia F. Ferreira4, João P. A. Haddad3, Júlia P. M. Heringer2, and Georges M. Fonseca*2,3, 1Veterinary School, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil, 2FAPEMIG, Belo Horizonte, MG, Brazil.

Mid-infrared prediction of protein fractions in milk-based beverages and microfiltration retentates of skim milk. Larissa Di Marzo* and David M. Barbano, Cornell University, Ithaca, NY.

Measurement of anhydrous lactose content of milk: within and between laboratory method performance. Matilde Portnoy* and David M. Barbano, Cornell University, Ithaca, NY.

The relationship between seasonal variation in bulk tank milk fat and true protein and milk fatty acid composition for Holstein herds. David M. Barbano*2, Caterina Melilli2, Melissa E. Carabeau3, Heather M. Dann2, and Rick J. Grant2, 1Cornell University, Ithaca, NY, 2W. H. Miner Agricultural Research Institute, Chazy, NY, 3Poulin Grain Inc., Newport, VT.

Vibrations during yogurt fermentation—Impact on particle formation and further texture defects. Adrian Orlando Körzendörfer*1, Philipp Temme2, Eberhard Schlücker2, Jörg Hinrichs1, and Stefan Nöbel1, 1Institute of Food Science and Biotechnology, University of Hohenheim, Stuttgart, BW, Germany, 2Department of Chemical and Biological Engineering, Friedrich-Alexander University Erlangen-Nürnberg, Erlangen, Germany.

Development of a continuous cavitation-assisted thermal treatment for skim milk concentrate: Process characterization and microbial efficiency. JaeYoung Sim*, Sergio I. Martinez-Monteagudo, and Sanjeev Anand, Dairy and Food Science, South Dakota State University, Brookings, SD.

Controlling milk oxidation during high intensity retail LED light storage requires light-blocking and oxygen-barrier packaging properties. Aili Wang*1, Catherine H. Dadmun2, Rachel M. Hand3, and Susan E. Duncan1, 1Virginia Polytechnic Institute and State University, Blacksburg, VA, 2College of Charleston, Charleston, NC, 3Michigan State University, East Lansing, MI.

Reconstitution of MFGM phospholipids in liposomes—Physical and chemical characterization. Joana Ortega-Anaya*, Israel García-Cano, Diana Rocha-Mendoza, and Rafael Jiménez-Flores, The Ohio State University, Columbus, OH.

Opening remarks. Carmen Moraru, Cornell University, Ithaca, NY.

Use of acid whey protein as an ingredient in nonfat set-style yogurt. Bryan Wherry*, David Barbano2, and MaryAnne Drake1, 1North Carolina State University, Raleigh, NC, 2Cornell University, Ithaca, NY.

Calcium precipitation as a pretreatment for improving the membrane filtration behavior of acid whey from Greek-style yogurt. Ana G. Ortiz Quezada*, Alejandra Castilla Asaf, Carmen I. Moraru, and Gavin L. Sacks, Cornell University, Ithaca, NY.

Suitability of biomass produced by anaerobic digestion of manure and whey as a renewable peat moss substitute and economic assessment. Donald J. McMahon*, Dillon Fallon1, DeeVon Bailey2, Nabil Yousef3, and Conly Hansen2, 1Western Dairy Center, Utah State University, Logan, UT, 2Nutrition, Dietetics and Food Sciences Department, Utah State University, Logan, UT, 3Applied Economics Department, Utah State University, Logan, UT.
10:45 AM  473  Whey tonics: One-step fermentation of acid whey to acetic acid.
Marie R. Lawton* and Samuel D. Alcaine, Department of Food Science, Cornell University, Ithaca, NY.

11:00 AM  474  Carotenoids from dairy waste: evaluation of astaxanthin produced by Haematococcus pluvialis fed de-proteinized whey permeate.
Madeline A. Brandt*, Catrin E. Tyl, Joshua G. Stepanek, Matthew L. Julius, and Tonya C. Schoenfuss, University of Minnesota, St. Paul, MN, St. Cloud State University, St. Cloud, MN.

11:15 AM  475  The fermentation and distillation of sweet and acid whey and comparison of volatile compounds present in each distillate using headspace solid-phase microextraction (HS-SPME)-GC/MS.
Derrick Risner, Elizabeth Tomasino, Danton Batty, Paul Hughes*, and Lisbeth Meunier-Goddik, Oregon State University, Corvallis, OR.

11:30 AM  Closing remarks.
Carmen Moraru, Cornell University, Ithaca, NY.

Lactation Biology II
Chair: Theresa Casey, Purdue University
Room 301 D

9:30 AM  476  Fetal exposure to thermal stress has long-term effects on mammary morphology and function in dairy cattle.
Amy L. Skibiel*, Bethany Dado-Senn, Thiago F. Fabris, Debora R. Silva, Geoffrey E. Dahl, and Jimena Laporta, University of Florida, Gainesville, FL.

9:45 AM  477  In vitro histone manipulation of bovine mammary epithelial cells through methionine supplementation.
Fernanda Rosa* and Johan S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

10:00 AM  478  mTORC1 regulates de novo lipid synthesis in bovine mammary epithelial cells.
Marc-Antoine Guesthier*, Jianhui Huang, and Sergio A. Burgos, Department of Animal Science, McGill University, Sainte-Anne-de-Bellevue, Québec, Canada.

10:15 AM  Break

10:30 AM  479  Citrate and choline in milk are biomarkers of mammary inflammation in heat stressed and LPS challenged dairy goats.
Alexandra Contreras-Jodar*, Samantha Love, Nabil Mehaba, Gerardo Caja, and Ahmed A. K. Salama, Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, South Dakota State University, Brookings, SD.

10:45 AM  480  The effect of night restricted feeding on the molecular circadian clock of the mammary gland.
Isaac J. Saffer* and Kevin J. Harvatine, The Pennsylvania State University, University Park, PA.

11:00 AM  481  Evaluation of increasing serotonin concentrations and effect on calcium metabolism in mid- to late-lactation dairy cows.
Meghan K. Connelly*, Sam R. Weaver, Hannah Fricke, Jordan Kuehn, Marisa Klister, and Laura L. Hernandez, University of Wisconsin-Madison, Madison, WI.

11:15 AM  482  Dry period heat stress impacts mammary protein metabolism in the subsequent lactation.
Bethany Dado-Senn*, Amy L. Skibiel, Emma Meyer, Sebastian I. Arriola Apelo, and Jimena Laporta, Department of Animal Sciences, University of Florida, Gainesville, FL, Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.
<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>9:30 AM</td>
<td><strong>Effects of infused leucine and isoleucine or methionine, lysine, and histidine on cow performance.</strong>&lt;br&gt;Peter S. Yoder*1,2, Xinbei Huang¹, and Mark D. Hanigan¹, Virginia Tech, Blacksburg, VA, Perdue AgriBusiness, Salisbury, MD.</td>
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<tr>
<td>9:45 AM</td>
<td><strong>Effects of varying extracellular amino acid concentration on amino acid transport in mammary epithelial cells.</strong>&lt;br&gt;Peter S. Yoder*¹, Juan J. Castro¹, Tatiana Ruiz-Cortes³, and Mark D. Hanigan¹, Virginia Tech, Blacksburg, VA, Perdue AgriBusiness, Salisbury, MD, Dairy Visions LLC, Chandler, AZ, Universidad de Antioquia, Medellin, Antioquia, Colombia.</td>
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<td>10:00 AM</td>
<td><strong>Lactational performance of dairy cows in response to supplementing N-acetyl-L-methionine as a source of rumen-protected methionine.</strong>&lt;br&gt;F. X. Amaro*¹, K. G. Arriola¹, Y. Jiang¹, D. Kim¹, A. P. Cervantes¹, V. P. Silva¹, M. C. N. Agarussi¹, J. T. Silva¹, A. T. Adesogan¹, L. F. Ferraretto¹, C. R. Staples¹, J.-S. Eun¹, J. S. Park¹, J. O. Moon¹, D. Vyas¹, Department of Animal Sciences, University of Florida, Gainesville, FL, Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT, Biotechnology Research Institute, CJ CheilJedang, Suwon, South Korea.</td>
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<td>10:15 AM</td>
<td><strong>Dietary supplementation with a rumen-protected l-arginine product enhances milk production by dairy cows.</strong>&lt;br&gt;Ashley B. Keith, Michael C. Satterfield, Fuller W. Bazer, and Guoyao Wu*, Texas A&amp;M University, College Station, TX.</td>
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<td>10:30 AM</td>
<td><strong>Efficiency of utilization of amino acid increased with energy supply at low and high metabolizable protein supply in dairy cows.</strong>&lt;br&gt;Cléo Omphalius*¹, Hélène Lapierre¹, Lahlou Bahloul², and Sophie Lemosquet¹, PEGASE, INRA, Agrocampus-Ouest, Rennes, France, Adisseo France S.A.S, Antony, France, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.</td>
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<td>10:45 AM</td>
<td><strong>Leucine and lysine alter inflammatory response of immune cells from growing cattle.</strong>&lt;br&gt;Miriam Garcia*, Kimberly A. Pearl, Evan C. Tligemeyer, and Barry J. Bradford, Kansas State University, Manhattan, KS.</td>
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<td>11:00 AM</td>
<td><strong>Alterations in amino acid transporters and the mTOR pathway in adipose tissue of Holstein cows during the periparturient period in response to methionine supply.</strong>&lt;br&gt;Y. Liang*¹, F. Batistel¹, C. Parys², and J. Loor¹, Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, Evonik Nutrition &amp; Care GmbH, HanauWolfang, Germany.</td>
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<td>11:15 AM</td>
<td><strong>Methionine supply during the periparturient period alters glutathione metabolism in adipose tissue of Holstein cows.</strong>&lt;br&gt;Y. Liang*¹, F. Batistel¹, C. Parys², and J. Loor¹, Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, Evonik Nutrition &amp; Care GmbH, HanauWolfang, Germany.</td>
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<td>11:30 AM</td>
<td><strong>Predictions of rumen outflow of amino acids in dairy cattle.</strong>&lt;br&gt;A.J. Myers*, H. Lapierre¹, R.R. White¹, H. Tran¹, P. J. Kononoff³, R. Martineau², W. P. Weiss*, and M. D. Hanigan¹, Virginia Tech, Blacksburg, VA, Agricultural and Agri-Food Canada, Sherbrooke, QC, Canada, Department of Dairy Science, University of Nebraska, Lincoln, NE, Department of Animal Sciences, The Ohio State University, Columbus, OH.</td>
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<td>11:45 AM</td>
<td><strong>Predicting milk protein production from amino acid supply.</strong>&lt;br&gt;Mark D. Hanigan*, Helene Lapierre², Roger Martineau², and Adelyn M. Myers¹, Virginia Tech, Blacksburg, VA, Agricultural and Agri-Food Canada, Lennoxville, QB, Canada.</td>
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<td>12:00 PM</td>
<td><strong>A new model to predict microbial protein synthesis in the rumen.</strong>&lt;br&gt;Luis E. Moraes*, Robin R. White¹, and Jeffrey L. Firkins¹, The Ohio State University, Columbus, OH, Virginia Tech, Blacksburg, VA.</td>
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<td>12:15 PM</td>
<td><strong>Diets to maximize milk protein secretion: Is the single limiting amino acid model the whole story?</strong>&lt;br&gt;Louis E. Armentano*, University of Wisconsin, Madison, WI.</td>
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Ruminant Nutrition VI: Early Lactation and Inflammation

Chair: Kristy Daniels, Virginia Tech

Ballroom B

9:30 AM 495 Impacts of short-term sodium salicylate administration and infrequent milking on early lactation cow energetics and milk yield through mid-lactation. Miriam Garcia*, Caroline Ylioja, Laman K. Mamedova, and Barry J. Bradford, Kansas State University, Manhattan, KS.

9:45 AM 496 Mitochondrial function of cryopreserved liver biopsies during early and late lactation of dairy cows. Mercedes Garcia-Roche*1,2, Alberto Casal1, Mariana Carriquiry2, Celia Quijano3, and Adriana Cassina3, 1Centro de Investigaciones Biomedicas - Departamento de Bioquimica, Facultad de Medicina, Montevideo, Montevideo, Uruguay, 2Departamento de Produccion Animal y Pasturas, Facultad de Agronomia, Montevideo, Montevideo, Uruguay.

10:00 AM 497 Independent effects of metabolizable protein and heat stress affected milk production and plasma free fatty acid and insulin concentrations in dairy cows. Jeffrey D. Kaufman*, Hannah R. Bailey, and Agustín G. Rius, University of Tennessee, Knoxville, TN.

10:15 AM 498 Oxidative stress in periparturient dairy cows and its relationship with negative energy balance markers. Elena Mariani1, Guido Invernizzi*4, Giovanni Savoini4, Antonella Baldi4, and Ioannis Politis4, 1Department of Health, Animal Science and Food Safety, Universita degli Studi di Milano, Milan, Italy, 2Department of Animal Science and Aquaculture, Agricultural University of Athens, Athens, Greece.


11:00 AM 501 Diet starch content and fermentability affect markers of inflammatory response and oxidative stress during early lactation. Rodrigo I. Albornoz*1, Lorraine M. Sordillo1, Barry J. Bradford2, Laman K. Mamedova3, and Michael S. Allen1, 1Michigan State University, East Lansing, MI, 2Kansas State University, Manhattan, KS.

11:15 AM 502 Lactation performance and energetic metabolism of transition cows fed rumen protected glucose. Carrie S. McCarthy*1, Brooke C. Dooley1, Emily H. Branstad1, Anthony J. Kramer1, Erin A. Horst1, Edith J. Mayorga1, Mohammad Al-Qaisi1, Megan A. Abeys1, Gabriela Perez-Hernandez2, Brady M. Goetz1, Alejandro R. Castillo1, Mark R. Knobbe1, Charles A. Macgregor1, Juan P. Russi2, J. A. D. R. N. Appuhamy1, L. H. Baumgard1, and H. A. Ramirez-Ramirez1, Iowa State University, Ames, IA, 2Universidad Autonoma Chapingo, Chapingo, Mexico, 3University of California, Cooperative Extension, Merced, CA, 4Grain States Soya, Inc., West Point, NE, 5Rusitec Argentina, General Villegas, Buenos Aires, Argentina.

11:30 AM 503 Elevated prepartum adiposity predisposes cows to hepatic steatosis with distinct postpartum lipidome remodeling. J. Eduardo Rico*1,2, Amanda N. Davis1,2, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

11:45 AM 504 Time course of changes in lactation performance, blood metabolites, inflammation and milk fatty acids during subacute ruminal acidosis induction and recovery in dairy cows. Eveline Sandri1, Yvon Couture2, Rachel Gervais1, Janie Levesque1, and Daniel Rico*, 1CRSAD, Deschambault, QC, Canada, 2Universite de Montreal, Saint-Hyacinthe, QC, Canada, 3Université Laval, Quebec, QC, Canada.

12:00 PM 505 Injectable trace minerals (selenium, copper, zinc, and manganese) alleviates inflammation and oxidative stress during an aflatoxin challenge in lactating multiparous Holstein cows. Russell T. Pate* and Felipe C. Cardoso, Department of Animal Sciences, University of Illinois, Urbana, IL.

12:15 PM 506 Characterization of hepatic sphingomyelin during the peripartum. Amanda N. Davis*1,2, J. Eduardo Rico1,2, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.
Determination immune-modulating components of *Saccharomyces cerevisiae* with RAW 264.7 murine macrophages. Sarah E. Sivinski*, Rachel A. Rusk, Jodi L. McGill, and Barry J. Bradford, Kansas State University, Manhattan, KS.

Long-term effects of reduced-fat distillers grains with and without monensin on performance of dairy cows. Dennis L. Morris*, Seon H. Kim, Paul J. Kononoff, and Chanhee Lee, Department of Animal Sciences, Ohio Agricultural Research and Development Center; The Ohio State University, Wooster, OH.


Quantifying the effects of amino acid profile, energy supply, and diet nutrient composition on the requirement of metabolizable protein by lactating dairy cows. Luis E. Moraes*, Jeffrey L. Firkins, Helene Lapierre, Ermias Kebreab, and Robin R. White, The Ohio State University, Columbus, OH.

Feeding incremental amounts of rumen-protected histidine to lactating dairy cows. Yu Zang*, Luz H. P. Silva, Mohammad G. Khan, Andre F. Brito, and Makoto Miura, University of New Hampshire, Durham, NH.

Predicting energy-corrected milk and milk true protein yields using NorFor or the Nutritional Dynamics System version of the Cornell Model. Glen A. Broderick*, Maria Åkerlind, Nicolaj I. Nielsen, and Patrik Nordgren, Broderick Nutrition & Research LLC, Madison, WI.

Insulin is required for essential amino acid stimulation of mTORC1 signaling in mammary cells. Virginia L. Pszczolkowski*, Madison M. Kurth, Emma Meyer, and Sebastian I. Arriola Apelo, Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

Assessing bioavailability of amino acids from various feedstuffs in dairy cattle using a stable isotope–based approach. Xinbei Huang*, Kari A. Estes, Peter S. Yoder, and Mark D. Hanigan, Virginia Polytechnic Institute and State University, Blacksburg, VA.
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